EFFECTIVENESS OF REMEDIAL TEACHING AS INTERVENTION PROGRAM AGAINST LOW ACHIEVEMENT IN MATHEMATICS AMONG SECCONDARY SCHOOL STUDENTS IN TANZANIA

By

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CERTIFICATION

I,the undersigned, certify that I have read and hereby recommend acceptance by the University of Dodoma a dissertation entitled*"Effectiveness of Remedial Teaching and Learning as an Intervention program Against Low Achievement in Mathematics among Secondary School Students in Tanzania"*in fulfillmentof requirements forthe degree of Masters of Arts of Education of University of Dodoma

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Dr. Baraka kondo

(Supervisor)

Date ……

DECLARATION

AND

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I**Mwichande Omar Kalyoma**declare that this Dissertation is my own original work, and that has not been presented to any other University for a similar or any other degree award

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DEDICATION

This work is dedicated to the Almighty God the provider of guidance throughout my life. Also to my late beloved daughter Raya M.Kalyoma and my father Omar H.Kalyoma who have also passed to the other side. May Allah (SW) give them peace forever, AMEN

ABSTRACT

This research study examined the effectiveness of remedial teaching as an intervention program against low achievement in mathematics among secondary school students in Tanzania. For this purpose, 91participants were involved in the study. Among them, there were 70 Form Two Mathematics students,7Form Two Mathematics teachers, 7 academic teachers and 7 were head teachers from 7 involved public and private secondary schools in Lindi district. The study used a mixture of both qualitative and quantitative approaches and was conducted through descriptive survey design. The collected data were analyzed at two levels namely thematically and comparison of mean differences. The results revealed that remedial teaching as an intervention program against low achievers in Mathematics was effective among secondary school low achievers. However there were higher effectiveness in private schools as compared to the public ones ($p<0.05$).The study further revealed, numerous challenges hindering effectiveness of the program such as poor teaching environment, inadequateresource materials for teaching, large class sizes and teachers overload, inadequate funding for planned activities, poor participation of the key stakeholders, ineffective teaching methods and limited professional skills, as well as low motivation among teachers. The study also provided recommendations pertinent to policy, practices as well as further research

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LIST OF ABBREVIATIONS

BEST	Basic Education Statistics in Tanzania
CEO	Chief Educational Officer
CSEE	Certificate of Secondary School Examinations
EFL	English as Foreign Language
GPA	Grade Point Average
IDEA	Individual Disability Education Act
KCSE	Kenya Certificate of Secondary Education
MOEVT	Ministry of Education and Vocational Training
MOEZ	Ministry Of Education of Zimbabwe
NCLB	No Child Left Behind
NGO	Non- Governmental Organization
PARI	Partenariat pour l'Amélioration des Rendements Internes à l'Ecole Elémentaire
PMORALG	Prime Minister's Office Regional Administration and LocalGovernment
PSLE	Primary School Leaving Examination
SD	Standard Deviation
SMRS	Systematic Method for Reading Success
SPSS	Statistical Package for Social Science
URT	United Republic of Tanzania
USA	United States of America

CHAPTER ONE

BACKGROUND OF THE STUDY

1.0 Introduction

This chapter introduces the problem under investigation; namely "Effectiveness of Remedial of Teaching and Learning as an Intervention program against Low-Achievement in Mathematics among Secondary School Students in Tanzania".Further, the chapter presents the background to the problem, statement of the problem, objectives of the study and research questions. Finally the chapter has significance of the study, operational definitions of the key terms as well as limitation and delimitations of the current study.

1.1 Background to the study

Over recent decades there had been a massive effort by developing countries to put their children in school. Globally, there were 531 million secondary students in 2009, compared to 196 million in 1970. In sub-Saharan Africa (Provost, 2011) enrolment in .secondary education grew nine times from 4.3 million in 1970 to 39 million in 2009. Nigeria accounted for the largest absolute increase, with the number of secondary school students jumping from just 400,000 in 1970 to over 6 million in 2007. Meanwhile, in Tanzania (PMORALG, 2014) form one students' enrolment increased between years 2004 and 2013 from 147490 to 514592 students respectively.

Prioritizing education in such a way had several rationales. For a case in point, investments in education were believed to yield returns in poverty reduction, improved health outcomes, and economic growth (Hannum&Buchmann, 2004; Herz&Sperling, 2003; UNESCO, 2007). In addition, increased access to education

led to increased political participation and more equitable sharing of economic and political power (Birdsall, 1999). A study conducted in the United States, found out that the increase in schooling of Workers between 1929 to 1982, increased the one fourth of per capita income (Becker, 1994)

However, one of the concerns related to this impressive growth was that a large number of students accepted into schools might not be fully prepared. They did not have adequate academic skills in crucial areas such as mathematics, reading and writing. In an attempt to address this problem, schools had set up remedial teaching programs (Petro, 2015). These courses aimed to help to bridge identified gaps between students' knowledge and the requirements for their academic set standards

In the state of Georgia in USA students who failed to meet the required objectives on standardized tests were part of the struggling student population that might be labeled as being at risk. In accordance with No Child Left Behind (NCLB) strategies and Individual Disability Education Act (IDEA), schools were required to provide interventions for these struggling students to assist them in obtaining equivalent achievement with their peers. In addition, research was demonstrating that certain interventions might make it possible to meet the requirements of NCLB and IDE, especially in the area of mathematics (Malmgreen, Mclaughlin, &Nolet, 2005).

Furthermore in Srilanka, a research which was conducted on achievement of essential learning competencies by children who were in similar grades and undergoing a similar teaching process differed. Some were lower in achievements compare to others due to various reasons. If these students were not provided with proper support to overcome the challenge, they would be gradually dropped out from the school before completing the compulsory education in the formal education

system. According to Selvarajan, at el (2012) remedial teaching was one of the acceptable solutions for low achieving students.

Like in other countries, remedial programs had been considered as one among strategies for improving low achieving learners in Africa. According to Ndebele (2014) in the Zimbabwean education system, primary school pupils were tested at the beginning of grade four to determine their English proficiency. Based on the test results, those who fallen below a certain predetermined score were placed on a generic remedial program offered by a specially designated teacher. Furthermore, (Kanamugire&Rutakamize, 2008) said that in Rwanda remedial centers has been established in order to reintegrate over aged out-of- school children into the regular classrooms, teachers were trained to interact more students and allowed more time for classroom participation. The teachers were encouraged to assess the pupils' achievements and pay more attention to corrective action in order to make the learning more realistic

Noteworthy,Katalyeba (2009) said that remedial classes have vital role played in schools in Tanzania where the remedial program which were popularly known as "tuition" classes; had been very common following the drastic fall in the quality of education since the late 1970s. Uwezo findings in 2011 and 2012 show that majority of children in schools are not able to read,both Kiswahili and English, at their class levels. Results of Primary School Education Leaving Examinations (PSLE) showed that a largenumber of children did not achieve the required knowledge and skills to pass the examination andachieve the intended learning outcomes. In 2012, only 30.7 per cent of pupils who satfor the PSLE passed the examination. Similar situation existed at the secondary school level whereless than half, 43.1 per cent of all the

students who sat for the Certificate of Secondary EducationExaminations (CSEE) passed the examinations (BEST 2013).

In order to fill the gap of under achieving students the government of Tanzania emphasized provision of effective and free remedial tuition and mentorship programs to underperforming students particularly girls (MOEVT, 2010). In justifying the use of remedial programs for underachieving students, Brooks (2009) argued that, in general, normal classroom teaching did not enable children with significant literacy difficulties to catch up and that although good classroom teaching was the bedrock of effective practice, most research suggested that children falling behind their peers needed more help what than the classroom normally provided.

While remedial programs apparently were playing an increasingly important role in the lives of underachieving students, there were growing debates about their effectiveness and how they could better be delivered. This situation was particularly alarming in developing countries where there were numerous challenging factors such as shortage of trained teachers, inadequate teaching and learning materials, low wages and language barrier to mention few. Therefore the proposed study aimed at establishing effectiveness of remedial teaching as an intervention program against low achievement among secondary students in Tanzania

1.2 Statement of the problem

In Tanzania, there was a popular concern about poor performance among secondary schools students in Mathematics (MOEVT: 2011). Different people at different times had passed the blame of poor academic performance to the Government (URT, 2003). Following the growing concern by education stakeholders on persistent poor performance, the Tanzanian Government had established a wide array of efforts such

as curriculum reviews, improvement of school libraries, provision of capitation grant for teaching / learning materials and other costs, improvement of examination structures as well as expansion of diploma and degree teachers' training in order to improve student's performance in education including Mathematics (URT,2003). Additionally, the Government and non- governmental institutions had also established remedial programs in schools (Katalyeba, 2009; MOEVT,2010; URT 2014) in order to provide particular helpamong low achieving learners in schools.

Although the established remedial programs were believed to contribute positively to students' academic performance (Jarrar, 2014), there was a growing concerns about how the remedial programs were practically implemented in most secondary schools in Tanzania. To that effect, therefore, the present study was undertaken in order to investigate effectiveness of remedial teaching and learning as an intervention program against low achievement in Mathematics among secondary school students in Tanzania.

1.3 Purpose of the study

The purpose of this study was to investigate effectiveness of remedial teaching as an intervention program against low achievement in Mathematics among secondary school students in Tanzania.'

1.4 Objectives of the study

The study aimed at attaining following four objectives.

- *Firstly* investigate low achieving students' perceptions towards the introduction of Mathematics remedial classes programs in their schools.

- *Secondly* to investigate Teachers' perceptions towards the introduction of Mathematics remedial classes programs in their secondary schools .
- *Thirdly* to investigate relevancy of teaching and learning activities employed in Mathematics remedial classes and
- *Finally* to asses low achieving learners' progress as related to the Mathematics remedial classes attendance.

1.5 Research questions

Following research questions guided the inquiry process.

- *Firstly* what are low achieving students' perceptions toward Mathematics remedial programs in schools?
- *Secondly* what are teachers' perceptions towards Mathematics remedial programs in schools?
- *Thirdly* to what extent are Mathematics remedial classes teaching and learning activities relevant to low achieving learners in schools?
- And *finally* are low academic achievers showing progress after attending Mathematics remedial classes?

1.6 Significance of the Study

This study intended to explore the effectiveness of remedial teaching as intervention program against low achievement in Mathematics among secondary school students. The findings of this study might be used by school systems to assist in making effective decisions about mathematics remedial teaching. The study could also assist improvement of teachers' attitudes and perceptions towards low achieving learners. Furthermore the findings were expected to enrich stakeholders understanding of how

remedial teaching could assist the low achieving students. Through this study students could be able to understand role and benefits of remedial teaching in their academic life. The study could also enlighten policy makers and curriculum developers in formulating educational policies and guidelines that would lead to improvement and good management of remedial teaching programs in secondary schools.

1.7 Delimitation of the Study

In terms of geographical scope, the study was conducted in Lindi District in Lindi region secondary schools. Besides the study targeted heads of schools, Mathematics teachers and Form two Mathematics students.

1.8 Limitations of study

A major constraint of this study was that it did not cover the entire population of low achieving students in Tanzania. The study involved 91 respondents, of whom 70 were low achieving students and 21 teachers from 7 visited secondary schools in Lindi district. Besides the criteria used to place low achieving student into remedial program was not uniform across the visited schools. Therefore these factors literally limited generalization of findings from the current study to the whole country.

1.9 Operational Definitions of Key Terms

Following terms were operationally defined in the current study.

Remedial education is a part of education which is concerned with the prevention, investigation and treatment of learning difficulties from whatever source they may emanate and which hinder the normal development of the studentNARE (1977) also Schizzerotto at el (2010) defined educational remedial programme is a course consisting in extra-class time offered to low-achieving students in order to improve

their performance in one or more subjects. For the sake of this study,remedial teaching programs were defined as specific extra classes interventions aimed at addressing learning needs of form two students who were lagging behind in Mathematics subjects

Low achieving Learners: are children who have difficulty, even though they may be willing to work. Their problem is low potential or lack of readiness rather than poor motivation; they usually have difficulty in completing work; display poor retention; progress slowly (Brophy,1996). In the current study low achieving learners were defined as normal students with limited ability that prevented them to keep up with their classmates or to perform within their expectation, due to academic or nonacademic reasons.

Effectiveness is described as theextent to which the desired level of output is achieved (Scheerens, Glas, & Thomas, 2003) also Hawes and Stephens (1990) said that,Effectivenessrefers to the degree to which the objectives of an education system are being achieved.In the current study effectiveness was definedas the degree of improvement in the students' learning achievement as a result of remedial teaching

1.10Summary of the Chapter

The first chapter presented the problem of the study which aimed at examining impact of remedial teaching on the performance of the secondary low achievers in Mathematics in secondary schools in Tanzania.Furthermore, this chapter presented background of the problem, statement of the problem,purpose of the study, objective of the study, research questions, significance of the study, delimitation of the study,limitation of the study,as well as operational definitions of the key terms

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Considering the problem under investigation and objectives of the study, the literature about the effectiveness of remedial teaching and learning as an intervention program against low achieving students and various issues had been reviewed. The section begins with theoretical framework of the study, remedial program goals based on learning needs, impacts and aims of remedial teaching programs, and pedagogical activities remedial teaching. Furthermore the section entails major teaching methods related to remedial teaching programs, diagnosing of low achieving students in remedial program, implementing and delivering remedial programs, and settings for delivering remedial Programs. Lastly the section presents empirical studies related to effectiveness of remedial instructions, studies on remedial teaching in Tanzania, studies about teachers ' and students' perception towards remedial teaching and finishes with the conceptual framework of the currently proposed study.

2.1Theoretical Underpinnings of the Study

Theoretical framework consists of a group or set of theories which act as a background and guide the investigation in question (Orodho 2005).It guides researchers in framing their project determining what kindof investigations were appropriate and shaping their analysis (Goetz &LeCompate, 1984). This study was guided by the theory of Constructivism of Piaget (1969) and Vygosky (1978) and the goal centered and natural system model of Lockheed and Vespoor (1990)

2.1.1Constructivism Theory

According to constructivist theory, students constructed knowledge through activities because knowledge cannot be transmitted solely by the teacher. White-Clark et al. (2008), stated, "cooperative learning, hands-on activities, discovery learning, differentiated instruction, technology, distributed practice, critical thinking, and manipulative are elements that embrace the constructivist educational philosophy". Constructivist theory insisted at the change of the role of a teacher from being a director to being a facilitator. In a classroom situation the role of teacher changes from that of transmitting knowledge to students to being facilitator when teaching from a constructivist theory of learning framework. That means it emphasized on the good cooperation between the teacher and students and between students themselves. Here the students feeling of identity was improved and felt high self-esteem as they were being involved in the whole process of teaching and learning. The constructivist teacher had to mediate, coach, stimulate and support students' progress and assesses their understanding and learning (Cobb, 1999). This was used by the teachers in a classroom to improve their teaching strategies when implementing remedial education.

