THE INTERNAL EFFICIENCY OF PUBLIC PRIMARY SCHOOLS IN IKOLOMANI SOUTH DIVISION, KAKAMEGA SOUTH DISTRICT

BY

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

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To the memory of my late dad Ronald Luvega and Mama Clare Luvega for their love and support that prepared the foundation upon which I continue to anchor my academic pursuits.

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ABBREVIATIONS AND ACRONYMS

AEO - Area Education Officer

AGSR - Actual Grade Survival Rate

CBS - Central Bureau of Statistics

CPE - Certificate of Primary Education

CWR - Cohort Wastage Rate

EFA - Education for All

FGD - Focus Group Discussion

FPE - Free Primary Education

GDR - Grade Promotion Rate

GER - Gross Enrollment Rate

GOK - Government of Kenya

GPR - Grade Promotion Rate

GR - Graduation Rate

GRR - Grade Repeater Rate

GSR - Grade Survival Rate

GWR - Grade Wastage Rate

IIEP - International Institute of Educational Planning

ILO - International Labor Organization

IPAR - Institute of Policy Analysis and Research

KCPE - Kenya Certificate of Primary Education

MED - Master of Education

MET	-	Master Plan on Education and Training
MOE & HRD	-	Ministry of Education and Human Resource Development
MOEST	-	Ministry of Education Science and Technology
PTR	-	Pupil Teacher Ratio
SFA	-	Schooling for All
UNESCO	-	United Nations Education Science and Cultural Organization
UNICEF	-	United Nations International Children Education Fund
UPE	-	Universal Primary Education
WCEFA	-	World Conference on Education for All

ABSTRACT

Primary schooling brings obvious consumption benefits and is demanded by most families, on behalf of their children, in and for itself. Furthermore, Primary education has since 1948 been formally accepted as a universal human right, the provision of which should be ensured by national governments. However an analysis of the current status of primary Education in Kenya reveals access, promotion and completion shortcomings. Several studies and even Ministry of Education statistics have indicated that access, promotion, retention and completion rates are low. However, there has been little actual analysis of internal efficiency nationally and even in Ikolomani South division. This study was formulated to establish the internal efficiency in non-monetary terms of the public primary schools in Ikolomani South Division. The study adopted a descriptive survey design since the independent variables were not manipulated because they had already occurred: their treatment was included by selection rather than by manipulation. The measurement of internal efficiency in education theoretical framework guided the study. In light of this framework, inputs were the most visible elements such as pupils, teachers, school physical facilities and learning and teaching resources. The process was the 'black box' and proxies such as repetition, dropout, retention and survival of pupils were taken to reflect process efficiency while outcomes of this framework were measured by graduation and completion rates, average years per graduate and the coefficient of efficiency. The target population comprised 33 primary schools in Ikolomani South Division. Thirteen (13) primary schools and by extension their head teachers were studied. Proportionate stratified random sampling was used to arrive at a class teacher sample of 65. Systematic sampling procedure was employed to arrive at 5 schools. Focus Group Discussions were conducted in each of these 5 schools. The simple random sampling procedure was used to obtain 65 repeaters, 5 from each of the 13 schools used in the class teachers' sample. Purposive sampling technique was used to obtain information from the area quality assurance and standards officers.. Questionnaires, Interview schedules and Focus Group Discussions were employed to collect data. Both quantitative and qualitative techniques of analyzing data were used. Data on enrolment, repetition, dropout, retention and survival was analyzed using descriptive statistics that is; ratios and percentages. Grade survival, graduation rates and average years per pupil were calculated using already established formulae and the results used to compute the efficiency co-efficient to determine the level of internal efficiency. The results were presented in the form of percentages, frequency tables and charts. The findings indicated that public primary schools in Ikolomani South Division have a low internal efficiency of average years per graduate of 10.497 which translated to an additional 2.497 years needed to produce graduates that require an optimal 8 years of the primary education course. A coefficient of efficiency of 0.762 or 76.2% which was at great variance with the UNESCO recommended coefficient of efficiency of over 0.90 (90%) for internally efficient education systems was established. Based on the study findings, it was recommended that teachers, educational policy makers and education planners adopt strategies that would lower the average years per graduate thus lowering the wastage rate as the first step towards increasing enrolment and completion rates and consequently ensuring an internally efficient primary education system.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

A minimum of primary education attainment among the majority (if not all) of a country's population is a pre-requisite for modern development (Government of Kenya, 2003). Education is a key determinant of earnings and therefore an important ticket out of poverty. Primary education develops peoples ability to take advantage of the opportunities that can improve their well being as individuals so that they are able to participate more effectively in their communities and beyond (UN, 2003).

Many countries especially developing ones have invested heavily in education, a situation that is manifested by the huge potions of the national income expended on education. The fact that educational investment takes an increasing share of the national budget reflects the high priority given to education. Kenya like many other developing nations believed it would promote economic growth and provide skills needed for development through provision of education. It is for this reason that the government allocates approximately 43% of its annual recurrent expenditure to education alone (World Bank, 2005). These large sums of money expended by governments and private individuals on education in Kenya call for efficiency in its management in order to achieve the aim.

In an attempt to measure how efficiently education systems manage their education, educational planners have introduced the concept of internal efficiency. The internal efficiency of an educational system is usually the flow of pupils or students through a course within the minimum required years without any delays or wastage. Internal efficiency must be at a maximum level if the best use is to be made of scarce resources. According to the World Bank, (1980) internal efficiency in education system has two dimensions: the flow of pupils/students with minimum waste and the quality of learning achieved in the system. The later dimension implies that efficiency cannot solely be measured by mere flow of pupils from one class to the next. For instance, if a country has a policy of allowing pupils to progress to the next grade even if academically the student does not perform well, we cannot consider the system to be efficient. This is because such a system would be disregarding the value of the education outputs. To a large extent the concept of internal efficiency measures output in purely quantitative terms, for example, the number of graduates or qualified school leavers produced in the education system. For many purposes, measuring output by the number of pupils/students who successfully complete a course provides a good initial approximation of the efficiency level and comparing this with input measured by the number of pupil years may be enough to indicate that high rates of repetition and dropout (wastage) are connected with low efficiency. Judged by the length of time needed to produce one qualified school leaver, a primary school can be said to be either internally efficient or not.

The World Bank, (2003) notes that high wastage rate is one of the major challenges

still persistent in education in developing countries. It further observes that even though school enrollment at the primary level is mandatory in many countries and fast approaching the world average of 84%, once enrolled, pupils drop out for a variety of reasons.

Data available indicates that Kenya's fast growing net enrollment of about 78% at primary education level is accompanied by a low completion rate of below 75% which is the accepted minimum level of internally efficient systems according to educational planners. Failure to ensure that pupils who start Grade One are retained in the education system up to the last grade of primary school points to system inefficiency. Two indicators of measuring progress in efficiency of a primary education system are the survival rate of pupils to the fifth grade and the completion rate at the terminal grade and the coefficient of efficiency index (World Bank, 2003). In this respect, Kenya with an estimated completion rate of just over 65% of primary education still lags behind developed nations like the United Kingdom (UK), the United States of America (USA) and Switzerland with 99.6% of pupils completing primary schools.

The coefficient of efficiency index on the other hand is an indicator of the internal efficiency of an education system reflecting the combined impact on efficiency of repetition and dropout. The ideal value of the coefficient is 1 or 100%, corresponding to a situation in which all pupils complete the school cycle, neither repeating grades nor dropping out.

Despite high gross enrollment rate worldwide, including developing countries, fewer than 62% of the children who enter school in the low income countries (least developed countries) and about 70% of those who enter school in the lower-middle- income countries (developing countries) reach the last year of primary school (World Bank, 2003). Indicators of students' progress through school, estimated by the UNESCO and the World Bank, measure an education system's success in extending coverage to all students, maintaining the flow of students from one grade to the next, and, ultimately, imparting a particular level of education at the end of a given cycle.

Even though school enrollment at least through the primary level is mandatory in many countries and approaching the world average of 84%, in Kenya, once enrolled, students drop out for a variety of reasons, including the low quality of schooling, discouragement over poor performance, and the direct and indirect costs of schooling (World Bank, 2003). Data available indicate that high enrollment ratios are not always accompanied by high completion rates. Many countries are able to ensure that pupils start Grade One but fail to retain them in the school system. Two indicators widely used to measure progress in efficiency of an education system are the survival rate of pupils to grade 5 and the completion rate at the last grade of primary school. In this respect, the developed countries like the United Kingdom (UK), the United States of America (USA) and Switzerland have recorded primary school completion rate of 99.6% while Africa especially Sub-Saharan Africa recorded 52.8% of pupils completing primary schools (UN, 2005).

Because of low enrollment or because children repeat grades or drop out at primary level, many children and young people especially in Africa remain illiterate. The UN statistics Division, 2005 reports a literacy rate of 99.7% for the developed countries, 95.5% for Latin America and the Caribbean, 74% for sub-Saharan Africa and 78.9% for East Africa between the period 2000/2004.

In an attempt to measure how efficiently education systems manage their education, the World Bank, 2003 uses the co-efficient of efficiency index. This is an indicator of the internal efficiency of an education system, reflecting the combined impact on efficiency of repetition and drop out. The ideal value of the co-efficiency is 100%, corresponding to a situation in which all pupils complete the school cycle, neither repeating grades nor dropping out. A co-efficient of less than 100% indicates some level of resource wastage. The internal efficiency of education systems varies widely. In the UK and USA, primary education records a co-efficient of efficiency of 99.7-100%, 78% in Latin America and the Caribbean and 69% in Sub-Saharan Africa (World Bank, 2005). This paints a gloomy picture of primary education in Africa.

Wastage in primary education is manifested quantitatively in the form of repetition, dropout, low completion and graduation and ultimately a low coefficient of efficiency. Inefficient flow of pupils is accompanied by inefficient use of scarce resources and students' space. When the average years per pupil graduate goes up, the unit cost per pupil goes up too (World Bank, 1980).

In order to visualize the magnitude of the education problems associated with high

repetition and dropout, low completion and high average years per graduate in public primary schools, it must be considered that any additional year consumed by each pupil is a great wastage to the pupil, family and the government. When this happens, it drives the cost of an otherwise affordable primary education higher and therefore requires the pupil, family and government to invest even more heavily in it. Goodland and Anderson (1987) report that a higher average years per graduate result in low self esteem in the stagnated pupil some of who may develop other psychological problems leading them to dropout completely.

In short, enhancing internal efficiency in primary education provision is a worthwhile end that must be pursued. This means that attempts could be made to reduce heavy government budget expended on education by ensuring efficient resource utilization. The main reason behind all these efforts is to ensure there is efficient utilization of the available resources in public primary schools so as to accommodate the ever increasing demand for education, lower the unit cost on education and thereby improve the quality of primary education in the country.

Ikolomani South, one of the poorest divisions in Kenya and indeed the poorest in Western Province is hard hit by the problem of resource provision and efficient use, (Central Bureau of Statistics (CBS), 2005). According to this CBS report, the division posts a poverty incidence of 76%! This translates to a shortage of money and other resources and therefore increasing resources available for use in educational reform will no doubt depend on managing the existing resources in schools more efficiently.

1.2 Statement of the Problem

Declining enrolment and participation rates remain critical areas of concern in developing countries. Prior to the introduction of FPE in Kenya, enrolment was on the decline from 95% in 1988 to 88% in 1998 (after adjustment of age from 6-13 years) while about three million school age Kenyan children remained out of school (IPAR, 2000). However, with the introduction of FPE in 2003, the GER increased from 92% in 2002 to 104% in 2003 (when FPE was being implemented). The total enrollment rose by 17.6 from 6,131,000 in 2002 to 7,208,100 in 2003 (OWN & Associates Centre for Research and development, 2004). However, high enrollment ratios are not always accompanied by high completions rates. Many countries are able to ensure that students start Grade 1, but fail to retain them in the school system (UNESCO.2002/2003).

An education system is internally efficient if it utilizes available resources optimally in its production process (Ogutonye, 1978). One of the many ways through which an education manager assesses the efficiency of an education system is by observing cohorts of students from initial enrollment in a particular level and measuring their flow from grade to grade up to the final grade and graduation. The extent to which a particular level of the school system is described as efficient and effective depends almost entirely on the uninhibited flow of students from initial enrollment to the final grade and graduation (Gravenir, 2004)

A high GER in Kenyan public primary schools estimated at 104% following the introduction of FPE has failed to translate into an equally high completion rate. Many children and young people continue to repeat and drop out of school leading to low survival to the Fifth Grade, a prerequisite for literacy and eventually low completion rate of the primary education cycle. The resultant high average years per graduate and ultimately a low coefficient of efficiency index has meant high wastage of the scarce resources available to pupils at this level of education.

Several studies and even MOE statistics have indicated that access, promotion, retention and ultimately completion rates are low (National Survey, 2004). However, there has been little actual analysis of internal efficiency nationally and especially in Ikolomani South Division. In view of these, this study sought to determine the internal efficiency of public primary schools in Ikolomani South Division as a way of establishing whether the available resources are efficiently utilized to accommodate the ever increasing demand for education, lower unit cost and thereby improve the level of internal efficiency of public primary education.

1.3 Purpose of the Study

It is important to have students flowing through a course within the minimum required years without any hindrance or wastage. This is because children may have access to education but that does not guarantee that they will stay in school or complete their primary education. Completion of primary school increases the

necessary level of competence to allow a child progress to the next level of education or be self taught (UNESCO, 2003).

This study analyzed the internal efficiency of public primary schools in Ikolomani South Division of Kakamega South District between the years 2001 and 2008. The purpose was to determine the level of internal efficiency of public primary institutions.

1.4 Objectives of the Study

The objectives of the study were:

a) To determine the pupil enrolment ratio in schools within Ikolomani South Division.

b) To establish the grade enrolment distribution of pupils in public primary schools within the Division.

c) To establish the level of internal efficiency of public primary schools in Ikolomani South using the following flow indices of determining internal efficiency: pupils grade survival rate, grade repeater and dropout rates, grade retention rate, completion and graduation rates and the average years per graduate.

d) To determine the efficiency co-efficient of determining internal efficiency in public primary schools within Ikolomani South Division for the period 2001-2008.

e) To investigate the factors influencing the flow of pupils from one grade to the next.

f) To examine the effect of internal efficiency on access to public primary school education in Ikolomani South Division.

1.5 Research Questions

The study was guided by the following research questions:-

i. What is the enrolment ratio and distribution of pupils by grade in public primary schools in Ikolomani South Division?

ii. What is the specific nature of pupil-flow i.e. retention, promotion, wastage and completion rates of pupils in public primary schools in Ikolomani South Division for the period 2001 to 2008?

iii. What is the efficiency coefficient of public primary schools in Ikolomani South Division?

iv. Are there specific factors that influence the flow of pupils from one grade to the next in public primary schools in Ikolomani South Division?

v. Does the level of internal efficiency have an effect on access to public primary school education in Ikolomani South Division?

1.6 Significance of the Study

This study sought to provide information on the internal efficiency of public primary

schools in Ikolomani South Division. It was hoped that the recommendations based on this information would be of assistance in the followings ways:

i. Establishing the level of internal efficiency will provide data to education administrators, planners and decision makers on the current status of pupil-flow in primary schools. This information is important in formulating policies and instituting other measures that will strengthen the internal efficiency of public primary education.

ii. The study will provide information on the factors affecting the rate of pupil-flow to enable teachers and other education stakeholders to work towards improving the level of internal efficiency through embracing strategies and practices that will contribute to reduction of wastage and improve the flow of pupils.

iii. Contribute to the growing body of research knowledge in the area of internal efficiency in public primary schools in Kenya.

1.7 Assumptions of the Study

The study was conducted on the basis of the following assumptions:

i. That there existed the recommended pupil-teacher ratio and that all public primary schools in the Division enjoy administrative stability.

ii. That public primary schools in Ikolomani South Division do not suffer from poor provision of adequate learning-teaching facilities and resources.

iii. That the respondents would give honest and truthful replies and data to questions asked.

1.8 Delimitation and Limitations

1.8.1 Limitations

The analysis was concerned with internal efficiency in non monetary terms (as opposed to economic efficiency) of public day primary schools in Ikolomani South division of Kakamega South District.

1.8.2 Delimitation of the Study

This study was confined to public day primary schools within Ikolomani South Division, Kakamega South District. Private and boarding primary schools were not part of the study. The study covered the period between 2000 and 2008 only. This study was limited to the analysis of the internal efficiency using the indices discussed.