Therefore the constructivist theory was used to guide this study in examining the effectiveness of remedial teaching programs in relation to application of various teaching strategies. Moreover through constructivist theory this study examined opportunities for individual learners to acquire knowledge and construct meaning through their own activities, discussion, reflection and sharing ideas with other learners. On other hand the research will observed learners as active contributors to the learning process, this reflected the importance of scaffolding for students at the beginning of learning or remediation; and teaching methods should focus on what the

student can bring to the learning situation as much as on what is received from the environment.

2.1.2 The Goal Centered and Natural System Model

The model that was based on effectiveness advocated by Lockheed and Vespoor (1990) and Heneveld (1994), who, drawing on the thinking of Campbell (1977) and Ghorpade (1971), proposed the goal centered and natural system view of what organizational effectiveness means and how it was to be assessed. The goals approach defined education quality in terms of achieving the stated goals. In this context, a school/education system was judged to be of quality to the degree that the goals or the school or system are being achieved. The natural system viewed like the traditional system resourcesapproach defined quality in terms of the ability of the school/system to maintain internal consistency, to utilize resources optimally and to exploit its environment in the acquisition of scare resources (Ratsoy, 1983).

In educational context, goal centered model played a great role in making the whole system function in an interdependent way. This meant everyone who belonged to the system had to set and accomplish certain goal. Ainscow and Sandil (2010) stressed the importance of leaders gathering, generating and interpreting information within a school in order to create an inquisitive attitude in implementing remedial education for students at-risk. Teachers were to be clear about what was supposed to be taught, how to be taught and when it was to be taught and the administrator consistently ensured that the goals made were being met (Sterrett, 2011).

2.2Remedial Program Goals Based on Learning Needs

According to Schwartz (2012) remedial education interventions aimed at addressing the learning needs of students or others who had not being able to master the necessary skills to be able to attain a basic education. The goals expected outcomes of such interventions to base on what those learning needs were. Some of remedial interventions' goals are such as.

2.2.1 Improving Reading and Mathematics Skills

Existing research emphasized that learning to read at an early age (Scarborough, 2001) as well as the development of concrete early Mathematics skills (Duncan, Claessens, Huston, et al. 2007) lay a strong foundation for future academic success. Therefore learning gaps need to be detected and addressed as early as possible while they could be remediated more effectively.

2.2.2 Providing an alternative to Class Repetition and avoiding Drop Out

Well targeted and well implemented remedial interventions could give an opportunity for low performing students to catch up with their peers and possibly avoid grade repetition. To prevent grade repetition, the PARI program in Senegal selected at risk students from Grade 1 and from Grade 5 and provided summer remedial programs that delivered academic support so students at risk of repeating a grade had a chance to master the content necessary to progress to the next grade (PARI Senegal, 2011).

2.3 Aims and Impacts of Remedial Teaching Programs

In their study Selvarajan and Asanthagumar (2012) proposed that remedial teaching program was designed to ensure that all pupils achieve basic literacy and numeracy by the time they complete their study .Therefore in this section, the aims of remedial

teaching are outlined and the expected impacts of remedial teaching for low achieving learners are described as follows

2.3.1 Aims of remedial teaching programs

According to Baileat el (2000) the principal aim of remedial teaching was to optimize the teaching and learning process in order to enable pupils with learning difficulties to achieve adequate levels of proficiency in literacy and numeracy before leaving school. This aimed at achieving most effectively through the implementation of whole-school policies and approaches that target the learning needs of the lowest achieving pupils. Centrally this was the enhancement of classroom-based learning that included appropriate, supplementary teaching by the teacher in the classroom or in the remedial teaching room (*ibid*)

2.3.2 Impacts of Remedial Teaching Programs

Remedial service was designed to ensure that all pupils achieve basic literacy and numeracy by the time they complete their secondary education. The research conducted byBettinger and Long (2009) showed that remediation had a positive impact on educational outcomes. They analyzed the effects of remediation at four - year colleges in Ohio. Their results suggested that mathematics and English remediation decreases the probability of dropping out of university and increases the likelihood of earning a degree. A similar result was obtained by Moss and Yeaton (2006) who examined the effectiveness of a remedial English course offered by a large, multicampus community college and conclude that students who were most in need of remedial education received the most benefits. Additional evidence supporting the effectiveness of remedial education is provided by Lesik (2006) who showed that participation in a remedial mathematics program increased the

likelihood of successfully completing a college level mathematics course on the first entry.In this regard, Selvarajan and Asanthagumar (2012) observed that remedial teaching acted as a safety valve for the students who were behind the expected level of achievement and involved diagnosis of specific difficulties, provides suitable remedial measures and provided support to prevent reoccurring of these difficulties again in future.

2.4 Pedagogical Activities in Remedial Teaching

Each pupil was perceived as different in terms of learning ability, academic standards, classroom learning and academic performance and each had his own in learning. The aim of remedial teaching program was therefore to provide learning support to pupils who lagged far behind their counterparts in school performance. By adapting school curricula and teaching strategies, teachers were providing learning activities and practical experiences to students according to their abilities and needs. They also designed individualized educational program with intensive remedial support to help pupils consolidate their basic knowledge in different subjects, master the learning methods, strengthen their confidence and enhance the effectiveness of learning.

2.4.1 Major Teaching Methods related to Remedial Teaching Programs

Designing or choosing remedial approach or strategy for students with difficulties is not an easy task because every child had distinctive features from his /her peers. precise and comprehensive diagnostic methods were needed to facilitate students' classification and as a result designing or choosing appropriate remedial strategies that rendered to better performance. Ysseldyke&Algozzine (1982) believed that the effectiveness of intervention was determined by at least five factors in complex

interaction which are: pupils characteristics, nature of treatment,teachers' characteristics, setting variables, and the behaviors one tried to change. While Gardner (1977) characterized direct approaches to intervention by their on the "development of appropriate behaviors not on behavior deficits, inadequacy, disabilities, shortcomings, or difficulties were effective approaches to intervention. On the other hand, Berman& McLaughlin(1978) found that the variance in instruction methods made less difference in students' outcomes than might be expected .Instead, what seemed to matter was how committed the teachers and administrators were to program and how confident they were that on work.

With reference to underachieving behaviors in students' performancesDelisle& Berger (1990) indicated that remedial education included varying and special strategies. They supported using useful strategies suggested by Whitmores (1980).These included:-

- Intrinsic strategies: focusing on the idea that students, self-concept was closely related to their learning 'so teachers should encourage attempts, not just success; they also valued students' share in creating classroom rules and responsibilities ;and allow students to evaluate their own work before receiving grade from the teacher.
- remedial strategies: recognizing that students were not perfect; each child had specific strength and weakness as well as social, emotional and intellectual needs .Therefore, teacher gave students chances to make progress in their area of strength while opportunities being given in specific areas of learning deficiencies. This remediation was done in safe environment in

whichmistakes were considered a part of learning process for everyone including the teacher.

- Supportive strategy: using classroom techniques that make student feel comfortable as they were at home; such as holding class meeting about student concern; providing assignments that strengthen student's competency.

Hunt&Marshall (2002) agreed with Benz et al (2000) the appropriate content for remedial classes was extended beyond academic coursework to the functional skills, community skills, social skills and direct work experiences. This meant that the remedial teachers interested of the social and emotional status of their students and motivate them positively.

Kate (2007) agreed with Gettinger (1993);Wentling (1973) who stressed the importance of having small numbers of students in the remedial class, for example, ,eight participants was an adequate number for the remedial the teachers to implement individual tutoring when necessary to fulfill the conceptof remedial program, due to the fact that individual one to one instruction had the advantage of following the instructors to provide immediate corrective feedback. DCSF (2008) emphasized that for teachers to gain the most effective use of numeracy and literacy interventions, it is important to insure that they were targeted at the children who were in need to them. In order to do so this required close monitoring of pupils' progress, particularly for underperforming pupils and those in vulnerable groups.

2.5Diagnosing of Low Achieving Students in Remedial Program

According to Smith & Otto (1980) students' academic underachievement was caused by unlimited, varied and individualized reasons which differed from case to case so teachers of underachievers werefocusing on diagnosing and correcting learning

difficulties. Therefore remedial interventions required appropriate identification of low performing students, knowledge of the level of their competencies as well as constant measure of their progress during the intervention. Program implementation was improved based on information teachers got from assessing if students were mastering the material. According to Hollingsworth & Gains,(2009) teachers in South Africa applied the Systematic Method for Reading Success (SMRS) to assess their students every ten lessons which included for example recognizing letter sounds, blending sounds to recognize words, reading developmentally leveled stories using the letters and words taught, and answering comprehension questions about the stories. Chekaraou (2010) also added that in Niger remediation program under the language and Mathematics initiative for early grades was done in three main phases: the diagnostic test phase, the intervention phase and the evaluation phase. Teachers in every academic year through sixth grade administer diagnostic test to assess individual competence in language and Mathematics

Furthermore Ndebele (2014) said that, in Zimbabwe children who were eligible to participate in the English remedial program are selected through specially designed standardized diagnostic tests. The English test was divided into four sections covering synonyms, use of phrases, use of prepositions and a comprehension passage involving punctuation and the use of tenses. A department of Schools Psychological Services (SPS) was established within the Ministry of Education and Culture to monitor and assist on matters pertaining to remedial education.

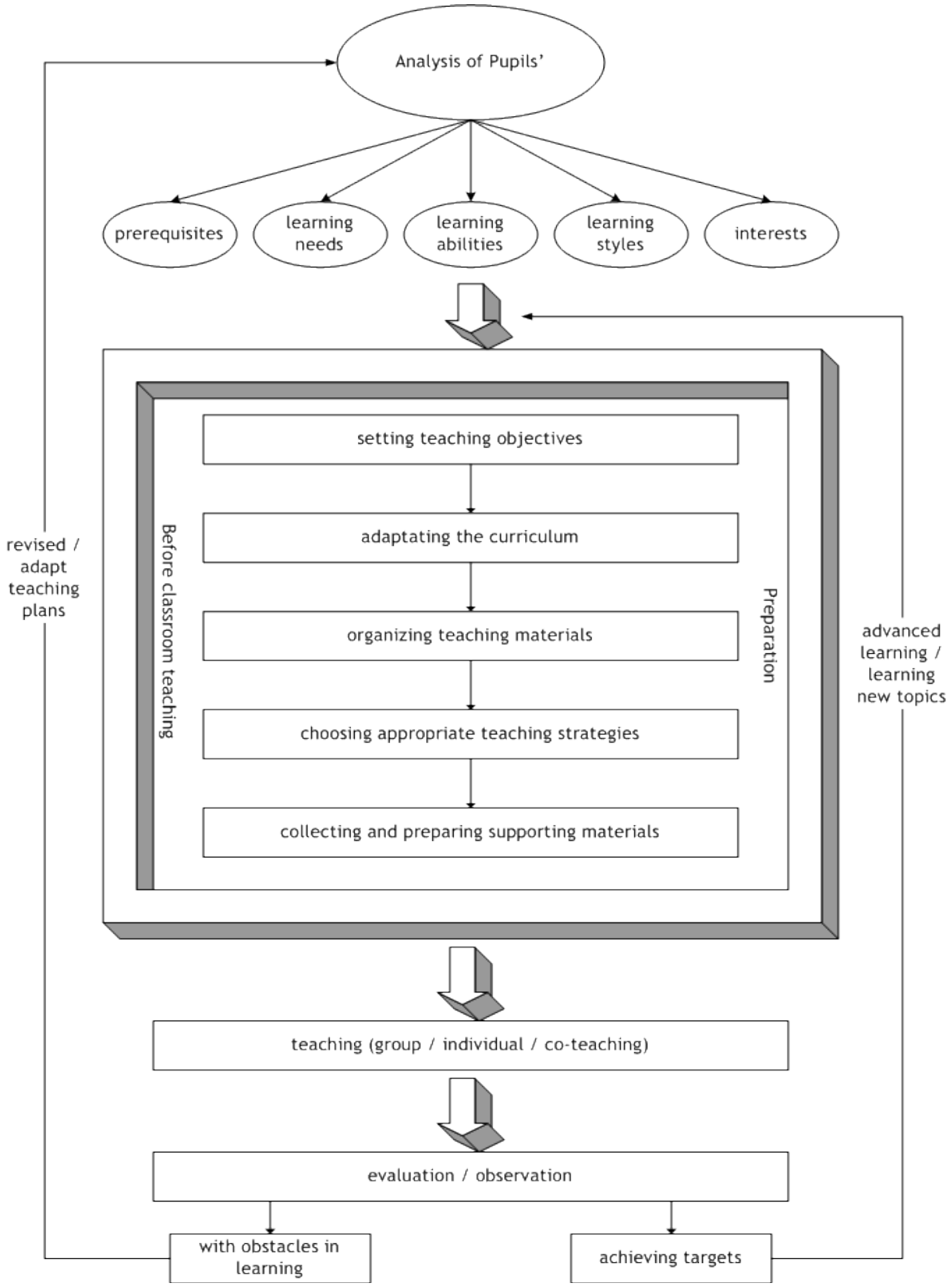

Figure 1: Remedial Teaching Programs: Selection and Implementation
Source: Hong Kong Education Bureau (2007)

2.6 Implementing and Delivering Remedial Programs

According to Schwartz (2012)once a target group had been identified, program objectives and expected outcomes had been defined; the key issue for increasing the effectiveness of remedial programs was to choose the delivery mode or modes that will meet the stated objectives**.** This section described and cited studies and findings of remedial education programs that used each a variety of instructional delivery modes.

2.6.1 Small Groups Tutoring

Small group reading interventions for example, might be effective for students who were not being able to make progress in the regular classroom reading instruction. Research evidence points out that the most effective format to improve reading was one teacher for three students (Vaughn, S, 2003;Hughes at el, 2000). The Balsakhi program in India is an affordable way that enables low income children from grades 3 and 4 who were identified as low achievers to benefit from tutoring programs. The tutors were women selected from the community and were paid very low fees by Pratham, the implementing NGO. Children were taken out of the classroom and the tutors work in groups of 15-20 low performing learners for two hours each day (the school day last about 4 hours) (Banerjee, at el, 2006).

2.6.2 Separate Classrooms for Low Performing Students

In some states in Brazil, public schools formed a separate classroom to support low achieving students in the first five years of schooling if there were at least fifteen students identified as needing remediation by their teachers. Students would return to the regular classes once they master the required skills (Secretaria Municipal de Educação de São Paulo, 2006).

2.6.3 Grouping Students by Ability

Evaluation of the Extra Teacher program in Kenya was designed to allow schools to add an additional section in the first grade benefited lower-achieving pupils indirectly by allowing teachers to teach at a level more appropriate to them Duflo, at el, (2009).

Program evaluation results showed students in classes grouped by ability performed better in the post test when compared to students who were in extra Grade 1 class with randomly assigned students, and concluded that positive effects for low achieving students was due mainly because students received a more tailored instruction to their needs under tracking which outweighed the reduction on peer quality.

Notwithstanding, in some cases tracking had detrimental effects for low achievers if it resulted in discrimination and further exclusion of disadvantaged groups. Some argued that low achieving students might feel penalized and not be motivated to learn (Placco, de André, & de Almeida, 1999). Students from "acceleration classes" in Brazil reported experiencing difficulties at the conclusion of the program and re-integration into the regular classrooms where they did not receive the same attention as they did in the acceleration classes, particularly in terms of building their self-esteem. At the same time, teachers in the regular classrooms had not been prepared in ways to best integrated students returning from acceleration classes Placco at el (1999). Qualitative evidence from Zimbabwe also supported this conclusion pointing out to teacher's discriminatory attitudes towards the low achieving class Chisaka, (2002)

2.6.4 Volunteer Tutoring

Volunteer reading tutoring programs could be an affordable way for low income children to have access to this type of delivery. In the United States, Ritter, (2006) reviewed 21 articles or reports based on the data from 1,676 study participants in 28 studies that assessed volunteer tutoring programs. They reviewed randomized only field trials published from January 1985 to August 2005 which yielded academic impacts. The programs were aimed at students in grades K – 8, and only used where adult, non-professional (volunteer) tutors. Results from this review showed that these programs can positively influence language and reading outcomes of elementary school students with an average effect size of training for tutors, assessment-based instruction, structured reading sessions, and use of an on-site coordinator had been described as essential components of a tutoring program Invernizzi, (2001).

2.6.5 Peer Tutoring

Peer tutoring could also be an affordable option that might benefit all involved. Those activities where children work together in a learning task would help students to develop their sense of self-esteem and responsibility being active participants on their peer's learning. In the ESCUP project in Cambodia students helped their peers to learn, practice or review an academic skill that the class teacher had planned. For example, grade 5 and 6 teachers taught their students on how to help younger children to read and write (3 hours), so in their free time these students were helping grades 1 and 2 students under the teacher's supervision. This support was also be giving in homework clubs where older students helped their peers to learn, practice or review an academic skill that had been assigned by the teacher as homework and in the case of Cambodia example it covered Khmer language and Mathematics (World Education Inc., 2008).

2.6.6 One-to One Tutoring

Clearly private tutoring had been the default approach to deliver remedial instruction, particularly in high income countries where it might be affordable. Programs that provided one-to-one, phonetic tutoring to students who continued to experience reading difficulties resulted into positive effects (Slavin et al, 2010) and improve reading performance (Slavin et al., 2009).

It was important to acknowledge that private tutoring, meaning instruction that was delivered for a profit, had become a thriving business in developing countries and it was contributing to the increase of social inequalities (Bray, 2007). One of the major costs in Bangladesh private tutoring was a phenomenon that was perpetuating inequality in education since children whose families didn't afford private tutors to prepare them for exams, they were likely have low performance (Hossain&Zeitlyn, 2010).

2.6.7 Computer Assisted Interventions (CAI)

There is some evidence that Computer Assisted Interventions was among key tools to address low performances. A computer assisted learning program was implemented by Pratham in the city of Vadodara in India targeting all children, but adapted to each child's current level of achievement attending grade 4. They received two hours of shared computer time per week, during which they play games that involved solving mathematics problems whose level of difficulty responded to their ability to solve them. An evaluation of such intervention showed that the computer-assisted learning increased mathematics scores by 0.35 standard deviations the first year, and 0.47 the second year, and was equally effective for all students. One year after the ends of the program, students at all levels of aptitude performed better in

mathematics (0.1 SD) if they were in schools where the computer-assisted mathematics learning program was implemented (Banerjee, at el 2006).

Anecdotal evidence from a CAI type of program implemented in the public municipal schools of the city of Campinas in Brazil for grades 1 to 5 indicated that low performing students can improve their learning after being tutored by older peers on open source educational programs at their school computer labs. Those peer tutors are students who have been previously trained. They also help teachers to feel more comfortable and proficient in using the computer labs for instruction. As a result teachers started to use the lab as a means to give remedial support to low performing students (Fernandes&Peluci, 2011).

2.7 Settings for Delivering Remedial Programs

Remedial education, like other interventions that provided academic support, was delivered in a variety of settings. This session lists examples of remedial programs implemented in relation to curricular

2.7.1 Remedial Education during School Hours – Curricular

In some countries the formal school system had planned for remedial activities at school. The basic education curriculum in Mali allocated 25% of weekly time for remedial activities which were delivered during school hours or by the means of projects. Similarly, Botswana's curriculum expected 315 to 405 minutes per week to be dedicated to such activities from grades 1 to 4 of primary school (Georgescu, Stabback, Jahn, Ag-Muphtah, & de Castro,2008). In Brazil, State and Municipals Secretariats of Education established curricular projects in the public school system that took place inside and outside the regular classroom to address the low levels of achievement in mathematics and to prevent grade repetition focusing on the early

grades. To focus on students' achieving reading and writing skills by the end of the first year of school, each Grade 1 classroom was assigned a university student enrolled in an education program to help the teacher with literacy activities. This project, called *Toda Força*(All thePower) been implemented through a partnership with participating universities and the students majoring in Education received stipend to participate in the program. For the students in last year of low primary education, in the project *Ler e Escrever*(Reading and Writing), struggling students identified by their teachers and receive thirty hours per week of remedial instruction. In the following grades, the project *Ler e Escrever*was supposed to expand to all subject areas of the curriculum where teachers were trained to continue to work on reading comprehension and writing skills (Secretaria Municipal de Educação de São Paulo, 2006).

2.7.2 Remedial Education after School Hours

There was also evidence that learning gaps in early grades could be addressed outside school and result in improvements in learning for students lagging behind. Home based remediation in Cambodia took place in the home of students who scored below average on the semester exams. Teachers went to the student's home after school and provide support on the areas students classified as slow learners had most difficulties (World Education Inc., 2008). The Pratham's*Shishuvachan*curriculum in India was implemented in three different settings aimed to improve literacy skills. Researchers wanted to find where the intervention could be most effective. Evaluation results showed that the program was effective on average and improved literacy skills for all students when implemented in and outside public schools. The evidence indicated that S*hishuvachan*was most effective when implemented as a complement to school curricula (He, Linden &MacLeod 2009).

2.7.3 Remedial Education Program during Vacation

Evidence of significant improvement of programs implemented outside the classroom explained the effectiveness of programs implemented during the summer vacation. Remedial education provided in the format of a summer program, as implemented in Senegal for example, helped thousands of children to improve their reading and mathematics skills.The government implemented educational policies in 2010-2011 in order to reduce drop-out rates and improve primary completion rates. Aiming at improving quality and efficiency of the school system, one of the measures was the delivery of two-month remedial summer courses, the PARI (*Partenariat pour l'Amélioration des Rendements Internes à l'EcoleElémentaire*) program aimed to improve reading and mathematics, targeted at underperforming students in Grades 1 and 5 from schools with high repetition and drop-out rates. Post test results in French and mathematics showed that from the 7,510 participant students in Grade 1, 5,450 were successful (76.62%) from which 3,134 were girls (57.50%). Some regions did better than others. As for Grade 5, 81.62% of participant students were successful according to the post test measures (PARI Senegal, 2011).

In a larger scale, READ India implemented as summer program reached thousands of children. The program targeted children in Grades 3, 4 and 5 who were not yet reading or doing arithmetic at Grade 2 level. Teachers were paid for an extra month's work to give remedial education and were supported by school-based unpaid village volunteers. READ India implemented during summer vacation showed significant impacts in Hindi and mathematics. Implementation of "READ India" during regular school hours had no significant effects. The study concluded that positive impacts were due to "grouping children in homogenous groups by ability level and

conducting classroom activities designed for each group using appropriate teaching-learning materials (Banerji& Walton, 2011).

2.8 Empirical Studies related to Effectiveness of Remedial Instructions

In fact there are a number of studies on the practice of Remedial Teaching Programs which were conducted in many parts of the world, including Tanzania. These studies have been based on primary schools, secondary schools and in higher education levels. Some of these studies are discussed below:

Huang (2010)examined the effects of an English remedial instruction on low achieving students using a self-developed English textbook and with the intervention of teaching assistants. A paired t- test method was conducted to analyze the pre- and post-tests and the collected data of the survey. The results of this study show that this English remedial instruction was effective and beneficial to low English achievers as students made a significant progress in grammar and vocabulary learning and they self-perceived improvement in their overall English competence. The self-developed textbook met students' needs and the intervention of teaching assistants was effective in terms of assisting their pronunciation and fluency. Ultimately, students' learning motivation was moderately enhanced.

Another study was conducted by Shu-Li Chen et al (2006) this study aimed to examine the effectiveness of an 11-week reading remedial program for 2nd- and 3rd-grade underachieving aboriginal students in Taiwan. Seventy-eight low-achieving aboriginal students from Taitung City participated in the study. They were divided into two groups, with 47 in the experimental group and 31 in the control group. The program was conducted in small groups. The four major findings were as follows: firstly, The reading ability of the participants in the experimental group improved

significantly as a whole; the 2nd-graders improved in the recognition of low-level characters, while the 3rd-graders improved in high-level dictation skills and reading comprehension. Secondly, the experimental group outperformed the control group with regard to scores of all reading skills. Thirdly, after the remedial program, 11(23.4%) out of 47 experimental group students achieved the reading level of their same age peers. Furthermore, if children with disabilities were excluded from the experimental group, 40% of this group achieved the reading level of the same-age group. Fourthly, cost-effectiveness analysis revealed that, compared with the cost of referral to special education for these students, the pre-referral remedial reading program is feasible, and should be implemented as soon as possible to give much-needed help to these children.

Apart from that, Zhai and Skerl (2001)investigated the impact of remedial English courses on students' college-level coursework performance and persistence. The study was applied from fall 1992 to spring 2000 in West Chester University, there were 4,060 students who took ENG 020. The results indicated that the remedial course prepared students effectively for regular English classes and supported students' overall academic success as measured by retention and graduation rates.

Furthermore, Aragon (2004) examined the influence of a community college remedial writing course on academic performance. The research site was a public rural community college located in the Midwest in USA. The purposeful sample (N = 669) was drawn from the population of 1269 first-time degree-seeking, and were identified as needing the developmental education writing course during their first semester. The sample was further divided into two groups based on first-semester participation (n = 384) or nonparticipation (n = 285) in a developmental education

writing course. The results showed that the participants had significantly higher cumulative grade point averages and higher English grades than those nonparticipants.

Not only,that but also Leake and Lesik (2007)used the regression discontinuity design to examine the impact of remedial English programs on first-year success in college. The programs focused on teaching sentence and paragraph formation and the development of the coherent essay. Participants were 197 first-time, full-time university students. The result demonstrated that English remedial program could increase first-year GPA. Students who were assigned to the remedial program obtained higher GPA compared to equivalent students who did not participate in the program

Similarly, Sheu, Hsu, and Wang (2007) examined the effects of English remedial course on low proficiency first-year students. The eight-week course focused on pronunciation, basic grammar, and analysis of sentence structure. Results showed that the experimental group performed significantly better in the final exam, compared with the control group. The experimental group self-reported an improvement in their basic skills in English and had highly positive attitudes toward the remedial course. Also, their motivation and confidence were enhanced.

Also, Huang (2010)investigated the possibility of applying task-based method to implement English remedial instruction in normal class hours. The content of the remedial instruction consisted of basic vocabulary, grammar, and eight reading articles for self-studying. The participants were four classes of freshmen at a technological university. Results indicated that those who participated in the

remedial course obtained higher scores on the reading and listening sections of GEPT elementary level and their learning motivation was promoted.

Abu Armana (2011) conducted a studyto examine the impact of a remedial program on English writing skills of the seventh grade low achievers at UNRWA Schools in Rafah.For collecting data of the study, the researcher adopted the experimental approach. The sample of the study consisted of (127) seventh grade low achiever students distributed into four groups. Two experimental groups i.e. a male group consisting of (31) students and a female group consisting of (37) students. The others are two control groups i.e. a male group consisting of (25) students and a female group consisting of (34) students. The remedial program was used in teaching the experimental group, while the ordinary teaching periods and the textbook was used with the control one in the second term of the scholastic year (2009-2010). A writing test of three scopes with (30) items was designed and validated to be used as a pre and posttest.

The data of the study were analyzed, using Statistical Package for Social Science (SPSS), to confirm the test validity and reliability. On the other hand, Mann Whitney, t. test paired and independent sample were used to measure the statistical differences in mean between the experimental groups due to the use of the remedial program. The study indicated that there are statistically significant differences at the level ($\alpha = 0.05$) on English writing skills of the seventh grade low achievers in favor of the experimental groups. It means that the use of the program in the remedy of the weaknesses of the writing skills of the low achievers had a significant impact on the students.

On top of that, Adams (2011) examined the Effects of a Remedial Mathematics Intervention on Standardized Test Scores in Georgia Middle Schools. This causal comparative study examined the differences in the standardized test scores for at-risk students who receive remedial mathematics instruction and at-risk students who do not receive this intervention. In addition, this study examined gender differences for the remedial math students. The Georgia Criterion-Referenced Competency Test of 293 at-risk seventh-grade students was used in this study. Using the previous year's standardized math test scores as a control variable, there was a significant relationship between at-risk students taking remedial math and higher scores on standardized tests, regardless of gender.

Vasanthagumar andSelvarajan, (2012) in their study aimed to identify the impact of remedial teaching on improving the competencies of low achieving students in Mannar district of Sri Lanka. For this purpose, ninety seven students from rural and urban area were selected from four different schools in Mannar Education Zone. The data were collected by interviewing relevant authorities and from the secondary records. Findings showed that the socio economic condition of the family and physical and psycho social status of the student cause low achievement. Also the same study indicated that the implemented remedial program proved to be effective in improving the learning achievement of the students in Tamil Language and Mathematics.

Last but not least, Rusrus (2007)examined the efficiency of a suggested program to remedy the common mistakes in solving the mathematical problems for the eleventh literary section graders in Gaza. The researcher used the descriptive and experimental approach. The sample of the study consisted of (303) male and female

students. The sample of the study was purposive one consisted of (4) classes; (2) males and (2) females. The sample which was (165) students was distributed into four groups; two experimental and two control groups. The researcher used a pre and posttest .The results were analyzed using t-test, Mann Whitney (u) and Black Profit Range to assure the efficiency of the suggested program. The results of the study showed the efficiency of the suggested program to remedy the common mistakes in solving the mathematical problems. The study showed that there were statistically significant differences between the experimental group of the male and female and the male and female control group in favor of the experimental group.

2.9 Remedial Teaching in Tanzania

There is dearth literature on the phenomenon of remedial teaching in Tanzania, particularly its effectiveness on helping low achieving students in secondary schools. The existing literature of the subject apparently consisted of two studies which exclusively dealt with the effects of private tuition on formal secondary education in Tanzania. Private tutoring had also been widely used as remedial program and it was effective in improving academic achievement and reducing mainstream teacher's workload (Bray, 2009: Katalyeba, 2009), it was mainly available to students whose families can afford it, leaving the poor further excluded. Merisali (2004) explored the effect of private tuition on formal secondary school education in Tanzania.The study was conducted in four secondary schools and one private tuition Centre in Dar es salaam using documentary review, questionnaires, interviews and observation checklists for data collection. The study inter-alia found that many secondary school students attended private tuition regularly even though their mainstream schools were better off materially compared with the tuition schools. The mainstream schools were, however, characterized with teacher shortages, poor teaching, overcrowding,

and with teachers who skipped topics in the syllabus. Over 67% of the student respondents indicated that generally students passed important examinations due to participation in private tuition, and about 73.27% of them attended after-school and vacation tuition daily except on weekends.