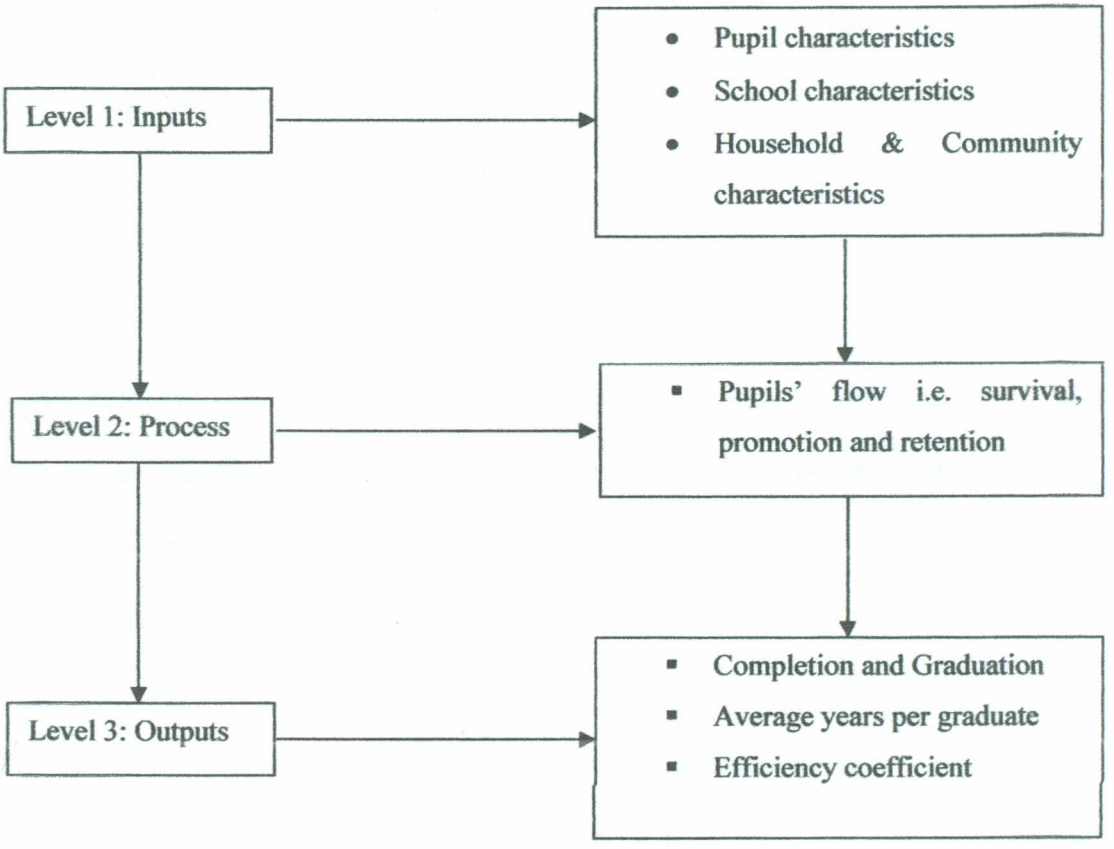
1.9 Theoretical Framework

This study was based on the measurement of internal efficiency in education theoretical framework (IIEP, 1990). The framework of internal efficiency considers the output of a given cycle of education as the number of pupils/students who complete this cycle (graduates). It also considers the flow of students through the grade structure of an education cycle. Within its structure, it considers the enrollment, survival, wastage, completion and average years per graduate and factors that determine such outcomes. The most common indicator used to assess the educational efficiency is the coefficient of efficiency (input-output ratio). The coefficient of efficiency is calculated by dividing the optimal (ideal) number of pupil years (i.e. in absence of repetition and dropout) by the number of pupil years actually spent by a cohort of pupils. In a perfectly efficient system, this coefficient would equal 100% or an index of 1 and inefficiency arises from any point which is less than 100% or 1.

Rather than concentrate on using conventional statistical models such as the production Function Model which treat an organization as a fragmented system of operations (inputs vs. outputs) with the motive of profit maximization, which is the case with some schools that lay emphasis on the final examination results, the measurement of internal efficiency in education theoretical framework is guided by the process perspective which analyses basic school processes like, enrollment, flow of students, completion, graduation and average years per student.

1.10 Conceptual Framework

Figure 1.1: An Adaptation of the Measurement of Internal Efficiency in Education Theoretical Framework



Source: Adapted from Internal Efficiency in Education Theoretical Framework, 1990

Based on the measurement of internal efficiency in education theoretical model of education efficiency, the conceptualization of the term education efficiency in a developing country like Kenya should take a process perspective rather than an outcome perspective. This means that there is need to go beyond the issue of the final output of a school in trying to meet its objectives i.e. its mean score in a national

examination. As opposed to efficiency in a factory manufacturing goods, school efficiency had to examine critically how education as a system operates to meet its objectives, in what could be considered a 'holistic operation'. Inputs that constitute pupil characteristics, school related factors- teachers, school physical facilities, teaching and learning resources, teacher qualification and commitment, textbooks, location of school and household/community characteristics- family size, parental level of education and occupation, cultural practices determine what goes into an education system for processing.

Based on this approach, the process is basically a silent activity that cannot be easily investigated. It is difficult to collect reliable and comparable information on what goes on in the classroom. However, proxies that reflect process efficiency and effective utilization of resources in the school are highlighted. They include repetition and dropout, retention and eventual survival within the education system.

The outputs according to the framework are measured by completion at terminal stage of primary education (class 8), graduation rates, average years per graduate and the efficiency coefficient. .

1.11 Operational Definition of Terms

A Cohort- is a group of students/pupils with identical school learning characteristics for this case that group of pupils enrolled in class 1 in the same year and is expected to graduate together in the same year.

Access- is the right of a student/pupil to participate in an educational programme, without enquiring whether this right can actually be exercised in practice.

Actual Grade Survival Rate (AGSR)- is the definite number of students who move into a subsequent grade in a subsequent year, excluding repeaters, divided by the number of students in the previous grade the previous year. AGSR is also called Grade Promotion Rate (GPR).

Average Years per Graduate is the average number of years the system is taking to produce a primary graduate. The ideal average number of years per graduate should be equal to the duration of the course.

Cohort Wastage Rate- is the waste that has occurred in a particular cohort of pupils from the point of entry to exit. Point of entry refers to enrolment and point of exit refers to graduation.

Distribution of Students- is the combined enrollment of students across all the levels

of education in the sampled schools. In the table of student distribution, the upper figure represents the enrollment while the lower one represents the repeaters.

Grade Drop-Out Rate- is the percentage of pupils dropping out of school from a given grade.

Grade Repeater Rate- compares the number of students who repeat the same grade in a subsequent year with the total enrolment in the same grade in the previous year.

Grade Retention Rate- is the ability to keep. It is the addition of the survivors into a subsequent grade in a subsequent year and the repeaters of the same grade in the following year divided by the enrollment in the previous grade the previous year.

Grade Wastage Rate- refers to the percentage of those students who fail to make it to the next level of an education system. It embraces repeaters and dropouts.

Graduation Rate- is the number of pupils who successfully sit the terminal examination divided by the number of students in the final (terminal) grade in that year.

Internal Efficiency- is the measure of the smooth flow of students through a grade structure in an educational cycle. The ideal average number of pupil- years per successful completion should be equal to the duration of the school cycle.

Pupils Flow- is the movement of pupils from one grade to the next i.e. from Grade One to Grade Eight.

The Gross Enrolment Ratio (GER)- is the total enrolment in a level of education regardless of age. It's obtained by dividing the total enrolment in a level or stage of education by the population of the group, which corresponds to that level/stage. GER can sometimes exceed 100% due to the inclusion of over-age and under-age pupils and repeaters.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

The review of related literature in this chapter will focus on different areas of internal efficiency in schools. This chapter comprises four sub sections. These are: the efficiency concept, criteria of evaluating internal efficiency in primary education, variable costs and education wastage in primary education and access to primary school education.

2.2 The Efficiency Concept

Efficiency in education is often confused with two related but different concepts: school quality and school effectiveness. School quality can refer to input measures such as aggregate expenditure, per student expenditure, teacher qualification, availability of facilities, equipment and materials, process measures such as teacher - pupil interaction, peer effects, use of facilities, equipment or materials and output measures; test scores, promotion/graduation rates or outcome measures such as eventual social or economic success (IEES, 1986). In contrast, educational effectiveness is normally limited to output measures alone e.g. graduate relevance in the job market. It is possible to have quality and school effectiveness without having efficient operation of the school (Colclough & Lewin, 1993).

Education economists define internal efficiency as comprising "the amount of learning achieved during school age attendance, compared to the resources provided ... the percentage of entering students who complete the course often used as its measure" (Wolff, 1984). The analysis of internal efficiency asks whether core outputs could be achieved with the available inputs or, alternatively, whether fewer inputs could be used in providing the same level and mix of outputs".

UNESCO (2006) defines efficiency as the relationship between the inputs into a system and the outputs from that system. Education inputs comprise the buildings, teachers, books, teaching materials etc. Outputs are measured by the average years per graduate used by a cohort of pupils to graduate, the graduation rate, completion rate among others. The percentage of entering students who complete the course is often used as a reliable measure of efficiency. Thus, there is need to go beyond the issue of at what cost does a school meet its objectives such as its mean score in a national examination. School efficiency has to be pegged on how education as a system meets its objectives i.e. how are schools operating to meet objectives? How many learners are entered for? How are the learners coping with the system –how many repeat classes, how many drop out, what percent completes school? Are there constraints which affect learners' active participation? Answers to these questions will indicate levels of efficiency in the education system (Abagi, 2004). UNESCO, (2005) observes that the most common indicator used to assess the educational efficiency is the co-efficient of efficiency (input – output ratio).

The co-efficient of efficiency is calculated by dividing the optimal (ideal) number of pupil years (i.e. in absence of repetition and drop-out) by the number of pupil years actually spent by a cohort of pupils. In a perfectly efficient system, this co-efficient would equal 100% and inefficiency arise when it is less than 100%. Low retention, high wastage due to repetition, dropout and eventually low completion rates constitute the major indicators of education inefficiency.

The internal efficiency concept thus is much more inclusive than those of quality or effectiveness and places a strong emphasis on the scarcity of resources and their appropriate utilization in schooling. Windham (1983) observes that the efficiency concept and its role in the evaluation of education are best understood within the larger context of economic optimization. All optimization processes involve the maximization of the value of a given phenomenon (either a single or a set of items) within the existing constraints of the environment. The maximization of profits, the optimization of social utility and the maximization of costs are all examples of the generic optimization process.

Internal efficiency can be viewed from the background of both economic and technical efficiency. Both efficiency concepts involve a ration of an output or outputs to a set of inputs. In technical efficiency, the ration is stated purely in terms of physical quantities (IEES, 1988). Technical efficiency is optimized when one achieves the greatest possible ratio of outputs per unit of inputs.

Economic efficiency includes all the issues related to technical efficiency and adds consideration of the value of the inputs and outputs. IIEP (1987) defines internal efficiency as achieving the best results using the available resources within the educational system. An education system is internally efficient if it utilizes available resources optimally in its production process (Ogutonye, 1978). One of the many ways through which an education manager assesses the efficiency of an education system is by observing cohorts of students from initial enrollment in a particular level and measuring their flow from grade to grade up to the final grade and graduation. The extent to which a particular level of the school system is described as efficient and effective depends almost entirely on the uninhibited flow of students from initial enrollment to the final grade and graduation (Gravenir, 2004).

However, to improve the efficiency in learning in primary education, it is also necessary that there be a corresponding improvement in school inputs - curriculum contents, teaching and learning materials, teacher qualification training and morale, adequate facilities and upgrading process factors - school climate (environment and leadership), teaching/learning (sufficient learning time, active teaching methods, appropriate class size). Other background factors like health, nutrition and pre- school education need to be improved (UNESCO, 2002).

2.3 Evaluating Internal Efficiency in Primary Education

The criteria for determining internal efficiency in an educational level are education system management practices i.e. participation (enrolment), progression, promotion policies and completion & transition (UNESCO, 2002). Also important are the presence and adequacy of physical facilities, instructional materials and a teaching force that is healthy and motivated (Republic of Kenya, 1998). To sum up, Abagi et al, (2000) reiterates that acceptable cost of education at all levels, established key educational management structures add to the list of indicators of internal efficiency.

2.3.1 Pupil-Teacher Ratio

Education for All (EFA) by 2015, as envisaged by the Kenyan government (GOK) and UNICEF (1998), represents a broad range of goals, within which primary school teachers play a vital role. There is a fair amount of agreement that reduction of class size has positive impact on learning outcomes (UNESCO, 2005). When the number of children per class is low, e.g. 20 or less, more efficient learning is likely to be realized as opposed to those in large classes, e.g. 30 and more.

A study of the World Bank (2003) on pupil-teacher ratios in developing countries decries the wide PTR's of between 30:1 and 80:1. This is in sharp contrast to the PTR's of below 25:1 that characterize efficient education systems in the developed

countries. A study conducted by Onditi (M.Ed. Thesis, 2003. p.41) found a significant relationship between low pupil-teacher ratios and pupil performance.

Republic of Kenya and UNICEF (1994) advise that the PTR at 32:1 in Kenya primary education system be raised to a national average of 40:1. Thorndike (1973); Simons and Alexander (1980); Fuller (1987) recommended a PTR of between 42:1 and 45:1 which they term as 'tolerable'. Raising the PTR to this level should results in savings, which should be re-invested in non-salary requirements therefore raising efficiency and making reduction of costs to households possible.

Owing to the implementation of FPE, the number of teachers in primary schools went up slightly from 178,037 in 2002 to 178,622 in 2003 with the pupil teacher ratio worsening from 34:1 in 2002 to 42:1 in 2003 (Republic of Kenya, 2004:30). With the continued enrolment, classroom sizes, especially in the lower classes have risen from an average of 40 pupils to 120 pupils. With such large classes, schools have to exceed the requirements of having the recommended teacher-pupil ratio of between 40:1 and 45:1. These class sizes have even side-stepped the practice of having an optimal teacher - pupil ratio of between 40:1 and 70:1 The PTR is too wide, making teaching and supervision difficult. The situation as described is likely to promote undesirable student practices like unhealthy boy/girl relationships that may lead to dropout thereby impacting negatively on pupils' retention and progression in the education system (IRIN News, 2004).

2.3.2 Grade Repetition

There is a high repeater rate in Kenya's primary education recorded between the 6 and 8 grades. This is a result of severe testing and promotion practices (Daily Nation Newspaper, 18/9/2003, Editorial). However, several studies by Haddad, (1979) have suggested that there is no educational advantage to be derived from making low achievers repeat grades. The world conference on Education for all (WCEFA, 1990 b: 51) supported such a finding by asserting:

> *If repetition resulted in increased achievement, it could be considered a pedagogically useful mechanism. However, the evidence shows that the achievement gained from repetition are minor, rarely cost-efficient and often promote low self-esteem and an increased propensity to drop-out.*

High levels of repetition usually indicate system inefficiency. Grade repeaters occupy places that could have been taken up by other pupils and therefore hinder efforts to educate large numbers of children (Eshiwani, 1993). This has a direct effect on enrolment and promotion of pupils. Furthermore, the amount of money spent on repeaters adds an extra financial burden to the educational system.

A study by OWN & Associates (2004) indicates that FPE has had an impact on reducing repetition rates. 69% of teachers interviewed in a national study were of the view that repetition has dropped in their schools because pupils are no longer sent home to collect school levies.

However, Kenya with a repeater rate of over 13% requires policy measures to lower this rate to a UPE friendlier rate of below 6% (World Bank, 2006).

2.3.3 Grade Drop-Out Rate

Grade dropout rate is the percentage of pupils dropping out from a given grade at a given time. Dropout rates for Africa and Latin America range from 26.2 to 64.7% and from 23.1 to 54.7% respectively (World Bank, 2005). In some of these countries, primary school dropout rate is as high as 72% and 64% in certain African and Asian countries respectively. Coombs (1968:71) observes that:

> *In virtually all developing countries, whatever their policy of admission at the secondary and higher levels, drop-outs are enormous at the primary stage and have been a wide spread source of concern. It is not unusual for at least half the children entering the first grade in one of those countries to leave before the end of the forth year, without having acquired permanent literacy.*

In Sub-Saharan Africa, dropouts accounted for 16% of primary school enrolment. The report noted that because of dropouts, only 61% of those who enter the first grade reach the final grade of primary education. As a result, it was estimated that the cost of each completion in the average country of Africa is 50% higher than if there were no repeaters and dropouts (World Bank, 2003).