Similarly, the study conducted by Matiba (2007) on the perception of parent, teachers and students towards private tuition in secondary schools in Tanzania. A total of 110 participants were involved in the study. Among them 20 were parents, 30 teachers and 60 students who were selected purposively. Data were sought through interviews, focus group discussion and documentary review. The study revealed that, private tuition persisted in secondary schools because of the problems facing the formal system. It also indicated that, many parents pay for private tuition because they wanted their children to pass examinations; and, schools experience acute shortage of teachers and lacked quality professional teaching and assistance for low achieving learners from the formal class teachers.

2.10 Factors contributing to Effective Remedial Program

According to Education Department in Ireland (1988) effective remedial program was team effort in which principal, the remedial and class teachers worked with each other, with parents and with other professionals towards the agreement of specific aims. Also,Schwartz (2012**)** added thatremedial education had been delivered by several education professionals as well as by members of the community and even by student peers. All of them have in some way been able to improve learning outcomes**.**Therefore, such cooperation would be deliberately and specifically be planned, and responsibility of each involved would be clearly delineated and agreed upon.There were other factors that facing the remedial education in general. These

factors typically originated from family level, school level and students themselves as well as language of instruction

2.10.1 Factors originated from Family Level

Students in schools used to come from environments which differed in many aspects such as parent's level of education, economic status, occupation and family size which in turn might influence students' performance physically, intellectually and emotionally (Ajila&Olutola, 2000). According to National Education Association (2008), when schools, parents, families, and communities work together to support learning, students tend to earn higher grades, attend school more regularly, stay in school longer, and enroll in higher level programs. Not only that but Desarrollo (2007) also suggested that the extent to which parents or other family members are actively engaged in a student's education had appositive influence on the student's achievement

2.10.2 Factors originated from School Level

School conditions have an impact on students' academic performance. Inadequate resource materials for teaching/learning, large class sizes and teachers overload were conditions which led to teachers' poor attitude to work and ineffectiveness. Bacharach & Bauer (1986) observed that lack of resource materials for teaching/learning had a direct effect on the teacher's ability to perform and an indirect impact on teacher's motivation and satisfaction. Furthermore Mosha (2000) contended that quality education was achieved through improvement of teaching/learning facilities as well as adequate number of teachers and quality classrooms. Inadequate resource materials for teaching were indeed a major problem

in government secondary schools in Tanzania. Good quality materials motivated interest, maintained concentration and made learning more meaningful.

2.10.3 Teachers' Personal and Motivational Factors

Teachers in schools are the ideal people as well as in the best situation to promote active learning amongst students in schools. Malila (2003) observed that students' performance was affected by teachers' motivation in terms of provision of basic facilities such as housing, transport allowance and basic training including in-service courses. Adeyemo (2005) observed that motivated teachers were expected to provide quality service. Adediwura (2007) and Schacter at el (2004) argued that professionalism had relevant significance in education and that may affect the role of teachers and their pedagogy which would in turn influence students' academic performance.

Secondary school students appear to learn more from teachers with significant course and professionally trained (Darling-Hammond, 2000). Reynolds and Seymoler (2007) maintain that professional teacher's increase skills on work which made students to be able to use and adopt new learning technologies which in turn enhance academic performance. Apart from the professional and academic knowledge, it was commonly believed that experience might play important roles on the performance of individuals. From the work of Belal at el (2010)in their study on transformational Leadership of Afghans and Americans, they suggested that - education and experience – indeed had their impact on the performance of individuals. Hence, it was considered important to investigate the influence of experience and educational qualification on the teaching and leadership styles of the teachers. Finally,

Nusbuga(2009) claimed that education and experience brought about a change in the leadership attitudes and hence performance.

2.10.4 Students' Personal Factors

Students' personal factors contributing to poor performance in Mathematics at KCSE were found to be gender, economic factors and attitude towards Mathematics. Mwamwenda (1995) argued that the achievement of students in a subject was determined by their attitudes rather than inability to study. Another study byHaimowitz (1989) indicated the cause of most failures in schools might not be due to insufficient or inadequate instruction but by active resistance by the learners. This argument suggested that favorable attitudes towards studying Mathematics were to be developed for the learners' achievement in the subject to improve. Successful students were active, goal-directed, self-regulating and assume personal responsibility for contributing to their own learning. They were self-discipline and literally responsible in various endeavors they did. Also students' irregularity in attending classes might influence their poor academic performance. Agba at el (2015) said that truant behavior had negative effects on a student's academic achievement. Another study conducted by Dahir at el(2013) on the effects of student's attendance on academic performance revealed that there was positive correlation between them.The total amount of time that students report studying has often been examined as a potential predictor of success in school. It might seem that the more time that students spend studying, the better grades they should receive (Plant, Ericsson, Hill and Asberg, 2005).

2.10.5 Factors related to Language of Instruction

According to Yushau at el (2005)**,** Students usually experience severe problems when the medium of instruction changes from their native language to another one. In line with this, a study done bySefati, (2003) showed that students that were found weak in the language of instruction had the tendency toward ill-comprehension as well as poor participation in classroom discourse. Tanzanian Secondary schools students especially those in Form Two faced the same challenge since they were in transition from Kiswahili to English as Language of Instruction in Mathematics and other subject when they joined with Secondary School education. Sumra at el (2014) said that issue of the language of instruction had an impact on the quality of education and also concluded that Using Kiswahili as a language of instruction in primary school and English at secondary level created problems for children from public schools while benefitting children from English medium primary schools. Furthermore, several other studies indicated that the language problem was one of the major factors contributing toward the poor performance of many students in Mathematics; especially those who were bilingual and multilingual (Secada, 1992; Barton & Barton, 2003). Also, Howie (2003) conducted a study pertaining to how language and other background factors affected the performance of students in mathematics in South African secondary schools. Research confirmed that proficiency in English language does correlate with their achievement in mathematics; students with high scores in Mathematics also performed well in the English test administered while those with low scores didn't.

2.11Teachers' and Students' Perception towards Remedial Teaching

Hadzir, at el (2016) conducted a study to examine teachers' perception towards the implementation of the programme, especially in terms of its assessment features.

Preliminary data were gathered from two English Language teachers who were engaged in the programme through a semi-structured interview. The findings in this study suggested that the programme had some positive and negative effects to students' performance. On top of that, the findings also revealed some obstacle faced by teachers. Further improvement of the programme, in terms of its assessment features was also included in this paper.

The study done by DeFilippis (2015) about Perceptions of Teachers on Instructing Remedial Mathematics Students, Interviews and observational data were used to ascertain 5 teachers' perceptions concerning instruction for students who failed to reach proficient levels on state assessments. Research questions examined teachers' perceptions regarding implementing best instructional practices and regarding number sense, computational, problem-solving, working memory, and self-efficacy needs of lower level basic skills students. Data from 10 teacher interviews and 15 observations were analyzed using typological coding and thematic analysis. Results indicated that teachers perceived that homogenous groupings prevented teachers from meeting needs of students scoring below the proficient level and from using research-based strategies. The resulting position paper outlines the recommendation to the mathematics classrooms into heterogeneous groupings. Study results was used to help provide teachers with research-based strategies targeted toward improving instruction for basic skills student.

In line to the teachers' perceptions on the effectiveness remedial teachingprogrammeNdebele (2014) made a study**.** This study set out to evaluate the effectiveness of this English remedial education programme in Zimbabwe. Using the descriptive survey method, a total of thirty respondents from ten schools, comprising

ten heads of schools, ten Grade four teachers and ten remedial teachers were issued with a semi structured questionnaire. For data analysis, substantive themes were deduced and outlined from the data through content analysis. The study showed that a few pupils were benefiting from remedial instruction. Remedial teachers were poorly trained for remedial teaching; materials for use for both teachers and pupils were grossly inadequate, while supervision and monitoring by Schools Psychological Services (SPS) was virtually non-existent.

In a study done by Sanders at el (1983) that involved 338 first through fifth graders included remedial reading students as well as their classroom peers. A survey was administered to the students to determine their attitude toward the remedial reading program and the remedial reading students. The results indicated remedial reading students had a positive view of their ability to read.

In studydone by Salguero (2016) which determinedand assessedthe perceptions of both students and teacherson the best approaches to remedial education. The study includedclassroom – basedobservations of teaching methods, student attitudes, and interviews of both teachers and students. More specifically, the sample for individual interviews consisted of 12studentsand two teachersparticipating in remedial courses at one urban East Coast community collegevarying results were obtained on the students' perceptions of participating in remedial classes at the onset ofthis study.Most students seemed to feel thattakingremedial classes was beneficial and that the teachersin these classes have more time to spend with individuals, given the smaller class size during the summer semester.However, some students did not feel thatthey had certain reading and writing needs met in some of theremedialclasses.

This was partly blamed on the teacher'steaching style but also on students who felt they were not smart enough or whodid not try hard enough

2.12Conceptual Framework

Conceptual framework referred to the visual or written product, one that "explains either graphically or in narrative form, the main things to be studied" (Miles and Huberman,1994).In light of theory, the study adopted and modified CIPP modelby Stufflebeam, (1971) as conceptual framework to guide it. CIPP stood for; C-Context, I-Input, P-Process, and P-Product. Model guided in gathering data as well as analysis on the effectiveness of remedial teaching as intervention strategy against low achievement in Mathematics among secondary school students in Tanzania.

Context: this included structural design, legal foundations, policy, standards and general institutional arrangements and functions.

Inputs: these included students/pupils nutritional and health status, initial preparation of pupils/students, teacher quality and their motivation, availability of text books and learning/teaching materials and general infrastructure.

Process: this included pedagogy and general classroom interaction processes, nature of teaching methodology and technology in use, general friendliness of classroom/school environment, assessment procedures and systems of quality control.

Outputs: these included stakeholders' perceptions and needs on graduates' performance, utility of learning experiences and skills, transition and mobility to higher levels of learning, graduates values and morality.

.A systematic effort to improve quality of teaching and learning requires specification and measurement of the desired school outputs and identification of how the multiple inputs of the system interact within the learning process to produce the desired school outputs. The current understanding of these relationships suggests the following priorities for effective remedial teaching and learning of Mathematics in secondary schools : (1) improving the availability and use of instructional materials; (2) enhancing teacher effectiveness by emphasizing subject mastery, communication skills, and teacher motivation; (3) improving managerial skills, community and institutional structures, and individual and organizational incentives; and (4) increasing the time actually spent on learning. When these priorities are linked with improved preconditions for learning that enhance pupils' initial capacities, and with community environments that would reinforce learning, true gains was made through remedial teaching and learning in Mathematicsan subsequent achievement for all.

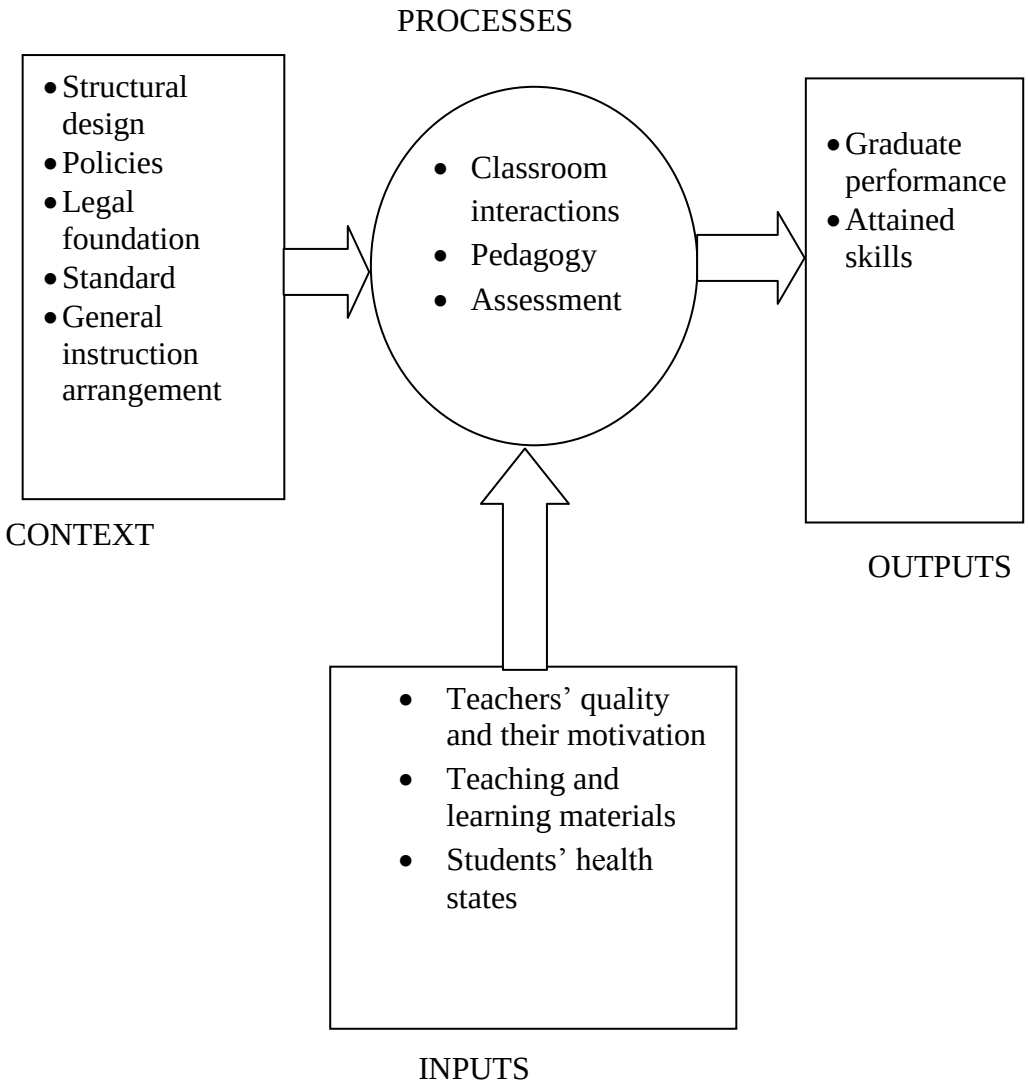

Figure 2:Conceptual Framework: Model of Remedial Teaching Effectiveness Modified From CIPP (Stufflebeam, 1971) ; Source: WCEFA 1990a

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents proposed methodology for this investigation. The chapter's major elements included research approach, research design, area of study, population of the study, sampling techniques and sample size. Moreover, data collection instruments and data collection procedures were then covered. The chapter ends with validation of research instruments, ethical considerations as well as data analysis plan.

3.1 Research Approach

A research approach is a systematic plan for research project including whom to integrate, as well as who to compare for which dimension (Flick, 2007).Based on the research objectives and design, the mixed research approach was employed in this study. According to Creswell (2003) mixed research approach is a procedure for gathering and analysing data by using both qualitative and quantitative in a single study in order to understand a research problem comprehensively. Qualitative approach is an attempt to ensure that data collection closely reflects what was happening in the field (Open University of Tanzania, 2001). Therefore, it was used to reveal the situation at schoolsabout the effectiveness of remedial of teaching and learning as an intervention program against low-achievement in the Mathematics subject. On the other hand, quantitative research approach was used in establishing the academic progress of students as an impact of the remedial program.

3.2 Research Design

According to Mouton (1996) the research design serves to "plan, structure and execute" the research to maximize the validity of the findings. Kothari (2003) further views a research design as the arrangement of conditions for collecting and analyzing data in a manner that combines relevance to the research purpose.This study employed descriptive survey design because it wouldproduce a snapshot of a population at a particular point in time;also according Creswell (2008) the study would collect the perceptions and practices across the sampled population within a short period of time.

3.3The Location of the Study

The study was conducted in Lindi district in Lindi region. It is located in Southern part of Tanzania. The district found on Latitudes 10°42` South of Equator and Longitudes 35°39` East of Greenwich. The total land covered an area of about 750.05 square kilometers. According to Develeux andHolddinot (1992), a researcher needs to select a specific area for the study, since only specific location and not all areas are usually ideal as well as suitable to collect relevant data. Two key reasons for conducting research in Lindi district were that this kind of study had not yet been conducted there and that students in Lindi had constantly been performing poorly in the Mathematics subject (MOEVT, 2011)

3.4 Population of the Study

The target population was a group from which the researcher is interested in gaining information and drawing conclusions (Kothari, 2003). The population for this study included heads of schools, academic masters, form two mathematics teachers from different schools and form two students found in the area of the study. The inclusion

of these officials aimed at obtaining information based on perceptions, practices as well livedexperiences related to remedial teaching programs.

3.5 Sample Size

A sample is a subset of the population that selected for investigative purposes (Goetz &LeCompte, 1984). The sample size of this study comprised a total number of 91 respondents. Table 3.1 shows the distribution and categories of respondents who participated the current study.

Table 1: Compositions of Respondents

s/n	Category of Respondents	Number of Respondents
1	Heads of schools	07
2	Academic masters	07
3	Form two mathematics teachers	07
4	Form two lower achieving mathematics students	70
Total		91

3.6 Sampling Techniques

The study employed purposeful methods to obtain study participants.Purposefully sampling referred to a non-random method of sampling where the researcher selected information-rich cases (Patton, 2002). It is among the most common sampling strategy in qualitative research and seeks cases rich in information which could be studied in great depths about issues of central importance to the purpose of the research. This method was used in order to get the key informants with the relevant information regarding to the remedial teaching program. The key informants were recruited based on their expertise or experience in the remedial class activities. This

enabled the researcher to conduct an in depth analysis related to mathematics remedial teaching programs for low achieving students in secondary schools.

3.7Research Methods

The research method referred to a strategy of enquiry which moves from the underlying assumptions to research design (Myers, 2009).The main data collection methods used in this research study were the questionnaires, interviews, and documentary reviews

3.7.1 Questionnaires

The study decided to use questionnaires in order to allow many respondents to participate in the in the data collection (Judge at el, 2004). However this technique had to be complemented by other methods since it could not explore detailed information from respondents and therefore research methods such as interview and documentary review were employed for in the study.

3.7.2 Interviews

Interviews are methods of gathering information through oral quiz using a set of preplanned core questions. According to Shneiderman and Plaisant, (2005), interviews were adequately productive to pursue specific issues of concern and hence led to focused and informative data. The current study decided to use this method in order to get first-hand information from respondents in visitedsecondary schools. This face to face discussion enabled the study to have clarifications thatfunctionally complemented and subsequently validated the information gathered through the questionnaire.

3.7.3 Documentary Review

Documentary review refers to the analysis of documents that contains information relevant to a particular study (Bailey 1994). The documentary review method is used in investigating and categorizing physical sources, most commonly written documents, whether in the private or public domain (Payne & Payne 2004). The current study used thismethod in order to reveal academic progress of the low achieving learners in mathematics where the main sources were school documents.

3.8 Data Collection Instruments

According to statistical Quality Standards (2010) data collection instruments refers to devices used to collect data such as a paper questionnaire or computer-assisted interview system. In this study, questionnaires, interviews schedule and documentary guide were used. These instrumentswere expecting to enhance divergent findings from the different groups and individuals that would assist in drawing credible conclusions

3.8.1 Questionnaires

This instrumentapparently allowed collection of variety of data from a large number of respondents within a short period of time (Jidge et al, 2004). The items were in the form of statements or questions. In this study questionnaires wereadministered to Form Two Mathematics teachers and Form Two low achieving students because the information gathered were conveniently coded, tabulated and analyzed. Teachers and students from different secondary schools were involved in the filling in of the questionnaires.

3.8.2InterviewSchedules

Interview schedules were employed to heads of schools, academic masters and mathematics teachers. The interviews were done with an individual through negotiations with each individual respondent. The interviews sessions were further conducted at respondents' respective areas. Time for conducting interview was arranged according to the respondents' conveniences. During the interview sessions, the researcher employed elaborative probe. The use of elaborative probes aimed at soliciting in depth information from the interviewees.

3.8.3 Documentary Review Guide

Documents were useful sources of evidence to support themes emerging through other instruments namely questionnaires and interviews (Eisner,1998). Thus, documentary review was used as means to capture secondary data in this study. The referred Documents included were such as end of term reports, annually reports and form two national examinational results found at selected secondary schools.

3.9 Validation of Research Instruments

The data collection instruments were validated in order to obtain relatively reliable responses. The validation of the data collection instruments intended to make them clear and unambiguous. Hill and Kerber (1967) gave five points that were considered and observed when formulating the instruments. The five points included the length of the instruments, the subjects, the items and the format and how the instruments motivate the respondents. In order to realize the above-cited qualities for validating the data collection instruments, the present study involved a number of experts and later conducteda pilot study.

3.10 Ethical Considerations

This study was carefully designed and conducted in order not to cause warm to the percipients and/ or the public at large. Prior to carrying out the fieldwork, a research clearance letter was obtained from Directorate of Research Publications Postgraduate Studies and Consultancy of the University of Dodoma. Using the clearance letter, research permissions were requested from the authorities of Regional Administrative Secretary in Lindi regions. In carrying out the study, participants were informed of the objectives of this study and that their participation consent would be voluntary. They were free to participate or withdraw at any time of the study. Moreover, the respondents were assured of anonymity and that the information they provided, whether orally or in writing were treated strictly confidential and were only used for the research purposes. In addition findings of the current study will be put in the library at UDOM available to the public including the participants of the study

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

4.0 Introduction

This chapter presents data analysis that is followed discussion of findings of the current study. The chapter is organized into two sections. The section I mainly presents descriptive statistics regarding selectedrespondents' demographic characteristics. The section II presents, analyzes and discusses findings based on the set objectives of the current study. As has been stated in the chapter one, the main purpose of the study was to explore the*effectiveness of remedial teaching and learning as an intervention program against low achievement in mathematics among secondary school students in Tanzania.***.**The data for this study were collected from head teachers, teachers and students from seven secondary schools. Among these schools four where day schools and three where boarding schools. Besides, the data were collected using questionnaires and interview guides to teachers and students.

Section I

4.1 Descriptive Statistics

This section presents the information related to selected respondents' demographic characteristics. The item-wise analysis in presented is terms of number of respondents, status of school, gender of students, and students' attendance in the remedial program as well as teachers' work experience in charts and tabular forms.

4.1.1 Respondents' Distribution across the Sample

This part presents distribution of respondents who participated in the study from the selected seven secondary schools. Table 2 presents the percentage distribution of head teachers, academic teachers, Mathematics teachers and students involved in the study

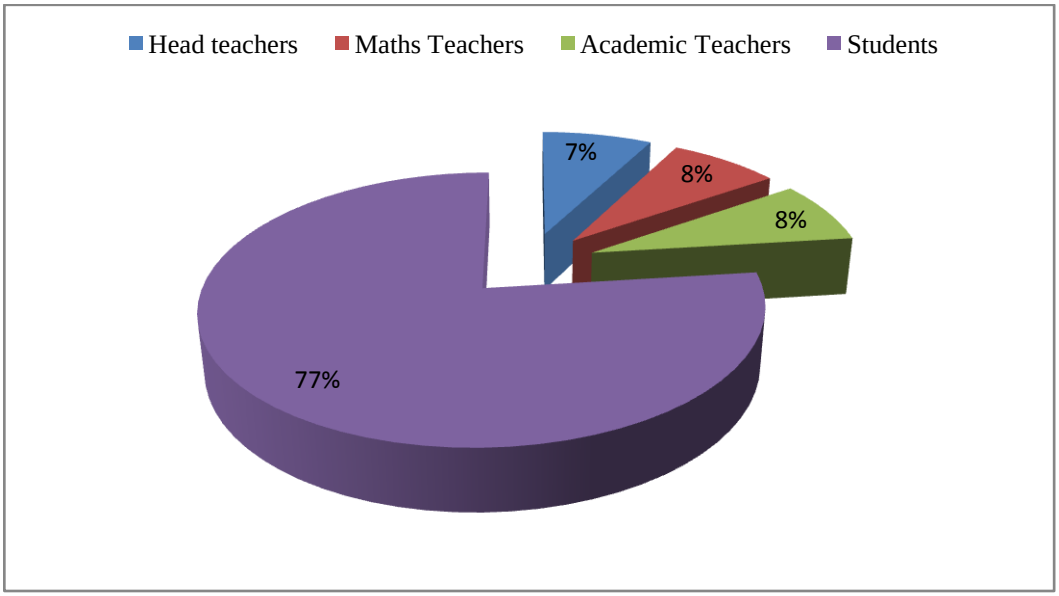

Figure 3: Respondents' Percentage Distribution across the Sample

Figure 3 above shows that, a total number of 91 individuals participated in this study. Among them 21 were teachers, whereby, 3 where head teachers, 3 academic teachers, and other 3 were Mathematics teachers. Besides 70 students (10 students from each school)participated in the current study. These participants were selected in order to get the key informants with the relevant information regarding to the remedial teaching program in the particular secondary schools.

4.1.2 Students' Instructional Information

This part presents information on location of 70 students who participated in the study.The information includes type of school, ownership of school as well as distance travelled by students to school.

Table 2:Location of Students in terms of Distance to Schools in Km

Schools	Status	Ownership	Distribution of students by distance to school in Km			Total
			Less than 3	3-6km	Above 6	
A	Boarding	Private	--	--	--	--
B	Boarding	Private	--	--	--	--
C	Boarding	Private	--	--	--	--
D	Day	Public	04	05	01	10
E	Day	Public	01	06	03	10
F	Day	Public	04	03	03	10
G	Day	Public	05	02	03	10
Total			14	16	10	40
Percentages			35.0%	40.0%	25.0%	100.%

Source: field data, May 2016

In the table 2 showed that, 14 (35.0%) students confirmed that they cover a distance of between 1-3 kilometers to school. 16 (40%) had to walk between 3-6 kilometers, 10 (25%) walk for above 6 kilometers. Considering the distances covered by these students could imply potential fatigue they might endured and the extent to which this could affect alertness at school. Convincingly this could affect students' attendance in the program as well as academic performance as was suggested by Moyo (2013) that students who walked long distances to attend remedial programs at school had low academic performance.

4.1.3 Students' Attendance in Remedial Programs

This part presents the rates at which students on remedial normally attended these programs' sessions during one academic term. The rates were divided in three categories ranked as follows *Unsatisfactorily, Moderate and Regularly* depending on the percentage of periods that a given student attended in the term

Table 3: Remarks onStudents' Attendance on the Remedial Programs' Sessions

Gender	Students' attendance remarks in remedial programs			Total
	Unsatisfactorily (Below 20%)	Moderate (20%-50%)	Regularly (Above 50%)	
Males	05	11	22	38
Females	06	13	13	22
Total	11(16%)	24(34%)	35(50%)	70(100%)

Source: field data, May 2016

Table 3 presents remarks on the rates of students' attendance in the remedial programs as revealed in this study. Among 70 students who were involved in the study, 11(16%) of them had unsatisfactorily attendance remarks, 24(34%) students had moderate attendance remarks and 35(50%) had regularly attendance remarks. Therefore this study also revealed that, about 50% of the students who were registered to the program and participated in this study were not attending regularly to the remedial program. Noteworthy,as was found byAgba at el (2015) that truant behavior had negative effects on a student's academic achievement due, hence the alarming observations of the current study implied ineffectiveness end results of the remedial teaching programs in the secondary schools. Another study conducted byDahir at el(2013) on the effects of student's attendance on academic performance.The total amount of time that students report studying has often been examined as a potential predictor of success in school. It might seem that the more

time that students spend studying, the better grades they should receiveAsberg, at el 2005.Therefore it was obvious that students' irregularity in attending remedial classes could cause poor performance in mathematics

4.1.4 Teachers' Work Experiences

This part presents work experience for teachers who participated in this study. The work experience was divided into three categories which are 0-5years, 6-10years and 11years and above. Table 5 below presents distribution of working experience of 21 teachers who participated in the study

Table 4: Distribution of Teachers by Length of time Work

Experiences	Teachers' Categories and Frequencies			Total
(years)	Head Teachers	Academic Teachers	Maths Teachers	
0 – 5	02(29%)	06(86%)	05(71%)	13(62%)
6 – 10	05(71.43%)	01(14.29%)	02(29%)	08(38%)
11 and above	--	--	--	--
Total	07(100%)	07(100%)	07(100%)	21(100%)

Source: field data, May 2016

As shown in Table 4 majority (62%) of the teachers who participated in the study had work experience that ranged between 0-5 years followed by those within a range of 0-6 years(38%).Besides none among the teachers who participated in this study were in the range of 11years and above. For the case of Head teachers, majority (71%) were in the range of 6-10 years, then two (29%) had work experience of 0-5 years. Besides 06(86%) academic teachers had work experience ranging 0-5 years and only one (14%) had 6-10 years.Lastly, for the case of the Mathematics teachers 05(71%) had 0-5 years of teaching experience followed by 02 (29%) who had 6-10 years of experience.

The currents study intended to compare the impacts of teachers' teaching experience and school administration experience on effectiveness of the remedial programs among visited schools. The results revealed that more than two third (71%) of remedial teachers and (86%) of academic teachers had experience of less than five years in teaching. These might affected their working competency as well as performance promotion for low achieving students in Mathematics. Adeyemi (2008) observed thatSchools having more teachers with five years and above teaching experience achieved better results than schools having more teachers with less than five years teaching experience. Result in the same table also showed that more than two thirds(71%) of head teachers had more than five year in their office. Although most of the head teachers (71%) had work experience of more than five years in the office but could not be effective in conducting remedial program since they had not attended any remedial teaching trainings as reported by one of the interviewed head teacher,

> "We have never attended any training or workshop related to teaching students with special academic needs, therefore it becomes difficult for us to give necessary professional and technical supports for effective mathematics and other remedial programs conducted in our schools"

These responses by head teachers showed that they lacked essential knowledge and skills for effective remedial teaching program.Nusbuga (2009) was an opinion that education and experience brings about a change in the leadership attitudes and hence performance. Therefore, in this regard the current study asserted that unless the head teachers were well equipped with knowledge and skills in remedial teaching and management, the program would not be as effective as desired

4.1.5 Students' Academic Achievement after Remedial Program

This part presents a comparison of total scores for Mathematics before and after implementation of remedial program among the students who participated in this study. The students' scores in the seven schools were recorded before and after the remedial program in order to observe possible influences of remedial program among for students with low academic achievement in Mathematics

Table 5: Students' Scores in Mathematics before and after the Remedial Programin seven schools.