In Kenya, a high dropout rate estimated at 14.2% in some parts of the country like the pastoral communities is leading to low proportions of pupils who complete the primary course. Various factors have been advanced as directly responsible for this

trend. However, one underlying consequence of all these factors as determinants of dropout rate is the negative impact on education efficiency. Since the resources put into the education sector have alternative uses and education competes with other sectors for these limited resources, the resources should be efficiently utilized and wastage in primary schools through repetition and dropout reduced or eliminated. Reduction in the average years per pupil in primary education is by reducing the incidence of early leaving and repetition of grades - thereby, reducing total cost per graduate. This is imperative in seeking a lasting solution to the problem of inefficient use of education resources.

2.3.4. Enrolment and Completion Rates

Enrolment ratio has been on the decline in Kenya in the recent past particularly so far as primary schooling where primary enrolment growth has fallen below the rate of growth of population. Abagi et al (IPAR, 2000) observes that enrolment in Kenya has been on the decline from 95% in 1988 to 88% in 1998 (after adjustment of age range from 6-13 years), while about 3 million school age children are out of school. Out of the total enrolment for the 10 years, only 46% of the pupils managed to complete the primary education cycle (45% girls and 55% boys). In 1999, the transition rate from primary to secondary was only 44.5% (43.1% for girls and 46.1% for boys).

The growth rate of school enrolment in Kenya is not keeping pace with increase of the eligible age group. The World Bank placed enrolment in Kenya at 63% in 2001

and a projection of 58% in 2003. However, with the introduction of FPE, enrolment went up from 5,392,319 in 1990 to 7,208,100 in 2003. This is a 17.6% rise over the same period. The GER increased from 92% in 2002 to 104% in 2003 of the school age population. In 2002, there were a total of 6,131,000 pupils enrolled. Of these, girls accounted for 48.7% and boys 51.3%. In 2003 (when FPE was being implemented), the total enrolment rose by 17.6% from 6,131.0 thousands in 2002 to 7,208.1 thousand in 2003.

The enrolment of girls rose from 3,143.1 thousands in 2002 to 3,702.8 thousands in 2003 (MOEST Survey, 2004). Currently, the MOE (2011) places enrolment in primary schools at about 8.2 million children. The completion rates in primary schools have remained steady and low - less than 50% through the 1990s 62% in 2002 and eventually 77% in 2006 (MOE & HRD, 2010). For the last ten years, about 200,000 primary school leavers terminate their education, thus fail to join further education. If this trend continues it is impossible to achieve national progress towards the Millennium Development Goals (MDG's) or Universal Primary Education (MOE, 2010). According to UN Statistics Division, (2005) out of 46 countries with data on trends, more than half have experienced an improvement in survival rate over the last decade. This means that a child is more likely to reach grade 5 when entering grade 1 today than 10 years ago. Although the survival rate has increased in these countries, some of them still have very low levels.

The study estimates completion rates of 98.9% for the developed countries, 98% for Latin America and the Caribbean and 52.8% for Sub-Saharan Africa. The situation is particularly grim for some African countries where the data indicate that less than half the children who started grade 1 were still in school by the time they reached grade 5. This clearly indicates that though Kenya and many other African countries in Sub-Saharan Africa continue to record impressive enrolment ratios, these are not always accompanied by high completion rates.

To ensure that the country is moving towards providing education for all children in the 6-14 years age bracket, there is need to raise the rate enrolment in standard one, increase the primary school completion rate and reduce wastage (MET, 1997 -2010, Republic of Kenya).

2.3.5 Co-efficient of Efficiency

The coefficient of efficiency refers to the ideal (optimal) number of pupil-years required (i.e. in the absence of repetition and dropout) to produce a number of graduates from a given school cohort for a cycle or level of education expressed as a percentage of the actual number of pupil years spent to produce the same number of graduates (UNESCO, 2006). The purpose of this measure as an indicator of internal efficiency is to summarize the consequences of repetition and dropout on the efficiency of the educational process in producing graduates.

The coefficient of efficiency is calculated by dividing the ideal number of pupil years required to produce a number of graduates from a given school cohort for the specified level of education, by the actual number of pupil years to produce the same number of graduates and multiply the result by 100.

The UNESCO Education for All report, 2005 put the efficiency coefficient of developed countries like the US, UK, Canada and Switzerland at over 97%, an average of 77.4% for Latin America and the Caribbean and between 48.4% to 57.6% for Sub-Saharan Africa.

2.4 Access to Primary Level Education

According to Article 26 of the Universal Declaration of Human Rights, everyone has the right to education. Primary education must be inclusive and accessible to all, in law as well as in fact. No provider of public education may discriminate on the ground of gender, ethnicity, language, religion, opinion, disability, or social and economic status (UNESCO, 2004). UNESCO works to make primary education accessible for all, as well as to ensure full retention and completion. More and more children, youth and adults have a chance to learn and the number of children in school continues to grow. Today, 680 million children are enrolled in primary schools around the world and yet a lot more still needs to be done. More than 100 million children, over half of them girls, never get a chance to see the inside of a classroom.

In the quest to achieve Education for All, states must prioritize free and compulsory primary education. It is a fundamental right that can not be forfeited. It is a litmus test for the individual to access his or her government's commitment to fundamental rights as well as those of the international community. The right to education is unique in that it empowers the individual to exercise other civil, political, economic, social and cultural rights, attaining a life of dignity, while ensuring a brighter future for all, free from want and from fear (Tornasevsky, 2003).

The term access can be defined from two perspectives i.e. delinking access from any particular learning setting and separating it from the achievement of a particular educational outcome or qualification. The first perspective is justified because it aims at assessing the level of opportunities for the acquisition of skills through life-long learning skills, the ability to perform a task to a pre-defined level of competence. It is access to skills which matter for productivity, economic growth and social cohesion not so much where those skills have been acquired or whether they have been certified (UNESCO, 2005).

Regarding the second choice (that we do not link access to the achievement of a particular educational outcome or qualification), the starting point for the definition of access is 'participation' in each of the areas under analysis. Participation means that an individual has had the opportunity to experience an education or training opportunity (UNESCO, 2005). This notion of access is different from two other notions: a 'formal' definition of access, which stresses the importance of having the

right to participate in an educational programme, without enquiring whether this right can actually be exercised in practice; and a definition of access that emphasizes the importance of completing the programme of study/training (which broadly equates access with graduation).

The World Education Forum (2004) held in Dakar, Senegal adopted the Dakar Framework for Action, Educational for All: meeting our collective commitment. In doing so, its participants reaffirmed the vision of the world declaration on Education for All adopted ten years earlier (Jomtien, Thailand, 1990). The framework cited the significant progress made towards Education for All in many countries but added that it is unacceptable that in the year 2000, more than 113 million children have no access to primary education, that 880 million adults are illiterate, that gender discrimination still persists, and that many young children are denied access to the skills and knowledge necessary to be full participants in their societies.

To measure participation in primary and tertiary education, gross enrollment rates are used (the total number of pupils enrolled in specific grades divided by the estimated number of people in the appropriate age range in those grades). UNESCO Institute of Statistics (2005) has established participation levels (in terms of enrollment) in Central and Eastern Europe at 99.6%, gross enrollment of 117.6% and a net of 68.4% for Latin America and the Caribbean, 100.3% (gross) and 100% (net) for North America and Western Europe and 96.2% (gross) and 31.6 (net) for Sub Saharan Africa.

The major challenges facing primary school education in Kenya include unsatisfactory levels of participation and access, regional disparities, declining quality and relevance, rising educational costs, poverty incidence and declining government financing (prior to Free Primary Education), internal efficiencies and school wastage (Souto et al, 2004). The introduction of FPE in Kenya has seen access to primary education considerably increased. However, a lot still needs to done to attain access levels as those experienced in the developed world like in the USA and Western Europe.

This study is formulated to determine the effect of internal efficiency on access in public primary schools in Ikolomani South division where challenges of declining quality of education and wastage are more apparent.

2.5 Costs and Educational Wastage in Primary Education

Higher wastage rates have often been associated with increased unit costs. Eicher (1984: 113-114) observes that the phenomenon of dropout and repetition have important bearing on variable costs in education. Ineffectiveness and inefficiency in education can be seen in terms of the number of school repeaters and drop-outs and could contribute in a way to improving cost effectiveness (reduction of variable costs) of primary education system by reducing the expenditure per graduate (Simmons, 1975). I.E.E.S (1986) further observes that one of the few measures of school quality or effectiveness that has an efficiency dimension is cycle cost (expenditure per

graduate of a level or cycle of schooling). While the unit cost concept measures only the level of expenditure per student, the cycle cost accepts the idea that an obvious function of education is to prepare graduates. In most cases, the assumption is made that students who fail to graduate represent only a cost to the system and do not produce any personal or social benefits. Psachoropoulous (1985) holds identical views and argues that one way of improving effectiveness and internal efficiency of education would be to reduce the high incidence of dropout and repetition. Acquisition of primary education particularly depends on the family disposition in terms of wealth. Simmons (1975: 31) on variable costs of education as causes of wastage observes:

> *Children of the rural poor unlike most upper and middle income bracket children, have responsibilities beyond doing well in school. They have errands to run, animals to tend and siblings to look after. By the time boys and girls reach age twelve or so, they must do the work of adults. The cost of education both direct and variable costs are often too great to the poor to afford and opt dropping out of school.*

Briggs (1992) observes that the variable cost of education in Kenya to a Primary school pupil involves a totaling of such things as expenditure on books, fee, clothing, transport and earnings foregone. He emphasizes earnings foregone as a major cost incurred by pupils. The variable costs of primary education to a Kenyan parent are development funds, activity fees, watchman wages, 'Harambee' contributions, school uniform, stationery, school equipment, desks, exam fees and mock fees, lunch and boarding fees (Olembo, 1982).

Kenya Master plan on Education and Training (1997 - 2010) spells out the escalation of variable costs schools demands (attributable to items not directly contributing to teaching/learning). Such items include expensive uniforms, sporting equipment, activity fees as a major cause of school dropout. The poor parents due to their inability to meet these variable costs don't take children to school or opt to pull them out for other unattractive options like child labour (to augment family income). Pupils are dropping out of school to seek employment at any offered wage in spite of the ILO ban placed on child labor (World Bank, 1996).

In the opinion of Simmons (1980) poverty is a major draw back to completion rates at the primary and secondary levels. Parents withdraw their children from school not only because they cannot afford the direct cost but also because they consider the earnings foregone as really being a double cost.

This is no doubt the main reason behind the government's heavy investment in free and compulsory primary school education. However, there still exist other costs to primary education like school infrastructure development levies, activity fees, exam and mock fees, school uniform, lunch and boarding fees which make primary school education inaccessible to many Kenyan parents. There is need to bring these variable costs to a level where they become insignificant as aids to wastage in primary education but significant in enhancing completion rates at this level.

2.6 Summary of Literature Reviewed

The reviewed literature has shown that:

i. The notion of internal efficiency has two dimensions: flow of pupils through the education system with minimum waste and the quality of education achieved in the education system. Therefore, to improve efficiency in learning in primary education, it is imperative that there be a corresponding improvement in school inputs-teaching and learning materials, adequate facilities and upgrading process factors i.e. school climate, teaching and learning.

ii. The criteria for determining quality in an educational level are the education system management, which is, participation, completion and transition rates.

iii. Quality of learning highly depends on the provision of essential teaching and learning materials. These include, among others, textbooks, learning materials and other physical facilities.

iv. Raising the Pupil-Teacher Ratios to a recommended 42:1 - 45:1 should result in savings which can be redirected elsewhere within the education system.

v. High grade repetition, dropout and low enrolment and completion rates are indicators of an inefficient education system because more resources are used

to produce graduates who would have otherwise consumed fewer resources had they not repeated or dropped out.

vi. Poverty is a major draw back to completion rates at primary and secondary level.

In the reviewed literature, the following gaps are evident:

i. Research studies carried out on internal efficiency give limited specific attention to Kenya.

ii. Most research studies on the concept of internal efficiency did not specifically refer to public primary schools.

iii. The few research studies carried out in public primary schools in Kenya are directed at specific indicators of internal efficiency not necessarily as a way of determining their effect on internal efficiency of the schools studied. Such indicators as repetition, dropout, levels of survival and completion, variable costs have been studied in isolation to determine their effect on education provision and access. There is need to establish their effect on the internal efficiency of public primary education.

This study is unique in that it aims at addressing all the concerns raised above as a way of determining the internal efficiency of public primary schools in Ikolomani South Division of Kakamega District where no such study has been carried out before.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research design, study area, study population, sample and sampling procedure, instruments of data collection and data collection procedure.

3.2 Research Design

The research adopted a descriptive survey design. According to Kerlinger (1983), a descriptive survey makes inferences concerning factors whose manifestation has already happened and therefore the researcher has no direct control of the independent variables.

The study focused on data of variables that had already occurred i.e. enrolment, répeaters, and dropouts, which affect internal efficiency of public primary schools such as that in Ikolomani South Division, Kakamega District. This enabled the researcher to establish the existing state of internal efficiency of public primary schools in Ikolomani South by analyzing the various indicators such as repeater rates, drop out rates, survival and retention rates, completion and graduation rates, average years per pupil and the efficiency co-efficient.

3.3 Study Area

The study was conducted in Ikolomani South division. Ikolomani South is one of the divisions that make up the larger Kakamega District. The average population growth rate for the area is 4.1% with a 4.7% growth rate of fewer than 15 years (District Statistics Office, 2004). The area, with 4.7% growth rate of under 15 years that constitute the primary school age bracket requires a study to investigate how primary schools manage their resource in the provision of education. During the 2007 Divisional Education Day held at Ikolomani grounds, the divisional education office decried the mismatch between enrolment in class 1 and the number of pupils sitting for KCPE examination. These concerns as raised by the education personnel on the ground necessitated a study to investigate the level of efficiency of public primary schools that form the bulk of the learning institutions within the division.

3.4 Target Population

The target population was public primary schools in Ikolomani South Division, head teachers, and pupils. There are 33 public primary schools, 33 head teachers, 403 class teachers and 14,402 pupils. There are 2 Area Educational Quality Assurance and Standards Officers (QUASO) and one Divisional Education Officer (DEO, 2005). The three officers were interviewed for information on repetition and dropout and the reasons for each of the two.

3.5 Sample and Sampling Procedure

According to Best and Kahn (1993) a 39% sample that was large enough to serve as an adequate representation of the population about which the researcher wished to generalize and small enough to be selected economically in terms of subject availability, expense in both time and money and complexity of data analysis was preferred. The population comprised of four different groups; schools, head teachers, class teachers, pupils and area quality assurance and standards officers. The sample and sampling procedures for each group is presented in what follows.

3.5.1 School and Head Teacher Sample

A total of 13 public primary schools that constituted 40% of the population were studied. Proportionate stratified random sampling procedure was used to select schools from each of the two educational zones that make up Ikolomani South Division as follows: South – 5 out of 13 and East -8 out of 20. Schools from each stratum were selected by simple random sampling techniques of assigning numbers to a sampling unit and then using the number to select the sample. Thus, in addition to randomness, stratification was used to increase precision and representativeness, (Koul, 1993). All the head teachers of the sampled schools constituted the head teacher sample.

3.5.2 Class Teachers

Out of the total population of 163 class teachers from the 13 sampled schools for the study, 65 class teachers that make up 39.9% were studied. Out of the sample of 65 class teachers, a simple random sample of 5 class teachers per school drawn from each level of primary cycle i.e. 2 from lower primary (classes 1-3), 1 from mid-primary (classes 4-6) and 2 from upper-primary (classes 7 & 8) were selected. A higher representation from lower primary was preferred because this is where the highest rate of repetition and drop out occurs (UNESCO, 2005). A sample of 5 class teachers per school meant that all the 13 schools were used for this purpose. Refer to table 3.1.

Table 3.1: Sampling Grid

ZONE	TOTAL NO. OF SCHOOLS	SCHOOL SAMPLE SIZE (39.4% of population)	CLASS TEACHER SAMPLE	
			No. of Class Teachers	Class Teacher Sample
EAST	20	8	101	40
SOUTH	13	5	62	25
TOTAL	**33**	**13**	**163**	**65**

Source: Field Data

A total of 5 FGDs constituted in 5 schools which make 38.5% of the 13 schools used for class teacher sample was conducted. Systematic sampling procedure was used to arrive at the 5 schools from which the groups were constituted. Every 3rd school of

the sample of 13 schools participated in the FGDs. 20 pupils were randomly selected for this purpose, 5 of which were from classes 1-3 and the remaining 15 pupils were selected from classes 4-8 (3 from each class).