Schools	Total Average %		Total Average%	
School A	448	45	605	61
School B	182	18	251	25
School C	249	25	361	36
School D	177	18	219	22
School E	280	28.	305	31
School F	085	08	212	21
School G	327	33	408	40
Total	1748		2361	

Source: field data, May 2016

Results as presented in the Table 5 showedthat scores for admission of students into Mathematics remedial program were not the same among schools. School A had highest average score of 44 which was rated as C grade in last Form Two National examination results while schools C, E, and G had scores 25%, 28.08% and 330% respectively and was rated as D grade in Form Two National examination results. Besides other schools B, D, and F had admission scores of 18 %, 18% and 09% respectively and were subsequently rated as F grade in the last Form Two National examination results. Variations of marks for students to be admitted into remedial program as shown in table 5 above,was revealed in the current study. However the

Tanzanian government to insist provision of remedial program to low achievers did not set standard scoresfor students to joinintoprogram. This contrary to Ndebele (2014) who said that in Zimbabwe Children who are eligible to participate in the remedialprogramme are selected through specially designed standardized diagnostic tests supplied as appendices to the Chief Education Officer (CEO) Minute number 12 of 1987 at the end of their third year in the primary school

Section II

4.2 Data Analysis and Discussion

Under this section of the current chapter, research themes were developed according to set objectives of the study. Subsequently, under each theme data were analyzed under particular tasks. The objectives of this research were as follows: *firstly;* to investigate low achieving students' perceptions towards the introduction of Mathematics remedial classes programs in school, *secondly* to investigate Teachers' perceptions towards the introduction of Mathematics remedial classes programs in schools, *thirdly* to investigate relevancy of teaching and learning activities employed in Mathematics remedial classes and *fourthly* to asses low achieving learners' progress as related to the Mathematics remedial classes as they were shown in the chapter one

4.2.1 Low Achieving Students' Perceptions towards Remedial program on Mathematics in secondary schools

This objective sought to identify the current low achieving students' perceptions towards the introduction of Mathematics remedial classes program in secondary schools. To meet this objective, students who were attending Mathematics remedial programs and participated into this study were given two tasks as follows

4.2.1.1 Task 1: To give their perceptions on remedial teaching program conducted for low achieving students in Mathematics.

In performing this task a question was asked to the students whether it was necessary for Form two low achieving students in mathematics to be provided with remedial teaching

4.2.1.1.1 Key question*: Do you think that remedial teaching programs are necessary for Form two low achieving students in Mathematics?*

Under this question seventy (70) students were required to give their opinions by responding 'yes' if it was necessary, 'no' if it was not necessary and 'neutral' if students were not aware about the remedial Program and results were distributed in the table below.

Table 6: Responses on Students' Perceptions towards Remedial teaching in Mathematics

Student's Response	Frequency	Percentage
Yes	67	96%
No	03	04%%
Unaware	00	00%
Total	70	100%

Source: field data, May 2016

Table 6 above presents the participated students' responses on the perceptions towards involvement in Mathematics Remedial Programs for Form Two Students in Secondary Schools. A total number of 70 Students responded to this question. Among them, 67 students (96%) responded as 'Yes' while 3 students (4%) responded as 'No' and no student responded (Unaware) when they were asked to show their opinions.

The information above indicated that most of students were aware and interested with the program. However the 'No' responses might be due to distances of students from home as stated in Table 2 and some students needed time to rest, because these programs were conducted in evenings as one student reported that,

> "*Morning hours appear more appropriate times for running mathematics remedial programs. This is mainly because evening normally a time for rest, sports and doing personal activities"*

4.2.2.2 Task 2:To investigate Attitude change among the Form Two Mathematics Students due to the remedial programs

In performing this Task one question was asked and various responses were drawn from students according to the items given in the question

4.2.2.2.1 Key question:*Does Mathematics remedial instruction change your attitudes towards learning Mathematics in future*

In attempting this question a total of seventy (70) students were involved from seven secondary schools among which four were public and day secondary schools while other three were private and boarding secondary schools. In order to measure strength of change of behavior various items were involved as shown in the table below

Table 7: Respondents' Change of Attitude towards Learning Mathematics due to the Remedial program

Attitude change after attending remedial teaching	SA	A	N	D	SD
I would like put more effort in learning mathematics	10(14%)	41(58%)	19(28%)	00(00%)	00(00%)
I would like to continue improving mathematics skills	14(21%)	31(45%)	22(31%)	03(03%)	00(00%)
I would be self – motivated to learn mathematics	07(10%)	33(47%)	25(36%)	05(07%)	00(00%)
I feel more confident in mathematics	12(17%)	29(41%)	17(24%)	10(14%)	02(04%)

Source: field data, May 2016

KEY: SA=Strong Agree, A=Agree, N=Neutral D=Disagree SD=Strong Disagree

The results from Table 7 show that over half of the students agreed to change their attitudes towards putting more efforts in learning Mathematics (72%).Besides 65% of visited students were determining to continue improving their skills in Mathematics.

Further 59% of visited students became more confident to deal with Mathematics problems after attending remedial program, and they also reported of being self-motivated to learn Mathematics after attending this program by 58%.

The results of this task showed that Mathematics remedial instruction was beneficial to low achievers since students reported positive changes of attitudes towards learning Mathematics and they self-perceived improvement in their overall

Mathematics competence. Therefore, students' learning attitudes were apparently enhanced.

The results obtained under the objective one above suggested that low achieving students preferred remedial teaching programs in order to change their attitudes and improve performance in Mathematics. These results were consistent with Sanders at el (1983) who observed that students had positive views of their reading ability after receiving remedial teaching program also Accurso-Salguero (2016) in a study which determined and assessed the perceptions of both students and teachers on thebest approaches to remedial education revealed that students felt that taking remedial classes was beneficial to them.

4.3.2 Teachers' Perceptions towards Practices of Mathematics Remedial Classes Programs in schools.

To meet this objective, five tasks were performed and these were, firstly to identify if respondents have any qualification to conduct remedial classes,secondly to investigate remedial teachers how they had carried out their teaching duties. Thirdly to investigate the way remedial teachers could get support from other stakeholder schools stakeholders, fourthly to analyze strengths of challenges they encountered and lastly to explore teachers' feelings about usefulness of remedial teaching programs in schools

4.3.2.1 Task 1: To identify if teachers had adequate qualifications for conducting remedial classes to low achieving students

In performing this task one question was asked to twenty one(21) teachers who were dividedingroups of seven in each of the following categorieshead teachers, academic teachers and mathematics remedial teachers if they had attained any training on

teaching remedial classes forlow achieving students and various responses were drawn from visited teachers as follows

4.3.2.1.1 Key question:*Have you ever attended some remedial teaching training courses for low- achieving students?*

Respondents were required to attempt this question by choosing either 'Yes' if they attended training or 'No' if not attended. Results were shown in table 8 below

Table 8: Teachers' Responses on whether they attended Remedial Teaching Trainings

Teachers' category	Responses		Percentage
	Yes	No	
Head Teaches	--	07	100%
Academic Teachers	--	07	100%
Remedial Teachers	--	07	100%
Total	--	21	100%

Source: field data, May 2016

As shown in table 8 none of the teachers had attended any training in the teaching of low achieving students. Reportedly knowledge they had was from workshops, about 45 percent of them during interview sessions admitted to attend Student Teacher Enrichment Program (STEP) as a workshop which was conducted by Prime Minister's Office Regional Administration and Local Government (PMORALG).One of them said

> "We attended a one week seminar in Student Teacher Enrichment Program (STEP) which was conducted by officials from Prime Minister's Office Regional Administration and Local Government (PMORALG) on how to conduct remedial teaching for low achieving students in English, Kiswahili, Biology and Mathematics which was held in our nearby teachers' resource center".

NoteWorthy putting generally untrained teachers to handle learners with special educational needs was apparently contrary toSchwartz (2012) whose opinion was

that, teachers that received quality professional development would be more effective with low achievers than those who were not particularly trained and further they could identifylow performing students and provide the tools to address low achievement that could yield described learning gains. Furthermore Reynolds and Seymoler (2007) in their study insisted that professional teachers increase skills on work which made students to be able to use and adopt new learning technologies which in turn enhance academic performance.

4.3.2.2 Task 2: To investigate the way remedial teachers received support from various Stakeholders

In order to perform the given task one question was asked to seven (7) mathematics remedial teachers who participated in the study to identify supportthey were given byvarious educational stakeholders such as school administrators, teachers of other subjects, parents and students as follows

4.3.2.2.1 **Key question***: What are your opinions about supports you get from other stakeholders during implementation of Mathematics remedial Teaching?*

Responses of this question are indicated in table as given by seven Mathematics Remedial teachers from seven different schools as follows

Table 9: Opinions of remedial Teachers who participated in the study on Support they get from other Stakeholders

Stakeholders	Strong	Weak	No response	Total
Teachers of other subjects	02(29%)	04(57%)	01(14%)	07(100%)
Educational administration	05(72%)	01(14%)	01(14%)	07(100%)
Students themselves	03(42%)	02(29%)	02(29%)	07(100%)
Parents	02(29%)	04(57%)	01(14%)	07(100%)

Source: field data, May 2016

Table 9 shows that 72 per cent of the remedial teachers felt that they were successful in getting the support from school administration, and this percentage was higher compared to the percentages on other items. Meanwhile the remedial teachers felt less supported by low achieving students: only 43 per cent felt supported. Results in table 9 show that remedial teachers were getting weak support from other teachers and parents of low achieving learners where only 29 per cent felt they were supported by group of stakeholders.

Decline of support between Remedial teachers and other stakeholders apart from school administrators in implementing remedial teaching as indicated in the table 9 above might be due to factors such as other teachers workload and long distances from their homes. Another possible factor might be lack of proper commutation between school administrations and parents about implementation and progress of the programs as well as home distance of parents and students to school as it was identified in table 2 of this study. According to National Education Association (2008), when schools, parents, families, and communities work together to support learning, students tend to earn higher grades, attend school more regularly, stay in school longer, and enroll in higher level programs. Desarrollo (2007) also suggested

that the extent to which parents or other family members were actively engaged in a student's education had a positive influence on the student's achievement based on its own findings as well as evidence from previous the current study revealed that lack or partial involvement of various stakeholders in theremedial programs in schools affect its effectiveness

4.3.2.3 Task 3: To investigate various challenges faced by Remedial Teachers in Implementing Mathematics Remedial Programs in Secondary Schools

In order to perform the given task one question was asked to the participants. The question called for the remedial teachers to rate degree of the challenges in their schools and results were indicated in table 10 below

4.3.2.3.1 Key question:*How among these challenges tend to affect your role of conducting remedial teaching to Form Two Mathematics students?*

Responses of this question were indicated in table 10 as they were given by seven Mathematics Remedial teachers from seven different schools as follows

Table 10: Opinions of Teachers who participated in the Remedial Teaching on challenges affecting Remedial Teaching

Challenge	moderate	strongly	silent	total
Heavy teaching workload in other classes	02(29%)	05(71%)	00(00%)	07(100%)
Overcrowded of students in remedial classes	03(43%)	04(57%)	00(00%)	07(100%)
Lack of enough teaching and learning materials	02(29%)	05(71%)	00(71%)	07(100%)
Problem with low achievers themselves	01(14%)	05(72%)	01(14%)	07(100%)
Communication barrier when using English as medium of instructions	01(14%)	06(86%)	00(00%)	07(100%)
Engagement in non-teaching duties	02(29%)	04(57%)	01(14%)	07(100%)

Source: field data, May 2016

Results in table 10 shows that using English as medium of instructions and heavy workload were noted as common problems faced by remedial teachers to conduct remedial classes in school by 86% and 71 % of respondents respectively. More than one-third of them (57 per cent) stated that their non-teaching duties were too heavy because some of them stated that they were engaged in schools management activities as well. The remedial teachers also complained of overcrowded remedial classes: On this matter 57 per cent said there were too many low achievers in given remedial sessions. Also a challenge was identified as lack of teaching and learning materials, where 71 percent complained that they conducted remedial teaching without using teaching and learning materials

Lastly, the remedial teachers also encountered problems with the low achievers themselves. More than half of the teachers (71 per cent) complained that low achievers had problems in their works. About 56 per cent were of view that the low achievers were often late or absent from their remedial sessions especially in public schools.

As shown in Table 10 more than two-third of remedial teachers were facing problems in areas of heavy workload, overcrowded classes, using teaching and learning materials, problems of low achievers themselves and engaging teachers in non-teaching duties. The weight of the above challenging areas against to successful academic achievement cannot be ignored. Mosha (2000) contended that quality education was achieved through improvement of teaching/learning facilities as well as adequate number of teachers and quality classrooms Glass et al (1982) also pointed out that large class size inhibited the teaching and learning processes to take place since teachers were unable to help the students on a one on one base. In addition to the above challenges language also was found to be among most serious problem in facilitating remedial teaching in visited schools, where teachers reported that low achieving students in mathematics were also poor in English.

> "We also experienced that apart from these students being under achievers in mathematics but also they can't understand well when we use English as medium of instruction. For example when we enrolled them into form one by using a test which was written in Kiswahili these students achieved highly but as we used English as medium of instruction they notably performed poorly"

In their responses remedial teachers showed that for effective remedial teaching in mathematics there was need of improving students' ability of using English as language of instruction as shown in other studies. According to the National Examination Council Tanzania (NECTA) the language problem inhibited student's

to expression on what they had learnt clearly in writing which was attributed as a main result of poor performance in form four National examinations as reported by Mwinsheikhe (2003) and Sumra at el (2014) added that Using Kiswahili as a language of instruction in primary school and English at secondary level created problems for children from public schools while benefited children from English medium primary schools. Also Howie (2003) in his study pertaining language confirmed that proficiency in English language did correlate with achievement in mathematics; students with higher scores in Mathematics also performed better in the English test administered

4.3.2.4 Task 4:To explore teachers' feelings about usefulness of remedial teaching programs in schools

In order to collect data for a given task, one question was asked to the participated teachers as whether the remedial program would be sustainable for form two students in their schools as follows

4.3.2.4.1 Key question: *Do you think the mathematics remedial programs will be sustainably for Form Two low- Achievers in your school?*

Responses of this question are indicated in table 11 as given by 21 teachers from seven schools which conducted Mathematics Remedial teaching programs as follows

Table 11: Teachers' opinions regarding sustainability of Remedial programs in their schools

Categoriesof Teachers	Yes	No	No Response	Total
Head Teachers	04(57%)	02(29%)	01(14%)	07(100%)
Academic Teachers	05(71%)	00(00%)	02(29%)	07(100%)
Mathematics Remedial Teachers	03(44%)	02(28%)	02(28%)	07(100%)
Total	12(57%)	04(19%)	05(28%)	21(100%)

Source: field data, May 2016

Table 11 manifested that majority of academic teachers (71%) were of the opinion that remedial teaching programs were sustainably. Besides majority heads teachers of (57%) were of a view that program was sustainable.

Apparently academic teachers had higher expectations on the programs because they focused on students' high achievement in their examinations while the head teachers and remedial teachers focused on both academic achievement and financial support for the program as one of the head teachers reported during an interview

> "Remedial program is fruitfully to some student, who show progress in examinations and can continue to be conducted in our school, but there is financial problem to support it, especially nowadays where government has prohibited parents to donate fund while government itself can't supply enough fund to facilitate expenses"

The problem of funding remedial program was huge in most of developing countries as it was supported by Ndebele (2014) who reported that in Zimbabwe effort of school heads to implement remedial education was being hampered by inadequate materials due to limited funding from Central Government.According to Obe (2009), without adequate funding, standards of education at any level shall be tantamount to a mirage that is,no educationalactivity can carry out its function effectively without adequate financial resources at its disposal.Therefore the provision of remedial program could not be effective if there was inadequate supply of fund to schools

4.3.3 Relevancy of Teaching/Learning Activities Employed in Mathematics remedial classes.

To meet this objectives one task was performed to find out if teachers applied various teaching strategies that are necessary in conducting remedial teaching

4.3.3.1 Task 1: To find out if Teachers applied various Teaching/Learning Strategies that were necessary for conducting Remedial Teaching/Learning

This task was performed in order to reveal if teachers in the participated schools apply various teaching strategies that were necessary for conducting remedial teaching/earning. To perform this task one question was asked to teachers as follows

4.3.3.1.1 Key question: *Which among following strategiesdo you use during teaching/learning of low achievers in your remedial classes?*

Responses to this question were recorded in terms of frequencies in the table 12 below as given by 7 Mathematics Remedial teachers in the seven visited schools

Table 12: Frequency Distributions of Remedial Teachers' Responses about Applications of effective strategies in Teaching Low Achievers in Mathematics

Use of the following strategies	Always	Sometimes	Rare	Total
Design appropriate teaching/learning activities	02(29%)	05(71%)	00(00%)	07(100%)
Using of appropriate teaching/learning materials	00(00%)	05(71%)	02(29%)	07(100%)
Well-organized learning environment/classroom	02(28%)	02(28%)	03(44%)	07(100%)
Dividing students in small groups	02(29%)	01(14%)	04(57%)	07(100%)
One to one consultation	02(29%)	01(14%)	04(57%)	07(100%)
Counseling to students	02(29%)	05(71%)	00(00%)	07(100%)
Keeping of students' progress records	02(29%)	05(71%)	00(00%)	07(100%)

Source: field data, May 2016

Less than one third, 29 percent of the remedial teachers as shown in Table 12 reported that they were always using effective strategies in remedial teaching. Meanwhile; about 71% were sometimes using them in their remedial teaching. However the results were not convincing in areas such as dividing students in small groups (51%), one to one consultation to students (51%), and well organization of learning environment/classroom (43%) of respondents were applying them in teaching/learning processes.

With reference to underachieving behaviors in students' performance Delisle& Berger (1990) indicated that remedial education would include varying and special strategies.Even theHong Kong Education Bureau (2007) proposed that these strategies would be chosen based on success rates and ease of implementation of remedial teaching. Correct use of each strategy would improve student achievement, allow teachers to have a wider range of instructional alternatives, promote diversified learning methods for a wide range of student abilities. In their studies, Adediwura (2007) and Schacter at el (2004) also commented that professionalism had relevant significance in education that affected the role of teachers and their pedagogy skills which influence students' academic performance

4.3.4 Low achieving students' progress as related to the Mathematics remedial classes

To meet this objective one task was performed to find out if there was statistical significance in the difference on performance of low achieving students before and after attending remedial teaching/learning program.

4.3.4.1 Task 1: To find out if there were statistical significant on low achieving students' performances in Mathematics before and attendance after implementation of the remedial program

In order to establish whether there were statistical significant difference in students' academic performance before and after attendance of the remedial program, paired samples t- test was carried out. Data used for the analysis were scores on academic performance of low achieving student in Form Two Mathematics before and after remedial Teaching/learning program in one term duration in 2016 in seven selected secondary schools as shown in table 5. The data were analyzed, using Statistical Package for Social Science (SPSS), to confirm the test validity and reliability. On the other hand, Mann Whitney, t. test was used to measure the statistical significance of differences in means between the students' score before and after attendance on the remedial program

4.3.4.1.1 Question one:*Does the process of remedial teaching have an impact on performance of low achieving students in form two mathematics classes?*

In order to establish whether there was an impact to students' academic performance before and after implementation of Remedial program, paired samples t- test was carried out. Data were analyzed through SPSS using paired samples t-test basing on means scores difference between scores before and after remedial programs in all visited schoolsas shown in table 13 below

Table 13: Comparison of Students' means Scores before and after Remedial Programs of Seven selected Secondary Schools

Mean diff	Stddev	Std Error mean	95% confidence interval		t	df	Sig (2-tailled)
			Lower	Upper			
-105.571	58.554	22.131	-159.725	-51.418	- 4.770	6	0.003

Source: field data, May 2016

The results in table 13showed that there was a significant difference between students' academic performance on Mathematics before and after the remedial teaching at $\alpha<0.05$ (P=0.003). The results in table 13 indicated that there were statistically significance differences on mathematics remedial programs of the Form Two low achievers. Apparently this meant that the program had a significant impact on promoting the students' achievement in the subject.

4.3.4.1.2 Question two:*Does the process of remedial teaching have an impact on performance of form two low achieving mathematics students in public secondary schools?*

In order to establish whether there was an impact to students' academic performance in public schools before and after implementation of Remedial program, paired samples t- test was carried out. Data were analyzed through SPSS using paired samples t-test basing on means scores difference between scores before and after remedial programs in the visited public schools shown in table 14 below

Table 14: Analysis of Students' Academic Performance before and after Remedial Programs of four selected Public Secondary Schools

Mean diff	Stddev	Std Error mean	95% confidence interval		t	df	Sig (2-tailled)
			Lower	Upper			
-91.500	75.478	37.739	-211.603	-28.603	-2.425	3	0.094

Source: field data, May 2016

The results in table 14showed that there wasinsignificant difference between students' academic performance on Mathematics in public secondary schools before and after the remedial teaching at $\alpha<0.05$ (P=0.094). Apparently this meant that the program had no impact on academic performance of Form Two students in visited public secondary schools.

4.3.4.1.3 Key question:*Does the process of remedial teaching have an impact on performance of low achieving students in form two mathematic in private secondary schools?*

In order to establish whether there was an impact to students' academic performance in private schools before and after implementation of Remedial program, paired samples t- test was carried out. Data were analyzed through SPSS using paired samples t-test based on means scores difference between scores before and after remedial programs in the visited private schools shown in table 15 below

Table 15: Analysis of Students' Academic Performance before and after Remedial Programs of three selected private Secondary Schools

Mean diff	Stddev	Std Error mean	95% confidence interval		t	df	Sig (2-tailled)
			Lower	Upper			
-124.333	28.571	16.496	-195.309	-53.358	-7.537	2	0.017

Source: field data, May 2016

The results in table 15 showed that there was a significant difference between students' academic performance on Mathematics before and after the remedial teaching at $\alpha<0.05$ (P=0.017). The results in table 15 indicated that there were statistically significance differences on mathematics remedial programs of the Form Two low achievers in among visited private secondary schools. Apparently this meant that the program had a significant impact on promoting the students' achievement in the subject.

Generally results in Tables 13 and 15 suggested that there were a positive impact of remedial teaching to students and particularly in private schools, but the situation was different in public schools where the impact of remedial teaching was insignificant as shown in table 14. This insignificant impact of remedial programs in public schools was apparently due to various circumstances such as students' distances from homes, students' absenteeism and irregularity in attending programs, students' tiredness during evening, lack of motivation to teachers and remedial teachers' involvement in none teaching activities. For instance one teacher reported during an interview sessions that,

> "Remedial teaching programs were not well conducted achieved in our school because some students stay far away from their homes that they cannot attend program on time and sometimes they completely fail to attend, also program teachers and students use

> after school hours' time to participate in sports and none teaching activities in order to sustain their life"

Meanwhile the visited private schools were found to be boarding schools where students were monitored and encouraged to attend remedial classes. Besides majority of the teachers were staying in school campuses and were further highly motivated in terms of allowances in order to run program. For a case in points one of heads of schools said that,

> "In order to maintain regular attendance of students in the programs we have established an attendance sheet that every student has to sign and reported to academic office. Also we reward students who can manage to show improvement during programs. All teachers of this school have got houses to live in the school campus and program teachers are funded with up Tsh 15,000/- per session as a motivation during program"

These attempts done in private schools showed positive impacts to both teachers' and students' performances. Furthermore apparently the reward scheme had positive effect in enhancing an individual's motivation as it was suggested by Malila (2003) that students' performances were affected by teachers' motivation in terms of provision of basic facilities such as housing, transport allowance and basic training including in-service courses. The same attempt was supported by Adeyemo (2005) who observed that motivated teachers are expected to provide better quality service.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary, conclusions and recommendations related to the study of effectiveness of remedial teaching as an intervention program against low achievement in mathematics among secondary school students in Tanzania

5.1 Summary of the Study

This part gives the summary of the study in terms of the key research processes which were, the background of the study, review of the literature, research methodologies, data presentation and data analysis as follows

The purpose of this study was to examineeffectiveness of remedial teaching and learning as an intervention program against low achievement in mathematics among secondary school students in Tanzania. In attaining the response, four objectives were considered. These objectives were: *firstly; to investigate students' perceptions towards the introduction of Mathematics remedial classes programs in school, secondly to investigate Teachers' perceptions towards the introduction of Mathematics remedial classes programs in schools, thirdly to investigate relevancy of teaching and learning activities employed in Mathematics remedial classes and fourthly to asses low achieving learners' progress as related to the Mathematics remedial classes*

The study was underpinned by the theories of constructivistPiaget (1969) andthe goal centered and natural system model of Lockheed and Vespoor (1990). In addition to this; both empirical and theoretical analysis of literature was done in order to find out the gap area of the research and established the knowledge gap. With a view to

achieve the objectives of the study and answer research questions, both qualitative and quantitative approaches were applied in this study. Moreover, purposive sampling technique was used to select the schools, the classes of students and school teachers. In order to collect data from the field, a variety of research tools namely, questionnaires, interviews and documentary review were thoroughly administered and scrutinized for enhancement of validity of the study. Furthermore the data collected were presented in tables and figures, and were analyzed further according to specific objectives and issues that were obtained from collected data. In addition to that the frequencies, percentage and statistical significance across mean differences were calculated by using SPSS for analyzing and later discussing findings.According to $p< 0.05$ level of significance study showed thatprivate schools ($p=0.017$) were effective in provision of remedial program compared to publicschools ($p=0.09$), also factors such as inadequate resource materials for teaching/learning, large class sizes and teachers overload, inadequate funding of the planned activities, poor participation of the key stakeholders, teaching methodology and professional skills, unmotivated teachers as well as English as language of instruction.

On the basis of main findings of the study, some conclusions were drawn and some recommendations were made.

5.2Conclusion of the Study

The study analyzed the effectiveness of remedial teaching as an intervention program against low achievement in Mathematics among secondary school students in Tanzania. This study has generally revealed that the program was effective since academic performance of some low achieving students was improved after implementation of the remedial program than that before remedial program, though

the difference was marginal.The Form Two progress examination results which represented their performance showed that the calculated level significance were as follows P=0.003 for general results, P=0.094 for public results, P=0.017 for private results. According to p< 0.05 level of significance, the current study showed thatprivate schools were apparently effective in provision of remedial program compared to public schools that also influenced the general students' performances.

The findings also showedthat majority of remedial teachers were using non-participatory teaching methods.These teaching methods don't accelerate the achievement of learners to desired levels because students were not engaged in problem solving activities and thus had limited understanding of lessons learnt in class.

Furthermore, the study revealed that there was shortage and inadequate use of teaching and learning materials as a problem that most of visited schools were facing. Teaching and learning materials determine the academic performance of students because textbooks supplementary books, reference books and teaching aids used in class would help individuals gain better understanding of what is taught in class.

Regarding the useof English as language of instruction for Mathematics low achievers the current study revealed communication barrierbetween teachers and students. The students became unable to fully understand lessons' instructions and the examination questions therefore were unable to provide accurate answers.

Also during the study it was observed by the researcher that most of visited schools had factors such as poor support from other school stakeholders, disproportional

teacher-students ratio, overcrowded classrooms, and shortage of classroom facilities that hinder the effectiveness of the programs.

The current study also revealed that none of the remedial teachers had specific in-service training on teaching of children with special academic needs. Almost all of the remedial teachers had not attended any particular training regarding students with special academic needs. This hinders remedial teachers from being competent with the emerging issues and other modern trends related to in teaching students with special needs.

The main objective of this study was to assess the effectiveness of remedial teaching as an intervention program against low achievement in mathematics among secondary school students in Tanzania. Besides the findings of the study reveal that the remedial teaching program did have significant influence on the academic achievement of learners. However its effectiveness depended on improvement factors related to teaching and learning such as methodologies of teaching and learning, students' participation in class activities, teaching and learning material and classroom environment.

5.3 Recommendations of Study

Based on the findings of the study, the following recommendations were in place for the parties concerned about the educational process

5.3.1 Recommendations for Policy Markers

- Government and school administration should take into account provision of adequate teaching/learning facilities for enhancing remedial teaching/learning program.

- The Ministry of Education is urged to make a special allocation of funds for remedial education to each school.
- To organize and conduct training courses for remedial teachers in order to enhance implementing remedial programs

5.3.2 Recommendations for Practices

Teachers could normally adopt the constructivism methods and strategies in teaching remedial classes

Teachers could provide students with frequent feedback, including positive reinforcement,suggestions and practices

There could be frequent exchange of experiences in remedial teaching between teachers in private and public schools

Parents could be involved in facilitating remedial program for their children and cooperate with remedial teachers in order to help and motivate them in academic achievement

5.3.3 Recommendations for Further Research

- The study was only confined in some secondary schools in Lindi in region of Tanzania. Further and related studies were recommended to be carried out in other regions for comparison and comprehension reasons.
- Study could be conducted on effectiveness of remedial classes program on improving low achieving students in other subjects and at other levels of education such as primary or tertiary ones

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APPENDICES

Appendix 1: Questionnaires for Form Two Mathematics Teachers

Dear respondents,

I am a student from the University of Dodoma (UDOM) pursuing Master of Arts in Education (MAED).Currently, I am doing a research on the **Effectiveness of Remedial Teaching and Learning as an Intervention Strategy Against Low Achievement in Mathematics Among Secondary School Students in Tanzania.** I humbly request your participation in terms of giving information for the study .It is my belief that you will enrich this study with enough and objective data. I also assure you that a name of any respondent will not appear in the report and the data collected will be confidential and used only for the purpose of the study.