3.5.3: Repeater Sample

Repetition of classes was still common in the Division despite a government ban on the same. The distribution of pupils across the classes still constituted a significant number of repeaters, repeating for various reasons. Information on repetition was obtained from five repeaters drawn from each of the 13 schools used for studying class teachers (65 repeaters). Simple random sampling procedure was used to obtain the repeaters from each class. Where applicable, the researcher avoided the use of the same classes for both the class teachers and repeaters in the same school for the purpose of increasing representation of the population for more inclusive data.

3.5.4 Other Informants

Purposive sampling technique was used to select the two zonal quality assurance and standards officers, for an interview on the general information on repetition, dropout and reasons behind these phenomena.

3.6 Instruments for Data Collection

3.6.1 Questionnaire

According to Lovell and Lawson (1970), questionnaires are widely used in educational studies to obtain information about current conditions and practices and to make inquiries concerning attitudes and opinions quickly and in a precise manner. Walker, 1985 adds that questionnaires offer considerable advantage in administration. They present an even stimulus potentially to large numbers of people simultaneously and provide the investigator with an easy accumulation of data.

Questionnaires were administered to collect information from head teachers, and class teachers. The questionnaires employed both the structured (close-ended) and unstructured (open-ended) items. Close-ended questions were used to obtain personal details and other specific details while the open-ended questions were used where explanations and personal opinion was sought.

3.6.2 Focus Group Discussion (FGDS)

FGDs were conducted with pupils drawn from 5 schools in the Division. FGDs are best suited for obtaining data on group attitudes and perceptions (Wamahiu et al, 1995). The researcher used FGDs to find out information about the exact number of repeaters and drop outs as well as reasons for repetition and dropout to supplement

the information that was obtained from the head teachers, class teachers and the Divisional Education Office. Since FGDs are effective for bringing to the surface issues with educational significance that may be considered sensitive and or controversial by some informants hence unwillingness to discuss them. This method was important particularly in verifying information about repetition (which is illegal especially if forced), getting the pupils to talk about the problems they encounter at school, reasons for repetition, drop out of their friends and suggest possible solutions.

3.6.3 Interview Schedule

According to Koul (1993), the interview is often superior to other data gathering devices. One reason is that people are usually more willing to talk than to write. After the interviewer gains rapport or establishes a friendly, secure relationship with the study participants, certain types of confidential information may be obtained that an individual may be reluctant to put in writing (Patton, 1990). Another advantage of interviewing is that the interviewer can explain more explicitly the purpose of the investigations and just what information he or she wants. If the study participant misinterprets the question, the interviewer may follow it with a clarifying question. At the same time, the researcher may evaluate the sincerity and insight of the interviewee. It is also possible to seek the same information in several ways at various stages of the interview, thus checking the truthfulness of the responses (Patton, 1990; Koul, 1993). In this study, both individual and FGDs were used to obtain data from the zonal educational quality and standards officers, and repeaters respectively. An

interview schedule with relevant questions about the study was prepared.

Group interview with repeaters aimed at getting information about repetition in their current classes and previous ones. This supplemented information from head teacher, class teacher and information from secondary sources. Furthermore, group interview sought to get information on reasons for repeating and drop-out. Individual interviews from educational officers sought to establish the rate of repetition and drop-out as received from the schools, in annual returns.

Information on repeaters and drop-out was obtained from school records i.e. class registers. This was by making assumptions based on transfers in and transfers out. Furthermore, records on school returns from the district and divisional education offices were scrutinized to get information on drop-out and distribution of students since schools always furnish the educational offices with returns on a yearly basis.

3.7 Secondary Data

Information on grade enrollment, repetition and drop out as obtained from head teachers and class teachers was verified against the information in registers and school records. Journals, annual publications, library research and literature from published and unpublished sources formed sources of information that blended and provided crucial basis in background information, theoretical framework and literature review

3.8 Validity of the Instruments

According to Freeman (1950: 91) "validity should not depend on the subjective judgment of only one specialist. It should be based upon careful analyses, by several specialists, of instructional objectives and of actual subject matter studied".

The instruments were prepared and submitted to experts in the School of Education and Human Resource Development for advice on the structure and content (suitability). The researcher's supervisors also helped the researcher assess the aspect the instrument was trying to measure to determine whether the set of items or check list accurately represented the concept under study.

3.9 Reliability of the Instruments

A research instrument is reliable to the extent that it measures whatever it is measuring consistently (Mwiria & Wamahiu, 1995). To ensure items on the questionnaire and other research instruments are reliable, test-retest reliability was used to establish the correlation co-efficient.

The reliability was ascertained by first assigning values to the items in the questionnaire for scoring purposes after it had been administered. The items were then split into two equal halves using odd versus even plan. This made it possible for every class teacher and head teacher to have two scores for correlation. The reliability

coefficient for the half items was estimated using the Pearson product correlation formula. To obtain the self-correlation of the whole questionnaire using the reliability of the half-test, estimation was made using Spearman Brown Prophesy formula given as

$$r_{xx} = \frac{2r_{\frac{11}{22}}}{1+r_{\frac{11}{22}}}$$

Where, r_{xx} is reliability of the whole test

$r_{½\ ½}$ is reliability of the half test

Using the Brown prophesy formula which measures the internal consistency (reliability) of the items, a reliability coefficient of 0.72 was considered adequate and hence the adoption of the questionnaire for the study.

3.10 Piloting

According to Gay (1987), piloting is important in ensuring that a study reasonably adopts a plan and approach that will significantly guarantee the purpose of the investigation. A pilot study was conducted in Shiavihiga and Lubambo primary schools in Ikolomani South Division to measure the validity and reliability of the research instrument. These two schools selected for piloting did not form part of the study sample. Their selection was based on the fact that Shiavihiga primary school situated in the East Zone has a long history of success in KCPE exams while Lubambo primary school in the Southern Zone has enjoyed the least success.

3.11 Data Collection Procedure

Permission to collect data was sought from the Ministry of Education Science and Technology (MOEST). This was to grant the researcher the required authority and enable him carry out the study without administrative hindrances. In order to conduct the study effectively, the researcher visited the larger area in which the schools were located to familiarize himself with the area. The researcher then personally visited all the schools selected in the sample. On the days of the said visits, the researcher administered and collected the questionnaire of the class teachers on the same day except the head teacher questionnaire. The head teachers were given one week to complete the questionnaire before collection due to its relatively detailed nature. The class teachers' questionnaires were collected on the same day to minimize cases of collusion, manipulation and failure by some respondents to return the questionnaires. FGDs were used to obtain information from pupils on repetition and drop out as well as any other issues affecting their learning in school. This was vital to counter any attempts at masking the truth surrounding the real state of events by the establishment that may have arisen from the need to cushion themselves in case of wrong doing. Individual interviews were conducted with the zonal education quality assurance and standards officers and group interviews with the repeaters at the convenience of the interviewees. Interviews were conducted was to supplement the information obtained from questionnaires, school records and divisional education office records, mainly on enrollment, repetition and drop out. School records were vital in getting information on enrolment, dropouts and availability of learning and teaching

resources. The researcher hoped to get information on pupil enrolment and staffing from the divisional education offices. In all the above procedures, notification of the intention to visit the schools or conduct interviews was sent a week before the scheduled visit. This was to avoid inconveniences arising from unpreparedness, absent informants or program clashes.

3.12 Data Analysis, Interpretation and Presentation

The study employed both quantitative and qualitative research techniques. Data on pupil enrolment and distribution were analyzed and interpreted accordingly. This data was used to determine the various indices of pupil-flow and the results presented in the form of tables, line graphs, charts and other graphical representations. The factors influencing the flow of pupils, reasons for pupil repetition and drop out and the effect of internal efficiency on access to primary education were sought and documented. It is on this basis that suggestions on improving the level of internal efficiency in public primary schools were put forward.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1: Introduction

This chapter is organized by the research questions. The data is divided into six main sections. These are Pupil enrollment, distribution of pupils, pupil flow, the coefficient of efficiency, factors influencing flow of pupils and effect of internal efficiency on access. Data was analyzed using simple tables, bar graphs, pie charts and descriptive statistics.

4.2: Pupil Enrolment

One of the primary concerns of this study is the analysis of statistical data on population and on age, enrolments, flows and graduation of students so as to give actual pictures of:-

- A comparison of the number of students in the educational system with population.
- The distribution of students in educational systems and
- The flow of students which result in that distribution and production of outputs from the system.

4.2.1: Pupil Enrolment per school

Data on pupil enrolment was gathered from 13 public primary schools within the division. The schools were sampled from the two educational zones within the Division. The pupil enrolment in each of the two zones is presented in the tables below.

Table 4.1: Pupil Enrollment per School per Zone (2001 -2002)

East Zone

YEAR / *SCHOOL*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Imara Primary	305	308	328	337	339	337	323	301
Ubora Primary	327	333	349	354	356	349	334	355
Wima Primary	319	311	318	331	341	333	319	305
Maboko Primary	437	426	431	444	431	428	414	432
Nanga Primary	441	439	501	512	506	502	500	540
Miika Primary	444	458	488	495	490	482	490	507
Kola Primary	424	420	449	460	449	440	442	461
Amani Primary	409	399	417	433	425	428	431	450

South Zone

Shikongo Primary	325	336	469	472	461	460	448	453
Shieru Primary	447	454	486	507	500	494	505	509
Amiable Primary	454	459	493	513	506	510	519	530
UjuziMixed Primary	559	571	608	622	607	633	652	663
Pala Muya Primary	239	247	287	298	314	327	331	345
TOTAL	**5130**	**5161**	**5624**	**5778**	**5725**	**5723**	**5708**	**5851**

Source: Field Data

The study revealed a general trend of an increase in enrollment as the years progressed as shown in figure 4.1 below.

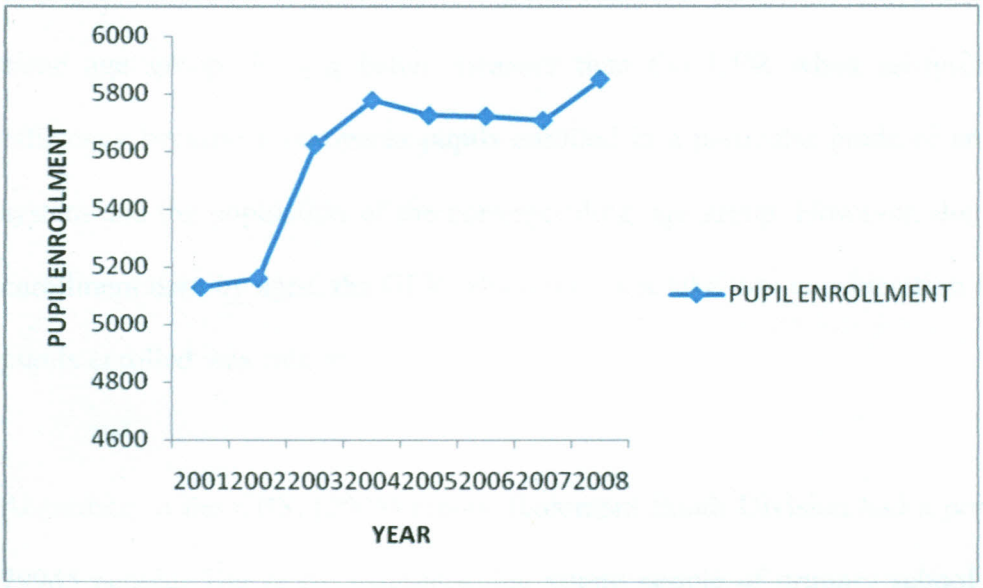


Figure 4.1: Trend of Overall Pupil's Enrolment between 2001 and 2008

From Table 4.1 above, it can be concluded that enrollment in the majority of the schools studied fell in the category of schools with pupils between 400 and 600 representing 66.3% of the total enrollment between 2001 and 2008. Schools recorded a low enrolment in the years 2001 and 2002. This however significantly changed in 2003 and 2004 when 100% of the schools recorded an increased enrolment of between 2% and 36%. This was attributed to the introduction of Free Primary Education (FPE) by the Government of Kenya (GOK). The study also found that there was a tendency of a drop in enrolment between the years 2005 and 2007 ranging between 1.3% and 7% across the majority of schools studied (61.5%). However a few schools especially in the South Zone recorded an improved enrollment of between 0.9% and 4.7%.

The study sought to establish the gross enrollment ratio of pupils in public primary schools in Ikolomani South Division. The Net Enrollment Ratio (NER) is the number of pupils enrolled in a school(s) at a particular level and those out of school of the same age group. It is a better measure than the GER when analysing internal efficiency because it compares pupils enrolled in a particular grade of an education system and the population of the corresponding age group. However, due to lack of enrollment data by ages, the GER which does not take into consideration the ages of pupils enrolled was calculated.

According to the CBS, (2005) report, Ikolomani South Division had a population of 79945 people. The report estimates that young people of primary school going age account for 20% of the total population. This translates to about 15989 people. Given a total enrollment of 14402 pupils, in the 33 public primary schools within the division, a calculation of the GER of the Division was arrived at using the formula below.

$$\frac{\sum N(Primary)}{\sum P(6-13^{+})}$$

Where, $\sum(Primary)$, is the enrollment in the schools

$\sum P(6-13^{+})$, is the population of the corresponding age group

i.e. $\frac{14402}{15989}$

$= 0.901$

The study established that the GER of public primary schools in the larger Ikolomani Division stood at 0.901 (90.1%) in 2005. This ratio is low compared to a GER of 99.6-100.3% recorded in some parts of the country like Central Province (MOEST Survey, 2005). Unavailability of population data of the area, a new administrative Division, made it impossible to establish the NER as it stands currently.

4.3: Distribution of Pupils

The distribution of students in the schools studied will be shown in a table of summaries of enrolment and repeaters by grade in each level and stage of education between 2001 and 2008. Table 4.2 overleaf is a summary of the enrolments and repeaters of the 13 schools studied. In each box the upper data represents the total enrolment in a grade and the lower data represents repeaters.

Table 4.2: Distribution of Pupils in the Sampled Schools (2001 – 2008)

	1	2	3	4	5	6	7	8	Grad
2001	777 38	748 22	720 26	697 40	648 51	598 47	512 65	430 4	**428**
2002	789 43	735 24	722 29	689 31	653 38	599 55	542 64	433 8	**423**
2003	1272 36	739 26	697 26	683 26	651 37	599 41	530 54	453 19	**452**
2004	928 30	1226 61	705 32	661 26	650 32	603 51	545 44	460 8	**458**
2005	858 35	887 19	1057 60	676 35	634 19	607 44	539 60	469 3	**460**
2006	855 33	814 23	860 28	923 61	634 34	603 59	565 58	469 4	**468**
2007	852 37	816 28	780 31	821 37	816 41	589 42	556 54	478 14	**474**
2008	960 45	810 19	778 33	739 27	**775** 21	763 44	535 52	491 18	**491**

Source: Field Data

From the data in Table 4.2 above, it is possible to analyze the flow of pupils by calculating the grade repetition rate, dropout rate, survival rate, retention rate, completion rate, graduation rate and average years per graduate as a way of determining internal efficiency.

4.4: Flow of Pupils

The following flow indices of determining internal efficiency are analyzed; Grade repetition, grade dropout, grade survival, grade retention, completion rate, graduation rate and average years per graduate.

4.4.1: Pupil Grade Repeater Rate (GRR)

The study found out that pupils' repetition of classes was still common despite the government's ban on the same. A summary of pupils' repetition in the schools studied is contained below.

Table 4.3: Pupil Repetition per School

East Zone

YEAR / *SCHOOL*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Imara Primary	17	18	17	20	20	23	17	15
Ubora Primary	19	18	18	20	16	26	19	16
Wima Primary	23	20	22	23	18	18	16	22
Maboko Primary	27	25	26	23	24	19	22	24
Nanga Primary	29	31	27	16	29	22	27	25
Miika Primary	26	28	24	28	27	28	29	22
Kola Primary	23	24	20	26	23	29	25	21
Amani Primary	20	19	18	20	24	26	26	18
South Zone								
Shikongo Primary	11	8	10	13	13	16	15	9
Shieru Primary	23	26	21	23	22	28	22	20
Amiable Primary	28	32	26	26	27	29	25	24
UjuziMixed Primary	29	35	27	26	28	31	29	26
Pala Muya Primary	15	8	9	18	14	17	12	6
TOTAL	**293**	**292**	**265**	**282**	**285**	**312**	**284**	**248**

Source: Field Data

The grade repeater rate compares the number of repeaters of the same grade in a subsequent year with the total number of pupils in the previous year. Grade repetition is an indicator of the internal efficiency of education.