PART A: Background Information

Please fill in appropriate information in the blanks shown below

School name ---------- District----------

Region---------- Sex----------

Age---------- Working Experience-----

PART B: General Questions

1. What is your experience in teaching Mathematics in Form Two classes?

(a). 0-5 years (b). 6-10 years (c). 11 years and above

[ ]

2. What is average performance of your students in examinations?

(a). Weak (b). Good(c). Better [ ]

3. How do you assist low achieving students to improve their performance?

(a)Remedial teaching (b). Counseling(c). both [ ]

4. Have you have attended some remedial teaching training course for low achieving students?

(a)Yes (b) No [ ]

- If no, how do you conduct it?

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5. Which among following strategies do you use during teaching/learning of low achievers in your remedial classes? Tick (v) the appropriate choice

Use of the following strategies	Always	Sometimes	Rare
Design appropriate teaching/learning activities			
Using of appropriate teaching/learning materials			
Well-organized learning environment/classroom			
Dividing students in small groups			
One to one consultation			
Counseling to students			
Keeping of students progress records			

6. How often do you asses improvement among the low achiever?

7. Is there any academic achievement for learners after implementing remedial teaching?

(a)Yes (a) no [ ]

- If no why?

6.What are your opinions about supports you get from the following stakeholders in implementing Mathematics remedial teaching? Tick (v) the appropriate choice

Stakeholders	Strong	Weak	No response
Teachers of other subjects			
Educational administration			
Students themselves			
Parents			

7. How among these challenges tend to affect your role of conducting remedial teaching to form two Mathematics students? Tick (v) the appropriate choice

Challenges in teaching Remedial	Not strong	Strong	No response
Heavy teaching workload in other classes			
Overcrowded of students in remedial classes			
Lack of enough teaching and learning materials			
Problem with low achievers themselves			
Communication barrier when using English as medium of instructions			
Engagement in non-teaching duties			

Appendix 2: Interview Schedule for Form Two Mathematics Teachers

1. What is your experience in teaching form two mathematics in your school?

2. What is average performance of your students in both local examinations and national examinations in recent three years?

3. What measures do you take to assist low achieving students in order to improve their performance for cases of continuing students?

4. Do you involve them in any remedial programs as strategies of improving their performance?

5. If yes what time and days of the week do you normally use to conduct this program?

6. Does that time favorable for effectiveness of this program?

7. Do you employ any other strategies in remedial teaching programs which are different from mainstream classes?

8. Do your teaching and non-teaching responsibilities allow you to be effective in remedial program sessions?

9. What support do you need from both school administration and parents for effectiveness of the program?

10. How do you deal with possible social stigmatization toward students in remedial classes?

11. What challenges do you face in conducting remedial teaching in your school?

12. What could be possible solutions for key ones among these challenges?

13. What is youroverall perception towards remedial teaching program in secondary schools?

Appendix 3: Interview Guide for Head of Schools

1. For how long have you been head of this school?

2. What is average performance of form two students in Mathematics?

3. What causes students to perform low in Mathematics in your school?

4. What techniques do you use to assist low achieving students in order to improve their performance?

5. How do you motivate teachers who assist students with low achievement to improve their performance?

6. Do you inform parents about the arrangement of the extra periods for low achieving learners before implementation of the program?

7. What challenges do you face on implementing remedial teaching program in your school?

8. Have you received trainings in conducting remedial teaching before

Appendix 4: Interview Guide to Academic Masters of Schools

1. For how long have been holding the position of academic master in this school?

2. What is the performance of Form Two students in Mathematics in past four years?

3. What are major causes that influence poor performance in Mathematics for those four years?

4 .What measures are taken by your office to improve performance on Mathematics?

5. Does your school run remedial teaching program for low achieving students on Mathematics?

6. How do you accommodate remedial sessions in the normal school timetable in order to ensure effectiveness?

7. Have you received trainings in conducting remedial teaching before?

Appendix 5: Questionnaires for Form Two Students

Dear respondents,

I am a student from the University of Dodoma (UDOM) pursuing Master of Arts in Education (MAED).Currently, I am doing a research on the **Effectiveness of Remedial Teaching and Learning as an Intervention Strategy Against Low Achievement in Mathematics Among Secondary School Students in Tanzania.** I humbly request your participation in terms of giving information for the study .It is my belief that you will enrich this study with enough and objective data. I also assure you that a name of any respondent will not appear in the report and the data collected will be confidential and used only for the purpose of the study.

PART A: Background Information

Please fill in appropriate information in the blanks shown belo

School name ----------District----------

Region---------- Sex----------

Age----------

PART B: General Questions

1.Why there are poor performancesin mathematics among form two students in your school?

(a)It is hard to understand (b)Poor teaching strategies (c)No enough time for revision

[ ]

Other comments----------

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2. Do your teachers employ remedial teaching programs to assist low achieving students in your class?

(a) Yes (b) No [ ]

3. If yes what time and days of the week do your teacher normally use to conduct this program?

(a) In the normal timetable (b) After lunch time (evening) (c) In preparation time (night) [ ]

4. What are your comments about appropriateness of time of your choice in 3above to attend remedial sessions? ----------

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5. What is walking distance from home to school in order to attend remedial sessions

(a) Less than 3km (b) Between 3and 6km (c) Above 6km

6. How do you rank your attendance to the remedial program sessions in this term in terms of the following rates?

(a)Unsatisfactory (below 20%) (b) Moderate (20%-50%) (c) Regularly (above 50%)

7. Which among following strategies does your teacher use during teaching/learning of remedial classes sessions in Mathematics? Tick (v) the appropriate choice

Use of the following strategies	Always	Sometimes	Rare
Design appropriate teaching/learning activities			
Using of appropriate teaching/learning materials			
Well-organized learning environment/classroom			
Dividing students in small groups			
One to one consultation			
Counseling to students			
Keeping of students progress records			

8. Do remedial classes in mathematics have any impact in your academic performance in this term?

(a) Yes (b) No (c) Unaware [ ]

9. Rank the following change in attitudes towards learning Mathematics due attending remedial programs

Attitude change after attending remedial teaching	SA	A	N	D	SD
I would like put more effort in learning mathematics					
I would like to continue improving mathematics skills					
I would be self –motivated to learn mathematics					
I feel more confident in mathematics					

Key:SA=Strong agree, A= Agree, N= No response, D= Disagree, SD= Strong Disagree

10.What are your comments for the effectiveness of mathematics remedial programs in Form Two----------

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Appendix 6: Documentary RTeview Guide

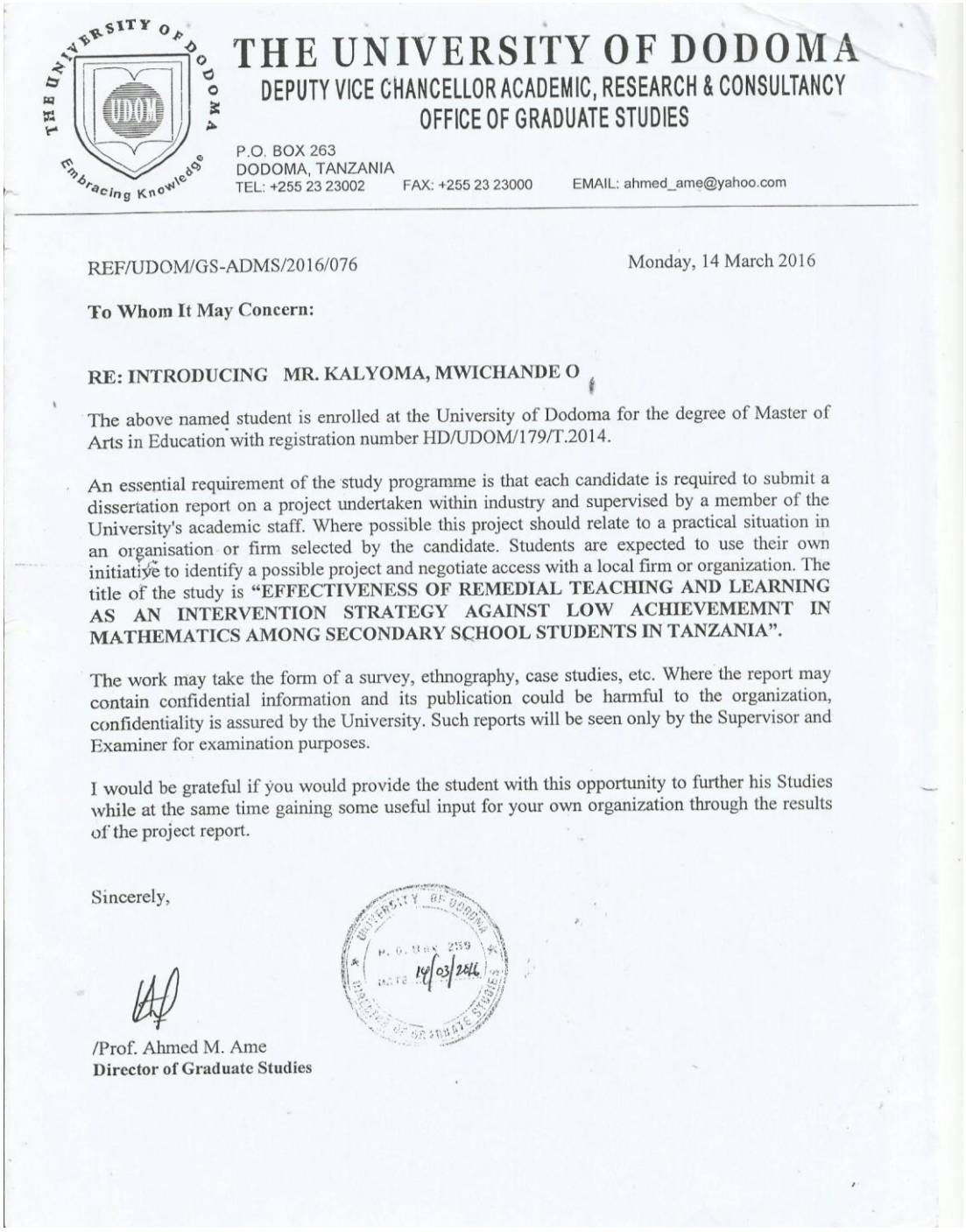
Form Two Mathematics RemedialStudents' academic progress schedule

Name of school---------- Class----------

Subject----------

Students' number	Scores before Remedial Program	Scores after Remedial program

Appendix 7: Introduction Letter from the University of Dodoma



THE UNIVERSITY OF DODOMA
DEPUTY VICE CHANCELLOR ACADEMIC, RESEARCH & CONSULTANCY
OFFICE OF GRADUATE STUDIES

P.O. BOX 263
DODOMA, TANZANIA
TEL: +255 23 23002 FAX: +255 23 23000 EMAIL: ahmed_ame@yahoo.com

REF/UDOM/GS-ADMS/2016/076 Monday, 14 March 2016

To Whom It May Concern:

RE: INTRODUCING MR. KALYOMA, MWICHANDE O

The above named student is enrolled at the University of Dodoma for the degree of Master of Arts in Education with registration number HD/UDOM/179/T.2014.

An essential requirement of the study programme is that each candidate is required to submit a dissertation report on a project undertaken within industry and supervised by a member of the University's academic staff. Where possible this project should relate to a practical situation in an organisation or firm selected by the candidate. Students are expected to use their own initiative to identify a possible project and negotiate access with a local firm or organization. The title of the study is **"EFFECTIVENESS OF REMEDIAL TEACHING AND LEARNING AS AN INTERVENTION STRATEGY AGAINST LOW ACHIEVEMEMNT IN MATHEMATICS AMONG SECONDARY SCHOOL STUDENTS IN TANZANIA".**

The work may take the form of a survey, ethnography, case studies, etc. Where the report may contain confidential information and its publication could be harmful to the organization, confidentiality is assured by the University. Such reports will be seen only by the Supervisor and Examiner for examination purposes.

I would be grateful if you would provide the student with this opportunity to further his Studies while at the same time gaining some useful input for your own organization through the results of the project report.

Sincerely,

/Prof. Ahmed M. Ame
Director of Graduate Studies

Appendix 8: Introduction Letter from Lindi Municipal Council

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YARAIS
Tawala za Mikoa na Serikali za Mitaa
Halmashauri ya Manispaa ya Lindi

Telegraphic address:"Town Hall"
Tel: 023-220-2164
Fax: 023-220-2116

Ukumbi wa Manispaa,
S.L.P 1070,
LINDI.

Kumb.Na. LMC/C.10/T.20/4/10

21/03/2016

The Deputy Vice Chancellor
Academic,Research and Consultancy
P.O BOX 263
DODOMA

RE:INTRODUCING MR KALYOMA,MWICHANDE O

Refference is made to your letter dated 14 March 2016 with REF N0:UDOM/GS-ADMS/2016/076 having the above heading.
With this letter I would like to inform you that the place for research for your student named above is available.

Yours faithfully

Adam S.A
For MUNICIPAL DIRECTOR
LINDI.

MUNICIPAL DIRECTOR
LINDI

Copy:
Mr Kalyoma,Mwichande O
S.L.P 263
DODOMA.
-Report to Municipal Human Resource Officer

Appendix 9: Letter of Acceptance from Lindi Municipal Council

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YARAIS
Tawala za Mikoa na Serikali za Mitaa
Halmashauri ya Manispaa ya Lindi

Telegraphic address:"Town Hall"
Tel: 023-220-2164
Fax: 023-220-2116

Ukumbi wa Manispaa,
S.L.P 1070,
LINDI.

Kumb.Na. LMC/C.10/T.20/4/11 21/03/2016

Mkuu wa Shule
Shule ya Sekondari Mkonge

Mkuu wa Shule
Shule ya Sekondari Lindi

Mkuu wa Shule
Shule ya Sekondari Angaza

Mkuu wa Shule
Shule ya Sekondari Ngongo
LINDI

YAH:KUMTAMBULISHA NDUGU KALYOMA,MWICHANDE O

Tafadhali husikeni na somo la hapo juu,

Mtajwa wa hapo juu ni mwanafunzi toka Chuo kikuu cha Dodoma ambaye anasoma Shahada ya Uzamili katika Elimu (Degree of Master of Arts in Education) ambapo ameomba kufanya Utafiti kwa baadhi ya Shule za Sekondari katika Halmashauri ya Manispaa ya Lindi
Kwa barua hii namleta kwako ili uweze kumpa ushirikiano atakaouhitaji katika kufanikisha masomo yake.

Nakutakia kazi njema.

MUNICIPAL DIRECTOR
LINDI

Adam,S.A
Kny:MKURUGENZI WA MANISPAA
LINDI.

NAKALA
Afisa Elimu Wa Manispaa (S)
S.L.P 1070
LINDI.

Ndugu Kalyoma ,Mwichande O
DODOMA. –Ripoti kwa wakuu wa Shule husika.