In calculating the grade repeater rate, the combined data on enrolment and repetition in the 13 sampled schools (Table 4.2) was used. The following formula was used to arrive at the repeater rates across the classes within the schools.

$$\frac{R_{t+1}^{k}}{N_{t}^{k}}$$

Where R = Repeaters
N = Enrolment
k = Grade
t = Year

This is the division of the number of pupils who repeat the same grade in a subsequent year by the total enrolment in the same grade in the previous year. Overleaf is a table of the average repetition per class in the schools studied.

Table 4.4: Average Grade Repeater Rate

CLASS / YEAR	1	2	3	4	5	6	7	8
2002	0.055 (5.5%)	0.032 (3.2%)	0.040 (4%)	0.044 (4.4%)	0.059 (5.9%)	0.092 (9.2%)	0.125 (12.5%)	0.019 (1.9%)
2003	0.046 (4.6%)	0.035 (3.5%)	0.036 (3.6%)	0.038 (3.8%)	0.057 (5.7%)	0.068 (6.8%)	0.099 (9.9%)	0.044 (4.4%)
2004	0.024 (2.4%)	0.083 (8.3%)	0.046 (4.6%)	0.035 (3.5%)	0.049 (4.9%)	0.085 (8.5%)	0.083 (8.3%)	0.018 (1.8%)
2005	0.038 (3.8%)	0.015 (1.5%)	0.089 (8.9%)	0.048 (4.8%)	0.029 (2.9%)	0.073 (7.3%)	0.110 (11%)	0.028 (2.8%)
2006	0.038 (3.8%)	0.026 (2.6%)	0.026 (2.6%)	0.090 (9%)	0.054 (5.4%)	0.097 (9.7%)	0.108 (10.8%)	0.034 (3.4%)
2007	0.043 (4.3%)	0.034 (3.4%)	0.036 (3.6%)	0.040 (4%)	0.065 (6.5%)	0.070 (7%)	0.096 (9.6%)	0.030 (3%)
2008	0.053 (5.3%)	0.023 (2.3%)	0.042 (4.2%)	0.033 (3.3%)	0.026 (2.6%)	0.075 (7.5%)	0.094 (9.4%)	0.038 (3.8%)

Source: Field Data

The data in Table 4.4 above reveals a higher repeater rate in upper primary, (Class 5-7). The years which suffered the highest repeater rate were 2002 and 2006. Standard 8 had the lowest repeater rate averaging 0.03 (3%) followed by standard 2 at 0.036. The highest repeater rate was recorded in class 7 at 0.10 (10%) followed by Class 6 at 0.08 (8%) and third was class 5 at 0.48 (4.8%). The UN, 2004 estimates primary school repetition in Kenya at 14.6% which is well above the repetition of below 1% posted by the developed countries like the USA, Canada and parts of Western Europe. Repetition rates should ideally approach zero percent. High repetition rates reveal problems in the internal efficiency of the education system because grade repeaters occupy places that could have been taken up by other pupils and it therefore hinders efforts to educate large number of children. They also consume resources which would have been used to educate new pupils (Eshiwani, 1993). There is need

to lower this repetition rate to UPE friendlier rate of below 7% (Galabama, 2003). The high repeater rate in upper primary especially in class 7 pointed to strict testing and promotion practices as away of ensuring that underperforming pupils are denied promotion to class 8 so that chances of registering good performance in KCPE are boosted (MOEST Survey, 2004). For instance, Miika primary school promoted only 27 pupils out of 36 from class seven to eight in 2007 owing to a strict promotion policy. This alone indicated a repeater rate of 0.25 or 25%. However, the notion that repetition enhances good performance is not true since repeating one or more of these years of their primary education can be the first step towards dropping out (UN Statistics, 2006). This high repeater rate pointed to low internal efficiency.

From the data in Table 4.4, the trend of pupil repetition between 2002 and 2008 was established by computing the average grade repeater rate across the classes. Even though there was a slight reduction in the rate of pupil repetition from 0.058 or 5.8% in 2002 to 0.048 or 4.8% in 2008, the overall trend revealed a fluctuating repeater rate across the years. The trend of the average pupil repeater rate between 2002 and 2008 is presented overleaf.

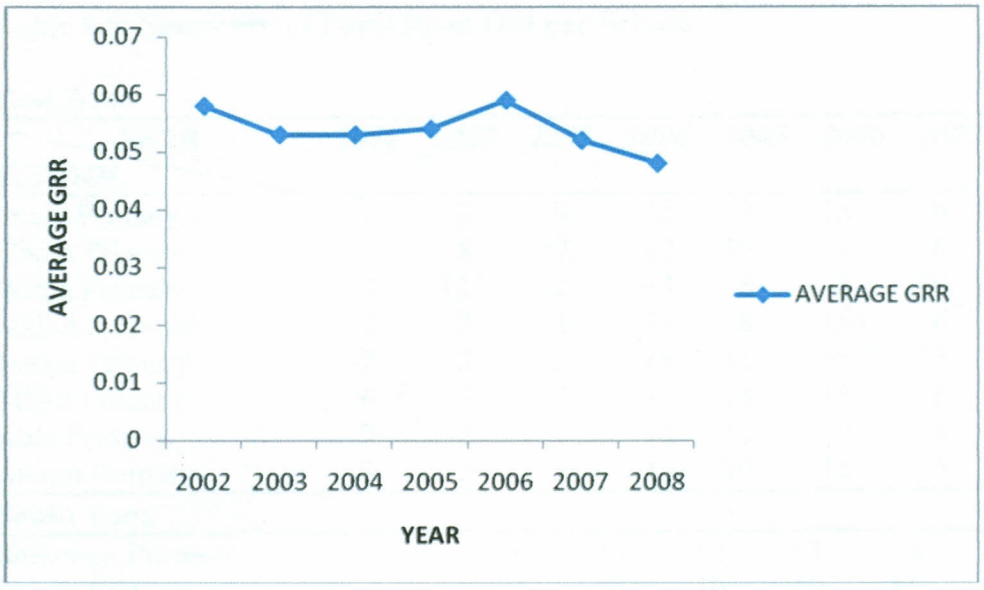


Figure 4.2: Trend of Pupil Average Repeater Rate between 2002 and 2008

4.4.2: Pupil Grade Dropout Rate (GDR)

An estimate of the number of dropouts was arrived at from the information given by both the class and head teachers. Additional information was gathered from the class registers and a final table of drop outs per school arrived at. A summary of the estimation of dropouts is presented in Table 4.5 overleaf.

Table 4.5: Summary of Pupil Drop Out per School

YEAR / SCHOOL	2001	2002	2003	2004	2005	2006	2007	2008
East Zone								
Imara Primary	5	10	9	15	9	13	6	10
Ubora Primary	8	8	7	12	10	9	8	8
Wima Primary	4	11	12	13	8	8	10	10
Maboko Primary	3	3	4	19	8	15	6	4
Nanga Primary	2	3	3	18	11	15	5	3
Miika Primary	6	3	4	17	14	13	6	5
Kola Primary	2	2	3	13	12	9	4	2
Amani Primary	3	2	4	13	10	10	5	2
South Zone								
Shikongo Primary	2	8	9	19	12	13	10	8
Shieru Primary	4	9	7	15	10	10	11	9
Amiable Primary	2	8	10	15	9	9	9	8
UjuziMixed Primary	5	14	12	16	11	9	10	12
Pala Muya Primary	2	5	4	13	8	6	6	8
TOTAL	**48**	**86**	**88**	**198**	**132**	**139**	**96**	**89**

Source: Field Data

Dropouts are pupils who are no longer in school. Grade dropout rate is the percentage of pupils dropping out from a given grade at a given time. In determining the grade drop out rate, the formula below was used.

$$\frac{\left(N_t^k - \left[\left(N_{t+1}^{k+1} - R_{t+2}^{k+1}\right) + R_{t+1}^k\right]\right)}{N_t^k}$$

Where, $N_{t+1}^{K+1} - R_{t+2}^{K+1}$ = Survivors into the subsequent grade in the subsequent year.

R_{t+1}^K = Repeaters of the same grade in following year.

N_t^K = Total enrolment in the previous grade in the previous year.

Below is a summary of the grade drop out rate in the schools studied as computed from the data on students' distribution in Table 4.2 on P. 55.

Table 4.6: Average Grade Drop out rate

CLASS / YEAR	*1-2*	*2-3*	*3-4*	*4-5*	*5-6*	*6-7*	*7-8*
2002	0.030 (3%)	0.041 (4.1%)	0.046 (4.6%)	0.073 (7.3%)	0.102 (10.2%)	0.109 (10.9%)	0.045 (4.5%)
2003	0.051 (5.1%)	0.052 (5.2%)	0.054 (5.4%)	0.071 (7.1%)	0.089 (8.9%)	0.137 (13.7%)	0.100 (10%)
2004	0.079 (7.9%)	0.007 (0.7%)	0.052 (5.2%)	0.060 (6%)	0.103 (10.3%)	0.078 (7.8%)	0.064 (6.4%)
2005	0.027 (2.7%)	0.174 (17.4%)	0.006 (0.6%)	0.020 (2%)	0.105 (10.5%)	0.133 (13.3%)	0.053 (5.3%)
2006	0.040 (4%)	0.036 (3.6%)	0.158 (15.8%)	0.022 (2.2%)	0085 (8.5%)	0.068 (6.8%)	0.030 (3%)
2007	0.035 (3.5%)	0.045 (4.5%)	0.052 (5.2%)	0.120 (12%)	0.073 (7.3%)	0.098 (9.8%)	0.083 (8.3%)
2008	0.019 (1.9%)	0.064 (6.4%)	0.049 (4.9%)	0.049 (4.9%)	0.093 (9.3%)	0.105 (10.5%)	0.058 (5.8%)
AVERAGE	**0.04 (4%)**	**0.06 (6%)**	**0.06 (6%)**	**0.06 (6%)**	**0.093 (9.3%)**	**0.104 (10.4%)**	**0.062 (6.2%)**

Source: Field Data

The findings about the pupil drop out rates revealed that the highest average dropout rate at 0.104 (10.4%) occurred between Classes 6 and 7, followed by between Classes 5 and 6 at 0.093 (9.3%). The lowest drop out rate was recorded in the lower primary between Classes 1 and 2 at 0.04 (4%). It was evident that this high drop out rate was a major contributor to the reduced proportions of pupils who complete the primary course. One underlying consequence of this drop out cases is the negative impact on education efficiency. Overleaf is the trend of the average pupil GDR between 2002 and 2008.

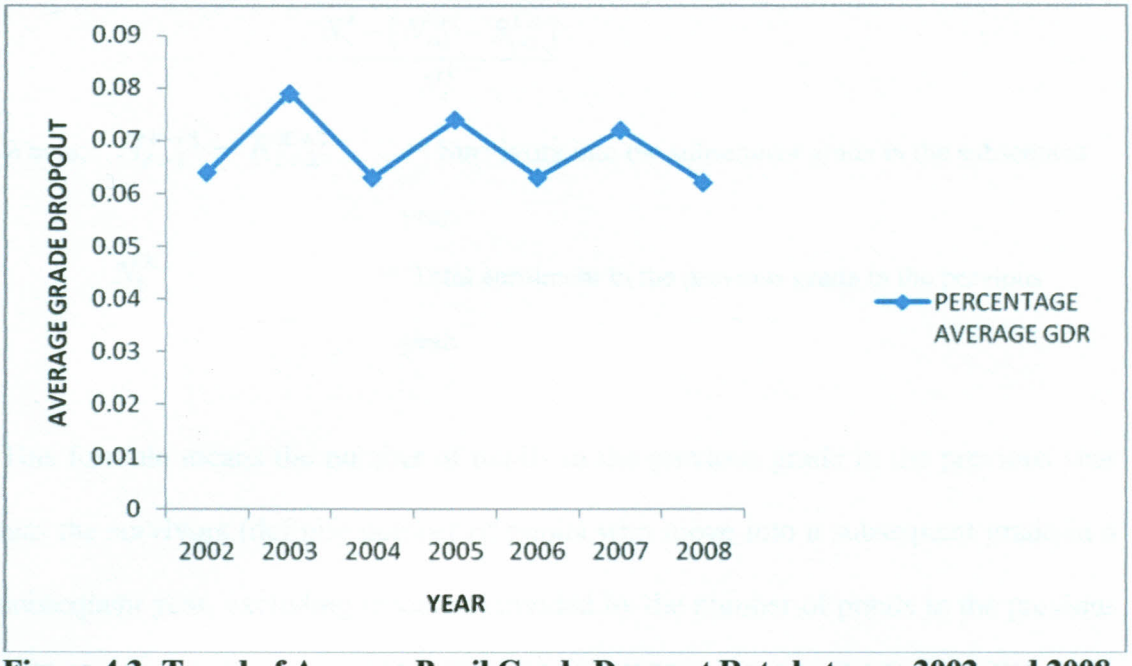


Figure 4.3: Trend of Average Pupil Grade Dropout Rate between 2002 and 2008

The trend of pupil GDR as shown in figure 4.3 above reveals a slight drop from 6.4% in 2002 to 6.2% in 2008. However, a fluctuating GDR of a high of 7.9% in 2003 and a low of 6.2% was established.

4.4.3: Pupil Actual Grade Wastage Rate (GWR)

Wastage embraces repeaters and drop outs. The grade wastage rate was calculated by adding the number of repeaters of the same grade in the subsequent year and dropouts divided by the total enrolment in the previous year. The formula overleaf was used.

$$\frac{N_t^k - \left(N_{t+1}^{k+1} - R_{t+2}^{k+1}\right)}{N_t^k}$$

Where, $N_{t+1}^{K+1} - R_{t+2}^{K+1}$ = Survivors into the subsequent grade in the subsequent year.

N_t^K = Total enrolment in the previous grade in the previous year.

This formula means the number of pupils in the previous grade in the previous year less the survivors (definite number of pupils who move into a subsequent grade in a subsequent year, excluding repeaters) divided by the number of pupils in the previous grade in the previous year. A table of the grade wastage rates for pupils in Class one to eight from 2001 to 2008 is presented below.

Table 4.7: Average Actual Grade Wastage Rate

CLASS / YEAR	*1-2*	*2-3*	*3-4*	*4-5*	*5-6*	*6-7*	*7-8*
2002	0.085 (8.5%)	0.074 (7.4%)	0.086 (8.6%)	0.118 (11.8%)	0.160 (16%)	0.200 (20%)	0.170 (17%)
2003	0.096 (9.6%)	0.087 (8.7%)	0.090 (9%)	0.109 (10.9%)	0.145 (14.5%)	0.205 (20.5%)	0.20 (20%)
2004	0.084 (8.4%)	0.089 (8.9%)	0.086 (8.6%)	0.095 (9.5%)	0.152 (15.2%)	0.164 (16.4%)	0.147 (14.7%)
2005	0.065 (6.5%)	0.187 (18.7%)	0.091 (9.1%)	0.073 (7.3%)	0.134 (13.4%)	0.206 (20.6%)	0.163 (16.3%)
2006	0.078 (7.8%)	0.062 (6.2%)	0.184 (18.4%)	0.112 (11.2%)	0.139 (13.9%)	0.165 (16.5%)	0.137 (13.7%)
2007	0.078 (7.8%)	0.080 (8%)	0.088 (8.8%)	0.160 (16%)	0.137 (13.7%)	0.167 (16.7%)	0.179 (17.9%)
2008	0.072 (7.2%)	0.087 (8.7%)	0.087 (8.7%)	0.082 (8.2%)	0.119 (11.9%)	0.180 (18%)	0.149 (14.9%)
AVERAGE	**0.08 (8%)**	**0.95 (9.5%)**	**0.120 (12%)**	**0.107 (10.7%)**	**0.141 (14.1%)**	**0.184 (18.4%)**	**0.164 (16.4%)**

Source: Field Data

The findings indicated that the highest grade wastage occurred between Class 6-7 at 0.184 (18.4%) followed by Class 7-8 with a grade wastage rate of 0.164 (16.4%) and third was Class 5-6 at 0.141 (14.1%). The lowest wastage was recorded in lower primary between Classes 1-2 at 0.08 (8%).

The wastage rates of between 6.2% and 20.6% recorded across the classes between 2001 and 2008 clearly translates to an equal amount of resources going to waste alongside the wastage. This definitely was a pointer to a low level of internal efficiency of the schools sampled. Below is the trend of the average pupil GWR between 2002 and 2008.

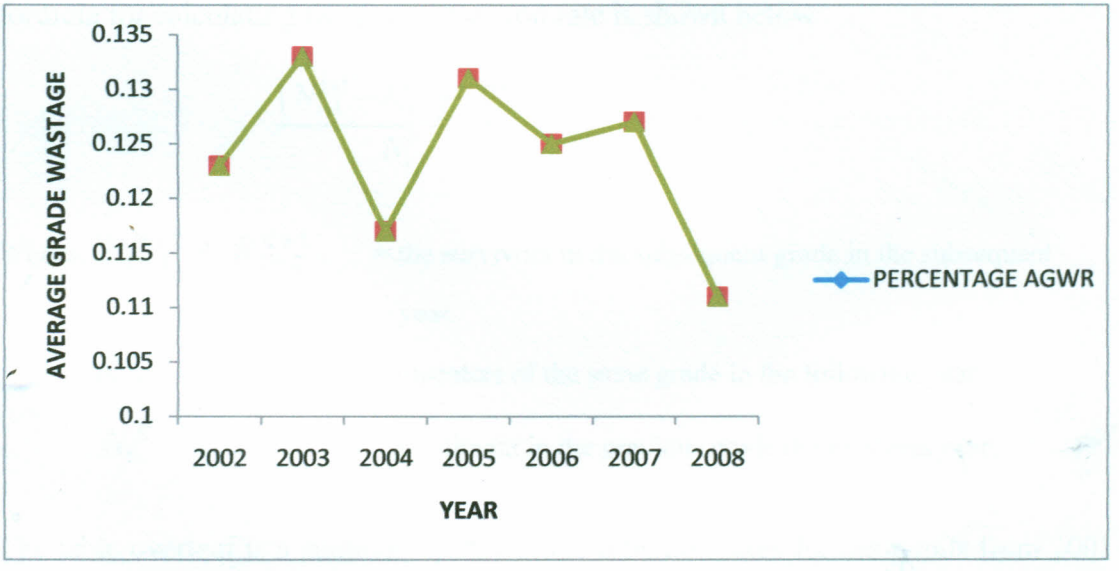


Figure 4.4: Trend of Average Pupil Grade Wastage Rate between 2002 and 2008

From Figure 4.4 above, there is a general trend of reduction of the pupil GWR from 12.8% in 2002 to 11.1% in 2008. The highest pupil GWR was that recorded in 2003.at 13.3%.

4.4.4: Pupil Grade Retention Rate (GRR)

Grade retention rate presents significant information on one of the important components of universal enrolment i.e. retention. The efficiency of an educational system is partly determined by its ability to hold pupils within the various grades all the way up to graduation without 'losing' them. It includes the survivors and the repeaters.

The grade retention rate was calculated by the addition of the survivors in the subsequent grade in the subsequent year with the repeaters of the same grade in the following year divided by the enrolment in the previous grade the previous year. The formula for calculating the grade retention rate is shown below.

$$\frac{\left(N_{t+1}^{k+1} - R_{t+2}^{k+1}\right) + R_{t+1}^{k}}{N_t^k}$$

Where, $N_{t+1}^{K+1} - R_{t+2}^{K+1}$ = the survivors in the subsequent grade in the subsequent year.

R_{t+1}^{K} = repeaters of the same grade in the following year.

N_t^K = enrollment in the previous grade the previous year.

The table overleaf is a summary of the grade retention rates for the pupils from 2001 to 2008.

Table 4.8: Average Grade Retention Rate (2002 – 2008)

CLASS / *YEAR*	*1-2*	*2-3*	*3-4*	*4-5*	*5-6*	*6-7*	*7-8*
2002	0.970 (97%)	0.959 (95.9%)	0.954 (95.4%)	0.927 (92.7%)	0.898 (89.8%)	0.891 (89.1%)	0.955 (95.5%)
2003	0.949 (94.9%)	0.948 (94.8%)	0.946 (94.6%)	0.929 (92.9%)	0.911 (91.1%)	0.863 (86.3%)	0.900 (90%)
2004	0.939 (93.9%)	0.993 (99.3%)	0.960 (96%)	0.940 (94%)	0.897 (89.7%)	0.922 (92.2%)	0.936 (93.6%)
2005	0.973 (97.3%)	0.829 (82.9%)	0.994 (99.4%)	0.980 (98%)	0.895 (89.5%)	0.867 (86.7%)	0.947 (94.7%)
2006	0.960 (96%)	0.964 (96.4%)	0.842 (84.2%)	0.978 (97.8%)	0.915 (91.5%)	0.932 (93.2%)	0.970 (97%)
2007	0.965 (96.5%)	0.955 (95.5%)	0.948 (94.8%)	0.880 (88%)	0.927 (92.7%)	0.902 (90.2%)	0.917 (91.7%)
2008	0.981 (98.1%)	0.936 (93.6%)	0.955 (95.5%)	0.951 (95.1%)	0.907 (90.7%)	0.895 (89.5%)	0.944 (94.4%)
AVERAGE	**0.962 96.2%**	**0.941 94.1%**	**0.941 94.1%**	**0.941 94.1%**	**0.907 90.7%**	**0.896 89.6%**	**0.938 93.8%**

Source: Field Data

The data in Table 4.8 reveals that the highest average grade retention occurred between Classes 1 and 2 at 0.962 (96.2%). The lowest retention was recorded between Classes 6 and 7 with a retention rate of 0.896 (89.6%) followed by 0.907 (90.7%) between Classes 5 and 6. Overleaf is the trend of average pupil grade retention between 2002 and 2008.

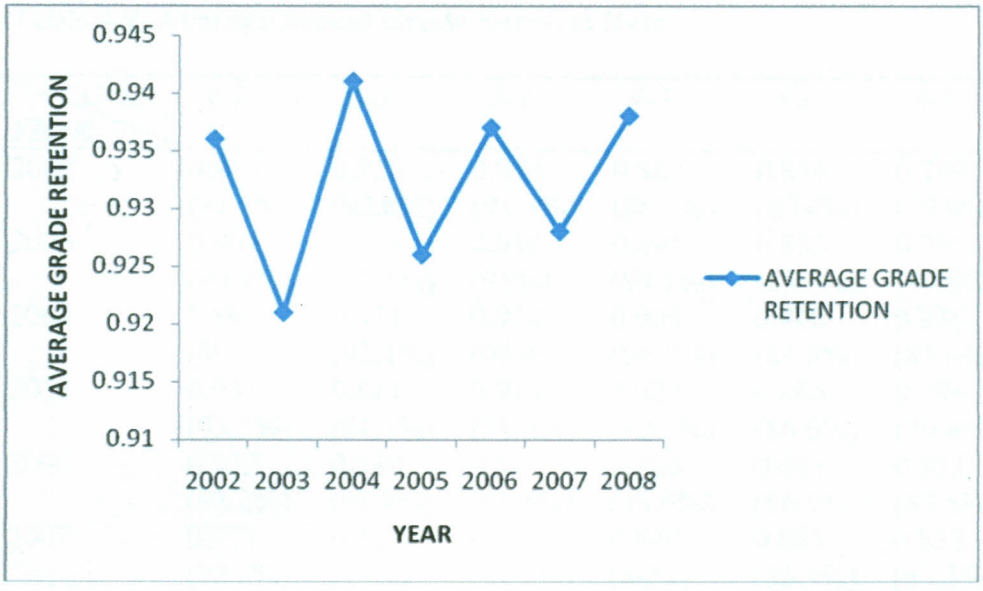


Figure 4.5: Trend of Average Pupil Grade Retention Rate (GRR) between 2002 and 2008.

The findings of the trend of pupils' GRR as presented in Figure 4.5 above indicates that grade retention rose marginally from 93.6% in 2002 to 93.8% in 2008. However, there was an unsteady GRR recorded between 2002 and 2008, fluctuating between a high of 94.1% in 2004 and a low of 92.1% in 2003.

4.4.5: Pupil Actual Grade Survival Rate (AGSR)

Table 4.9 overleaf shows the average grade survival rates between 2001 and 2008 for the schools studied.

Table 4.9: Average Actual Grade Survival Rate

CLASS / YEAR	*1-2*	*2-3*	*3-4*	*4-5*	*5-6*	*6-7*	*7-8*
2002	0.915 (91.5%)	0.926 (92.6%)	0.914 (91.4%)	0.882 (88.2%)	0.834 (83.4%)	0.799 (79.9%)	0.830 (83%)
2003	0.904 (90.4%)	0.913 (91.3%)	0.910 (91%)	0.891 (89.1%)	0.855 (85.5%)	0.795 (79.5%)	0.800 (80%)
2004	0.897 (89.7%)	0.921 (92.1%)	0.914 (91.4%)	0.905 (90.5%)	0.848 (84.8%)	0.836 (83.6%)	0.852 (85.2%)
2005	0.935 (93.5%)	0.811 (81.1%)	0.913 (91.3%)	0.927 (92.7%)	0.866 (86.6%)	0.794 (79.4%)	0.837 (83.7%)
2006	0.922 (92.2%)	0.938 (93.8%)	0.816 (81.6%)	0.886 (88.6%)	0.861 (86.1%)	0.835 (83.5%)	0.840 (84%)
2007	0.922 (92.2%)	0.920 (92%)	0.912 (91.2%)	0.840 (84%)	0.863 (86.3%)	0.833 (83.3%)	0.821 (82.1%)
2008	0.928 (92.8%)	0.913 (91.3%)	0.913 (91.3%)	0.918 (91.8%)	0.881 (88.1%)	0.820 (82%)	0.851 (85.1%)
Average	**0.918 (91.8%)**	**0.906 (90.6%)**	**0.899 (89.9%)**	**0.893 (89.3%)**	**0.858 (85.5%)**	**0.816 (81.6%)**	**0.833 (83.3%)**

Source: Field Data

Grade Survival Rate (GSR) is also known as grade promotion rate. Students flow within a level of education and survival is a yearly occurrence. The purpose of working out the GSR is to assess the "holding power" and thus the internal efficiency of an education system. For instance, the survival rate to Class 8 indicates the proportion of pupil cohort that completes Class 7 and reaches class 8. Conversely, it indicates that magnitude of dropout before Class 8.

The actual grade survival rate is the definite number of students who move into a subsequent grade in a subsequent year, excluding repeaters divided by the number of students in the previous grade in the previous year.

From the data on students' distribution found in Table 4.2, the actual grade survival rate was calculated using the formula below.

$$\frac{N_{t+1}^{n+1} - R_{t+2}^{k+1}}{N_t^k}$$

Where, $N_{t+1}^{K+1} - R_{t+2}^{K+1}$ are the survivors in the subsequent grade in the subsequent year whereas N_t^K refers to the enrollment in the previous grade the previous year.

The survival rates in Table 4.9 suggest various findings. First it is quite evident that the lowest survival rate of students existed between Class 6-7 at 0.816 (81.6%), while the highest survival rate was recorded between Class 1- 2 at 0.918 (91.8%). The low average survival rate between Classes six and seven (Table 4.9) was attributed to the high repeater rate (Table 4.4) and drop out (Table 4.6) between these two classes while the vice versa was true for the relatively high survival rate between class 1 and 2. The following line graph (Figure 4.6) illustrates the trend of pupils' AGSR between 2002 and 2008.

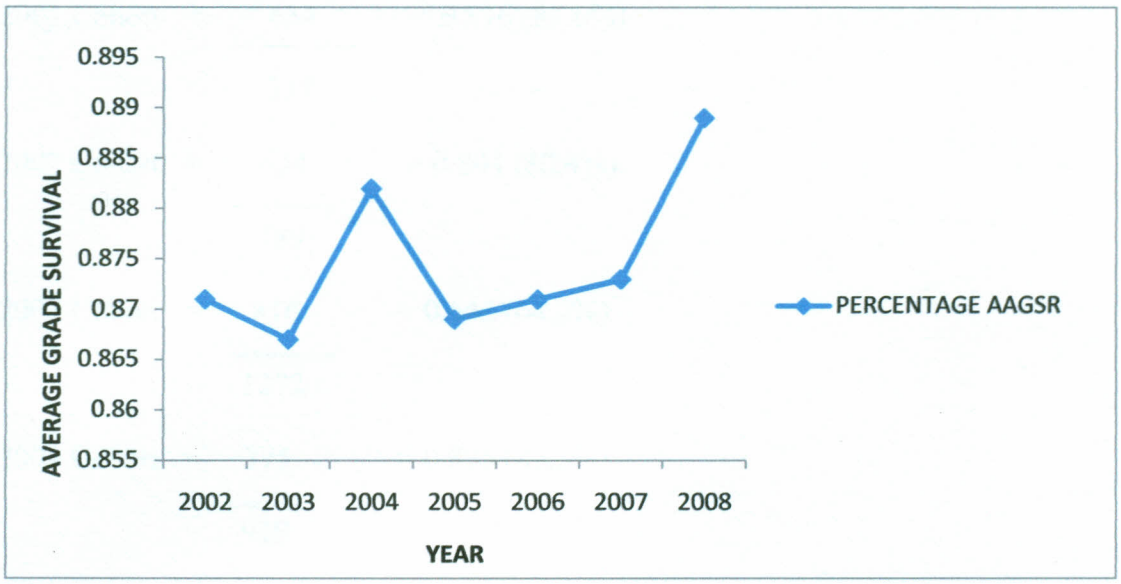


Figure 4.6: Trend of Pupil Average Actual Grade Survival Rate between 2002 and 2008.

The findings of the study of pupils' AGSR indicated that pupil grade survival was on the upward trend from an average AGSR of 87.1% in 2002 to 88.9% in 2008. The data in Figure 4.6 indicates that there was a sharp rise in the average AGSR from 86.7% in 2003 to 88.2% in 2004. However, the following year recorded a sharp fall to an average AGSR of 86.9%.

4.4.6 Pupil Survival Rate to Grade 5

The UNESCO Institute for Statistics measures cohort survival to grade 5 because research suggests that 5-6 years of schooling is a critical threshold for the achievement of sustainable basic literacy and numeracy skills. The pupil survival rate to grade 5 was calculated for the 2001 to 2004 cohorts as presented overleaf.

2001 Cohort = $\frac{634}{777}$ = 0.816 (81.6%)

2002 Cohort = $\frac{634}{789}$ = 0.804 (80.4%)

2003 Cohort = $\frac{816}{1272}$ = 0.642 (64.2%)

2004 Cohort = $\frac{775}{928}$ = 0.835 (83.5%)

Given an ideal situation of 1.00 where all pupils survive to the 5th grade (class 5) without repetition or drop out, the survival rate to grade 5 as calculated above revealed a system of education where just between 0.642 (64.2%) and 0.816 (81.6%) of pupils survived. This fell well below the 97% (0.97) and above survival to the 5th grade that most industrialized countries post (UN, 2007).

4.4.7: Pupil Completion Rate

The primary completion rate is an indicator of human capital formation and internal efficiency of a school system. It is also a direct measure of national progress towards the MDG of Universal primary Education (UPE).

The primary completion rate reflecting the primary cycle as nationally defined i.e. 8 years for the 2001 cohort was calculated using the formula:

$$\frac{N_{t+7}^{n+7} - R_{t+8}^{K+7}}{N_t^K}$$

Where, N_{t+7}^{n+7} refers to the pupil enrollment in the final grade and R_{t+8}^{K+7} refers to the repeaters in the same grade the same year.

i.e. $\frac{491 - 18}{777}$

$= 0.609$ (60.9%)

This index falls below the 0.90 (90%) and above completion rates required for an education system to be considered internally efficient. A completion rate of 0.609 (60.9%) as registered by the 2001 cohort reflects a situation where just about 60% of those pupils who enroll in Class one complete Class 8. This is an indicator of an inefficient primary education.

4.4.8: Pupil Graduation Rate (GR)

Graduation rate refers to the number of pupils who graduate from an education system from the proportion of those who survive up to the terminal grade. In the case of this study, the graduation rate was arrived at by dividing the number of pupils who sat for the terminal exam (KCPE) by the total enrollment in the terminal grade (Class 8) in the same year. The formula overleaf was used.

$$\frac{G_t^K}{N_{t+7}^{K+7}}$$

G_t^K = The number of pupils who sat for KCPE

N_{t+7}^{K+7} = The total enrollment in the terminal grade (Class 8)

The graduation rate of pupils in the public primary schools studied between the years 2001 and 2008 is presented below.

2001- 0.995 (99.5%)

2002- 0.977 (97.7%)

2003- 0.998 (99.8%)

2004- 0.996 (99.6%)

2005- 0.981 (98.1%)

2006- 0.998 (99.8%)

2007- 0.992 (99.2%)

2008- 1.00 (100%)

The trend of pupils' graduation from the primary school education system in the schools studied is shown overleaf.

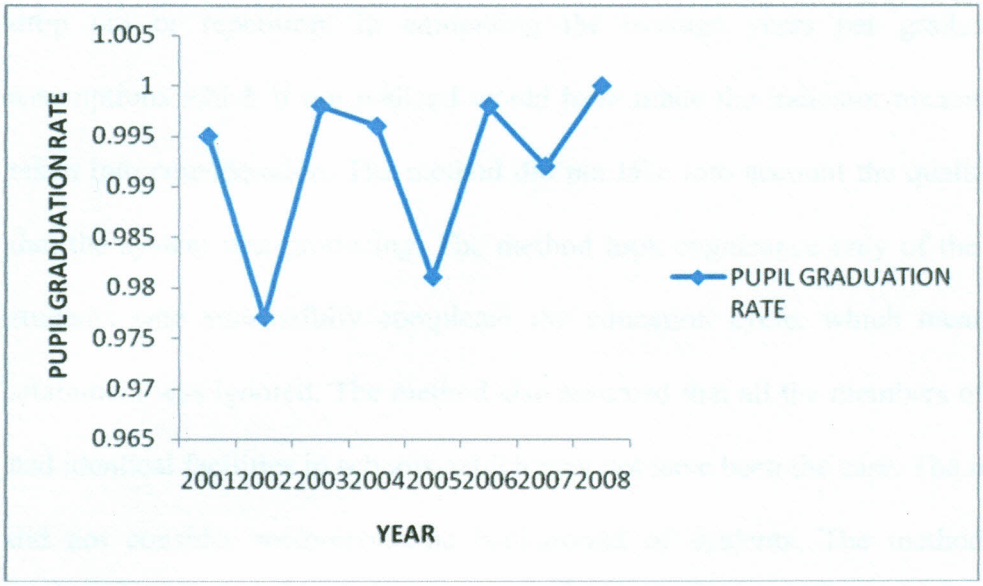


Figure 4.7: Trend of Pupil Graduation Rate between 2001 and 2008

The findings as indicated in Figure 4.7 reveal a trend of a high pupil GR of over 97%. These high graduation rates indicate that a very high percentage of those who survive up to the terminal grade sit for their KCPE exam. This means that there is high internal efficiency in class 8 in public primary school in the study area. However, failure of the primary schools to register a 100% graduation rate between 2001 and 2007 as was the case in 2008 still points to some level of inefficiency at this level of education.

4.4.9: Average Years per Graduate

The amount of resources spent on a graduate should be compared to the ideal number which is simply the duration of the education cycle i.e. 8 years. More than 8 years input per pupil (graduate) indicates wastage in the system that may be due to either

drop out or repetition. In computing the average years per graduate, certain assumptions which if not realized would have made the indicator meaningless were taken into consideration. The method did not take into account the quality of output that the system was producing. The method took cognizance only of the number of students who successfully completed the education cycle, which meant learners' attainment was ignored. The method also assumed that all the members of the cohort had identical facilities in schools, which may not have been the case. The method also did not consider socio-economic background of students. The method took into account only the number of drop out and repeaters as possible manifestations of an inefficient system.

The average years per graduate was arrived at by adding the enrolment in a cohort from the initial or entry point (Class 1) to the terminal grade (Class 8) divided by the graduates emanating from the cohort. The formula below was used.

$$\frac{N_t^k + N_{t+1}^{k+1} + N_{t+2}^{k+2} + N_{t+3}^{k+3} \rightarrow N_{t+7}^{k+7}}{G_{t+7}^{k+7}}$$

i.e. $$\frac{777+735+697+661+634+603+556+491+491}{491} = 10.497$$

The average years per graduate for the 2001/2008 cohort were 10.497 years. This was a very high average years per pupil when compared to an ideal average of 8 years. A high average years per graduate of 10.497 meant that more resources were being

devoted to educate a pupil than the minimum required. It translated to using an additional 2.493 years worth of resources to educate a pupil for 8 years! This is significantly wasteful.

4.4.10: Coefficient of Efficiency

The most common indicator used to assess the educational efficiency is the co-efficient of efficiency (also called the input-output ratio). In a perfectly efficient system, this co-efficient would equal 1 (100%). A coefficient of less than 1 (100%) therefore indicates inefficiency.

The co-efficient of efficiency was calculated by dividing the optimal (ideal) number of pupil years (i.e. in absence of repetition and drop out) by the number of actual pupil-years spent by a cohort of pupils, i.e.

$$\frac{8}{10.497}$$

This gave a coefficient of efficiency of 0.762 or 76.2% which is very low as compared to a co-efficient of efficiency of 97% and over posted by the developed world like the US, UK, Canada and Switzerland (UNESCO, 2005). Although higher than the average of 57.2 posted by developing countries in Sub-Saharan Africa (UNESCO EFA Report, 2008), this pointed to an inefficient system.

4.4.11: Factors Influencing the Flow of Pupils

The study sought to establish the various factors that affect the flow of pupils from one grade to the next. Various factors that hinder the smooth flow of pupils in relation to repetition and dropout were sought from class and head teachers, pupils during the FGDs and the two quality assurance and standards officers as discussed here below.

Reasons for Pupil Repetition of Classes

Despite research evidence which suggests that there is no educational advantage derived from making low achievers repeat grades and government's ban of the same, the study found out that pupils' repetition of classes was a serious hindrance to efficient pupil flow.

The main reason given by class and head teachers for pupil repetition can be summarized by one class teacher who observed thus:

> *Contrary to the popular belief that it is teachers who make pupils repeat classes, repetition is a collective decision of the parent, teacher and the pupil. The main reason why repetition has been tolerated and encouraged by all the parties involved is that it has enhanced performance of the pupils concerned.*

Other reasons given for pupil repetition of classes included truancy, poverty (lack of food), low academic ability of some pupils, under age and decision by parents and pupils. Table 4.10 overleaf summarizes this information.

Table 4.10: Reasons for Pupils Repetition of Classes

Reason	*Class Teachers*	*Percentage*
Low academic ability	27	41.5
Poverty (Lack of food)	24	36.9
Truancy	21	32.3
Parents directive	18	27.8
Under age	10	15.4
Pupil's decision	4	6.2
Total	**65**	**100**

Source: Field Data

Parents' directive to repeat was mainly directed at their children whom they felt repeating would increase their chances of doing well in KCPE especially with regard to unsatisfactory scores in all or some subjects. Few other parents directed their children to repeat Class 8 due lack of school fees for secondary education. This would afford them an opportunity to look for money in preparation for the following year. A small percentage of pupils had made a personal decision to repeat mainly due to unpreparedness to tackle the next class.

However, the 65 repeaters interviewed ranked the reasons for repeating classes differently from their class teachers. Forty one (41) repeaters were unanimous that repeating was largely a decision of their teachers accounting for 63.08%. 18 repeaters (27.69%) attributed their repeating to parents' directive to repeat mainly due to poor performance though about 63% of them (and rightfully so) did not think that their performance was bad. The remaining 6 (9.23%) chose to repeat to better their chances of improving performance. The majority (68%) of those who cited parents' decision for their repeating were from the lower primary (Std. 1-3) while 90% of the repeaters in upper primary (Std. 7 and 8) attributed repeating to teachers' decision. One

repeater aptly summarized the reason for repeating as follows:

> *It is teachers, especially the head teacher who force us to repeat classes. They set a pass mark which must be surpassed to earn promotion to the next class. It is not easy to join class 7 or 8, and particularly class 8 because the class teacher and head teacher promote to class 8 only those pupils they know will pass KCPE and improve the school performance ranking within the district. However, those whose parents insist that they be registered for KCPE even if they failed to attain the set pass mark end up having their way.*

Therefore, the factors contributing to repetition given the views of teachers and those of pupils include low academic ability hence the need to improve, poverty (lack of food), truancy and parents/teachers decision to repeat.

Asked whether they would recommend repetition for their pupils at any given stage of their learning, 58 (89.2%) class teachers responded in the affirmative by citing the following reasons.

Table 4.11: Class Teacher's Reasons for Recommending Pupils' Repetition

Reason	*Teachers*	*%*
For improvement	21	36.2
Frequent absenteeism	17	29.3
Not having sat end year Exam	9	15.5
Under age	6	10.4
Directive from parents/school	5	8.6
TOTAL	**58**	**100**

Source: Field Data

From the study, it emerged that the main reason why class teachers recommend repetition is to improve performance of the pupils concerned so as to better their chances of passing the KCPE examination. This is a wrong notion since several

studies by Haddad (1979) have suggested that there is no educational advantage to be derived from making low achievers repeat grades. The World Conference on Education for All (WCEFA, 1990) supports such findings by observing that repetition promotes low self esteem and an increased propensity to drop out. Other reasons for recommending repetition included frequent absenteeism, failure to sit for the end year examination which is used as a grade promotion tool, under age pupils who require more time to mature before joining secondary school. The least common reason was repetition as a result of directive from either the parent or the school. Some parents and schools had set expectations of performance from pupils such that whenever these were not met, then repetition was recommended.

Reasons for Pupil dropout

From the findings in Table 4.6, the study sought to establish the reasons behind the high rate of dropout of up to 17.4% between some grades. The paramount concern was the drop out in upper primary education i.e. 9.3% between classes 5 and 6 and 10.4% between classes 6 and 7. Information obtained from class teachers revealed a number of reasons for pupil drop out. These included poverty, pregnancy, overage, poor academic performance hence fear of recrimination, health problems and death of bread winner (parents and guardians). These reasons are summarized in Figure 4.8 overleaf.

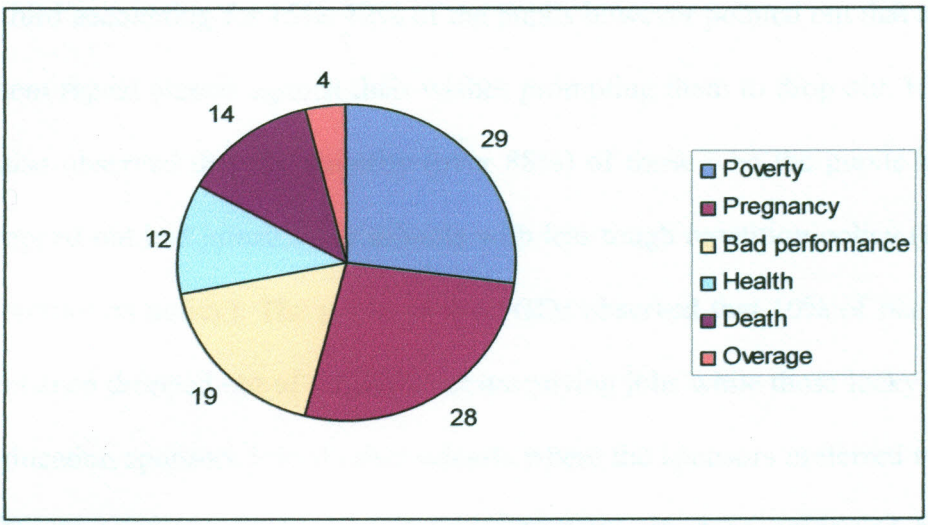


Figure 4.8: Class Teachers' reasons for pupil drop-out

The reasons for pupil dropout were largely echoed by the respondents in the Focus Group Discussions. 38% of the pupils present cited poverty as the major cause of drop out of their friends. Due to poverty, pupils cited inability to meet the various school financial obligations like school uniform, writing materials and paying for school infrastructure. The interview of the two zonal Quality Assurance and Standards Officers revealed that poverty was also directly responsible for pupils' engagement in child labor so as to supplement family income in the provision of food (food being the major challenge in poor households). One Quality Assurance and Standards Officer observed that:

> *The major challenge in education provision within this region is a high prevalence of very poor households. Most families can only afford one meal a day. Consequently, parents are withdrawing their children from school and handing them over to formally employed or financially stable relatives and friends to work as house helps in order to supplement family income. Girls are the most affected by this practice.*

Pregnancy was the second major cause of dropout at 20% while bad performance

ranked third accounting for 15%. 12% of the pupils however pointed out that teachers made them repeat classes against their wishes prompting them to drop out. However it was also observed that the majority (over 88%) of those who the pupils knew to have dropped out had joined other schools with less tough repetition policy (friendly school promotion policy). The pupils in the FGDs observed that 10% of pupils who were orphaned dropped out of school to secure paying jobs while those lucky enough to get education sponsors joined other schools where the sponsors preferred to enroll them. The last reason cited was overage especially when accompanied by poor performance accounting for only 3% of the dropout cases. Pupils, who fell in this category, it was observed, were a target of ridicule by both teachers and fellow pupils hence drop out. Below is a summary of pupils' responses.

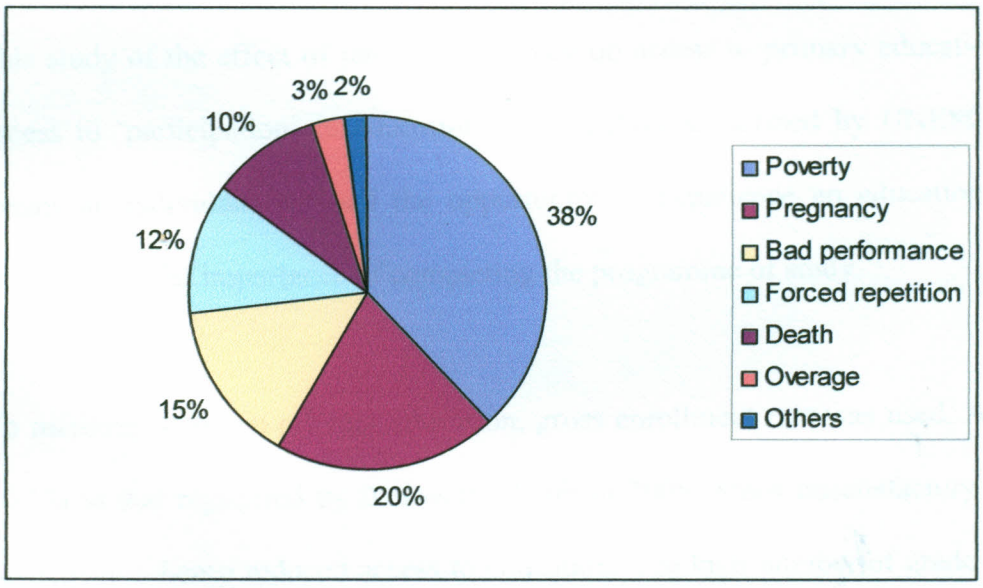


Figure 4.9: Pupils' Reasons for Dropout

The study also revealed that the rate of girls dropping out was higher than that of boys with pregnancy as the major cause. Majority of girls dropped out in class 7 and 8.

Information obtained from the Zonal Education Quality Assurance and Standards Officers revealed that parents' poor economic status within the area was a major cause of dropout. Poverty was so rampant that it was a common practice for parents to snatch their children from school whenever an opportunity to make a few shillings opened up, such as paid manual work. The most common casual jobs that parents and guardians targeted for their children to supplement family income included planting and weeding of farms, selling of small wares during market days and other jobs associated with gold prospecting such as moving of soil from mining sites and crushing of soft stones in search of gold.

4.4.12: Effect of Internal Efficiency on Access of Primary Education

This study of the effect of internal efficiency on access to primary education linked access to 'participation' in education. Participation as defined by UNESCO, 2003 means an individual has had the opportunity to experience an education without emphasizing the importance of completing the programme of study.

To measure access in primary education, gross enrollment rate was used. A GER of 90.1% as that registered by Ikolomani South in 2005 means unsatisfactory levels of participation hence reduced access to education. The high number of grade repeaters meant occupation of places in the primary schools that could have been taken up by other pupils and therefore an impediment to efforts to make primary education more accessible (educate large numbers of children.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1: Introduction

This chapter focuses on a summary of the study, conclusion, recommendations and suggestions for further research based on the issues raised by this study.

5.2: Summary of Findings

The major concern of this study was to analyze the internal efficiency of public primary schools in Ikolomani Division of Kakamega District between the years 2001 and 2008. This was in line with the wider purpose of coming up with useful recommendations to enable teachers of primary institutions, policy makers and educational planners adopt policies and strategies that would ensure an internally efficient primary education system so as to reduce wastage of time and other material resources.

Specifically, the study aimed at achieving the following objectives:

i. To determine the enrolment ratio of schools in Ikolomani South Division.
ii. To establish the distribution of pupils in public primary schools within the Division.

iii. To establish the level of internal efficiency of public primary schools in Ikolomani South using the following flow indices of determining internal efficiency: pupils grade survival rate, grade repeater and dropout rates, grade retention rate, survival rate, completion and graduation rates and the average years per graduate.

iv. To establish the efficiency co-efficient of determining internal efficiency in public primary schools within Ikolomani South Division for the period 2001-2008.

v. To establish factors influencing the flow of pupils from one grade to the next.

vi. To determine the effect of internal efficiency on access to public primary schools in Ikolomani South Division.

Based on the study findings, the following summary was arrived at:-

1. The study sought to establish the pupil enrollment ratio of the primary schools studied. The calculation revealed a GER of 90.1% which is lower than that posted by schools from other parts of the country, for example, Central Province as a whole which recorded a GER of between 99.6 and 100.3% in 2005 (MOEST Survey, 2005).
2. The study sought to determine the distribution of pupils at the various levels in the primary schools. Distribution of pupils in their various classes as presented in Table 4.2 was to enable the calculation of the different indices of determining internal efficiency.

A summary of the weighted averages for the repeater, dropout, wastage, retention and survival rates is presented below.

5.2.1: Repeater Rate

The average grade repetition can be summarized as follows:-

Class	1	2	3	4	5	6	7	8
Average Repeater Rate per Class	0.042	0.035	0.045	0.047	0.048	0.08	0.10	0.03

Repetition is highest in class 7 at 10% and lowest in Class 8 at 3%. A repetition rate of between 3% and 10% across all the Classes indicates that several pupils enrolled repeat a grade at some time in their life in school.

5.2.2: Drop out rate

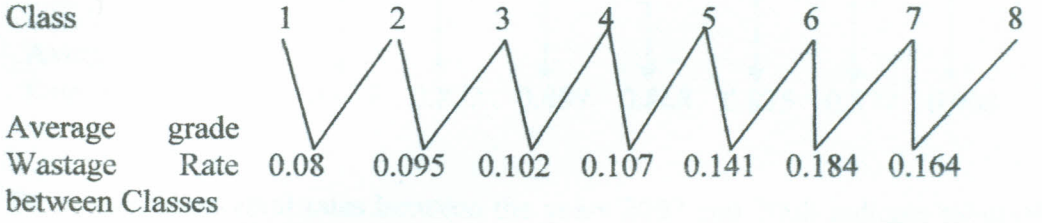
A summary of the average grade dropout between Classes is shown below:

Class	1	2	3	4	5	6	7	8
Average drop out Rate between Classes	0.04	0.06	0.06	0.06	0.093	0.104	0.062	

From the diagram above, Classes 6 and 7 posted the highest drop out rate at 10.4% while that between Classes 1 and 2 was the lowest at 4%.

5.2.3: Grade Wastage

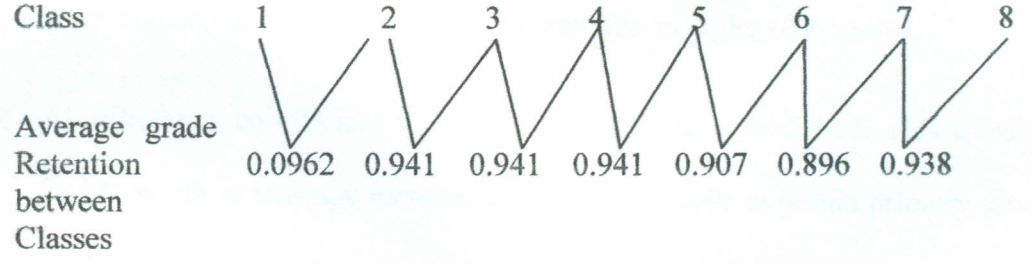
A summary of the average grade wastage rate per Class is given below



A wastage rate of 18.4% in the movement of pupils from Classes 6 to 7 was the highest between 2002 and 2008. Movement of pupils from Class 1-2 posted the lowest wastage rate of 8%.

5.2.4: Grade Retention

The average grade retention rate can be summarized as follows:



The ability of the schools studied to hold their pupils within the education system across the Classes ranges from 89.2% to 96.2%. This index takes into account the survivors and the repeaters. Retention of pupils between class1 and 2 was the highest at 96.2% while that between Classes 6 and 7 was the lowest at 89.6%.

5.2.5: Survival Rate

Year	02	03	04	05	06	07	08
Average Survival Rate per Class	0.877	0.872	0.889	0.868	0.875	0.877	0.908

The weighted survival rates between the years 2002 and 2008 indicate relatively low levels of survival of between 86.8% and 90.8% of the pupils across the Classes. The highest average survival rate per Class occurred in 2008 while the lowest was in 2005. A survival rate to grade 5 of 78.9%, 76%, 60.9% and 81.3% for the 2001, 2002, 2003 and 2004 cohorts respectively was established.

3. Average years per graduate of 10.497 were established. This is the amount of time required to educate a class 8 graduate for an eight-year course.
4. An efficiency co-efficient of 0.762 or 76.2% was established. This translates to 23.8% worth of wastage incurred in educating pupils at public primary schools in Ikolomani South Division.
5. The high level of poverty and high prevalence of teenage pregnancies among other factors contribute immensely to the high drop out rate from primary schools. Moreover, strict testing and promotion policies in most of the schools significantly contribute to the high rate of repetition.
6. Internal efficiency directly affects access to primary school education. With a co-efficient or efficiency of 0.762, it means more than the required resources are used to produce primary school graduates i.e. it takes 10.497 years' resources to produce a Class eight graduate. This in essence means pupils are retained within

the primary school system longer than the ideal eight years hence taking up chances which would have otherwise been utilized by new entrants in to the education system thereby lowering access to education at this level.

5.3: Conclusion

Based on the summary findings above and the preceding section afore discussed, the following conclusions are made:

Repetition is highest in class 7 and lowest in class 8. A repetition rate of between 3% and 10% across all the classes indicates that several pupils repeat a grade at some point in their life in primary school. These repeater rates are indicators of inefficiency in the schools studied especially when they exceed 6% which is the UN 'tolerable' rate of repetition.

Secondly, the drop out rate between classes 6 and 7 is the highest while that between classes 1 and 2 is the lowest. This means that there exists a high wastage rate in the movement of pupils from class 6 to 7. From these findings, it can be concluded that the ability of the schools studied to hold their pupils within the education system across the classes' ranges from 89.2% to 96.2%. This index takes into account the survivors and the repeaters. Retention of pupils between class 1 and 2 remains the highest at 96.2% while that between class 6 and 7 is the lowest at 89.6%. These findings also indicate that the movement from class 6 to 7 records the highest

inefficiency while the reverse is true for that between classes 1 and 2. It must be noted that any drop out is a waste of resources. A drop out rate of between 4% and 10.4% across the classes remains high indicating wastage of resources since more resources are utilized to cater for pupils who fail to be promoted to the next level.

Thirdly, the weighted survival rates between the year 2002 and 2008 indicate relatively low levels of survival of pupils across the classes. The highest average survival rate across classes occurred in 2008 while the lowest was in 2005. The survival rates to grade 5 posted in the 2001, 2002, 2003 and 2004 cohorts though higher than most developing countries in Sub-Saharan Africa is far much lower than 97% and above posted by developed countries.

Fourthly, an average years per graduate of 10.497 signals an inefficient system since an additional 2.497 years worth of resources are required to produce a class 8 graduate.

Fifthly, the efficiency coefficient of 0.762 or 76.2% is an indicator of inefficiency since it's at great variance with that of developed countries that post efficiency co-efficients of over 95.7% (UNESCO, 2005). This means that 23.8% worth of wastage is incurred in the education of pupils in these schools. In other words, internal efficiency in public primary schools in Ikolomani South Division stands at 23.8%. From the study findings, poverty and teenage pregnancies account for the high rate of pupil drop out. On the other hand, strict testing and promotion policies adopted by

most of the primary schools are responsible for the high rate of repetition.

Finally, internal efficiency has a direct effect on access to primary school education. With a coefficient of efficiency of 0.762 posted by public primary schools in Ikolomani South, more resources are needed to produce primary school graduates. It takes 10.497 years' resources to produce a class 8 graduate i.e. 2.497 years' more worth of resources. This means pupils take longer than the ideal eight years of primary education hence taking up chances which would have otherwise been utilized by new entrants in to the education system thereby lowering access to education at this level.

5.4: Recommendations

Based on the findings from this study, the following recommendations are made:-

1. It was found that Ikolomani South Division, a new administrative area lacks data on population distribution by ages. A demographic study should be carried out to determine population distribution by age to enable calculation of the net and gross enrolment ratios of school within the region so that the latest enrollment index can be established.
2. The study established that there was a decline in pupil enrollment between 2004 and 2007. There is need for education stakeholders to establish the reasons behind the declining enrolment in schools within Ikolomani South between 2004 and 2007 given the introduction of FPE. Though there is a significant general rise in

enrolment between 2001 and 2008, there is a worrying trend of a declining enrolment of pupils between 2004 and 2007.

3. The high repeater rate of above 7% is particularly worrying. There is need for speedy mechanism to bring down this rate specifically the high repetition in classes six and seven which points to stringent testing and promotion practices. The ministry should enforce legislation already in place especially against forced repetition. The emphasis on the examination system which has led to classification of pupils in terms of performance requires reviewing to reduce the pressure on pupils to perform to the set grade promotion yardstick. This will enhance pupil grade promotion and increase efficiency.
4. The high drop out rate of up to 10.4% in some schools is quite high considering that any measure of dropout is wasteful to an education system. This is a trend that calls for urgent intervention measures to remedy the situation. Every effort should be made by the education stakeholders to keep pupils in school once enrolled, including strict enforcement of the MOE recommendations on pupil retention in schools under the auspices of the Kenya Education Sector Support Programme (KESSP).
5. There is need to sensitize heads and teachers of primary schools in the area about the need to raise the low co-efficient of efficiency within their schools. This in effect means increased wastage of resources. Head teachers and teachers in general should be made aware of the effect of repetition and drop out rate on the internal efficiency of the school education system and specifically the negative effect of a low co-efficient of efficiency on access to primary education. This will

go a long way in reducing wastage and redirecting the scarce resources to other areas within the school that require urgent attention like infrastructure and provision of learning resources.

6. There is need to improve the flow of pupils from one grade to the next. This can be done by addressing all the causes of pupil repetition and dropout. Rampant poverty within Ikolomani South is an issue of concern. The political leadership and the inhabitants should be sensitized on the need to work hard and provide opportunities for the people to raise their living standards. This is particularly important in improving school attendance which will curb repetition due to poor academic performance as well as reducing pupil drop out as a result of poverty. It was evident that some of the schools visited suffer political neglect for instance a number of pupils attending Kimingini primary school access it via a makeshift bridge of a log of wood across a river. This is not only inconveniencing for the young ones but also hazardous especially during the rain season when the river swells. Similarly, the locals need to be sensitized about the need to educate the girl-child. The high incidence of child labor mostly affecting the girl-child is a grim pointer to the future of the people of Ikolomani. Failure to keep girls in school is failure to educate the woman which in turn is failure to educate the community.
7. There is need to keep and preserve up to date pupil data on enrolment by age, flow and completion in each education institution.

5.5: Suggestions for Further Study

In order to embrace the analysis of internal efficiency of public primary schools by head teachers, policy makers and other educational planners as the only way of adopting policies and strategies that will ensure internally efficient primary schools, the following suggestions on further research are made:-

i. Carry out a similar study involving a large sample both in public and private primary schools so as to provide data that is generalisable across a broader more inclusive spectrum.

ii. A research to be carried out on the effect of child labor by gender on the enrolment and drop out rates of children of school going age in public primary schools.

iii. A research to be carried out on the analysis of internal efficiency in monetary terms especially with regard to the wastage rate in primary schools.

iv. A research (census) to be carried out as a matter of urgency to establish the population of this area by age to enable determination of access to education through calculation of pupils' net enrolment rate within the public primary schools.

v. A study to be carried out to establish the reasons behind the declining enrolment in public primary schools after FPE in 2004 to 2007.

vi. A detailed analysis of the effect of repetition and dropout on internal efficiency by gender i.e. between boys and girls.

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APPENDICES

APPENDIX 1

QUESTIONNAIRE FOR HEAD TEACHERS

You are requested to give your honest response to the different items. You don't need to write your name and the questionnaire will be treated with anonymity. The information you give will be used to enhance proper management and improve the quality of learning in our public primary schools for the general good of pupils pursuing primary education in Kenya.

Please, tick in the spaces provided against the alternative(s) that best illustrates your response to the various items where applicable.

1. Name of school: _____ Zone: _____
2. No. of pupils in your school: _____
3. Total number of streams: _____
4. Average no. of pupils per class: _____

5. Give the number of pupils in every class between the periods, 2001-2008 by filling in the table below:-

YEAR	**2001**		**2002**		**2003**		**2004**		**2005**		**2006**		**2007**		**2008**	
CLASS	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
1																
2																
3																
4																
5																
6																
7																
8																

6. State the number of repeaters per class for the period 2001-2008 by filling in the table below:

YEAR	2008		2007		2006		2005		2004		2003		2002		2001	
	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
CLASS 8																
CLASS 7																
CLASS 6																
CLASS 5																
CLASS 4																
CLASS 3																
CLASS 2																
CLASS 1																

7. What are some of the reasons for boys repeating classes in you school?

_____

_____

8. What are some of the reasons for girls repeating classes in your school?

_____

_____

9. State the no. of dropouts per class in your school for the period 2001-2008 by filling the table below.

YEAR	2008		2007		2006		2005		2004		2003		2002		2001	
CLASS	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
8																
7																
6																
5																
4																
3																
2																
1																

10. What are the reasons why boys drop out of your school?

_____

11. What are the reasons why girls drop out of your school?

_____

12. Are cases of repetition common in lower or upper primary?

_____

13. Are cases of dropout prevalent among lower or upper primary pupils?

_____

_____

14. Suggest solutions for the problem of pupil dropout within your school.

_____

_____

15. Suggest solutions for the problem of pupil repetition within your school.

_____

_____

THANK YOU

APPENDIX 2

QUESTIONNAIRE FOR CLASS TEACHERS

1. Name of school: _____ Zone: _____
2. In what class are you the class teacher? _____
3. Currently, how many pupils are there in your class

   (a) Boys _____ (b) Girls _____
4. How many of them are repeating this class? _____
5. From your experience as a teacher and/or class teacher, state reasons why pupils repeat classes.

   _____

   _____
6. (i) Would you recommend repeating as an option for your pupils?

   Yes _____ No _____

   (ii) Under what circumstances would you advise your pupil(s) to repeat?

   _____

   _____
7. State factors that hinder your learners (pupils) active participation in class.

   _____

   _____
8. Please give the best estimate about your school on the following:

   (i) (a) The no. of pupils who dropped out of your class each year

   2001_____ 2005_____

   2002_____ 2006_____

2003_____ 2007_____

2004_____ 2008_____

(b) The no. of pupils who have repeated your class each year

2001_____ 2005_____

2002_____ 2006_____

2003_____ 2007_____

2004_____ 2008_____

9. From your experience as a teacher and/or class teacher, list all the possible reasons for pupil drop out in your class between the period 2001-2008.

_____

_____

10. Who are most affected when it comes to drop out from your class?

Boys ___ Girls___

THANK YOU

APPENDIX 3

GROUP INTERVIEW SCHEDULE FOR REPEATERS

1. Which levels of primary education do the repeaters present represent?
2. What reasons best explain why they are repeating?
3. Whose decision was it that they repeat?
4. Do they have a problem getting what to eat at home?
5. Who provides their lunch?
6. What is the educational level of their parents?
7. How do their parents earn their living?
8. How many repeaters are there in their respective classes?
9. Does their school have any policy on repeating of a class? What does it say?

APPENDIX 4

INDIVIDUAL INTERVIEW SCHEDULE FOR THE AREA QUALITY ASSURANCE AND STANDARDS OFFICERS

1. What are the statistics on repetition and dropout cases by gender in schools within your area of jurisdiction?
2. Are there obstacles to good performance of schools in your area? What are they?
3. What do you suggest should be done to improve performance of schools in your area of jurisdiction?
4. Do you think all children of primary school going age within your area have access to primary education?
5. If not, what is/are the reason(s)?
6. What is the general economic situation of parents within your area?

APPENDIX 5

FOCUS GROUP DISCUSSION (FGD)

GUIDE TO DISCUSSION QUESTIONS

1. How many are they in their school?
2. How many are they in their class?
3. Are there repeaters in their classes?
4. What are some of the reasons why they repeat classes?
5. Are there pupils who drop out of their classes?
6. Why do they drop out?
7. Do they have friends who are not in school?
8. What was their/parents consideration when choosing their current school?
9. How would they describe the general economic situation in their respective homes?

APPENDIX 6

MAP OF IKOLOMANI SOUTH DIVISION