

Promoting School's Efficiency through Academic and Non-Academic Outputs

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Abstract

School's outputs are graduates of the school who completed a given cycle of education in stipulated time. They have the requisite knowledge and skills induced by school. It may be in the form of different capacities created in students by schools such as competence in utilizing language, math, social and natural science and citizenship. Poor performance of output indicators may reflect various problems in programme design and implementation or adverse changes in external factors. Output indicators can be categorized into academic/cognitive and non-academic/non-cognitive. Academic/cognitive outputs include learning skills, writing skills, knowledge of arithmetic, special knowledge of skills and specialization. In order to measure the cognitive outputs, the objectives of any particular age-group can be set, common curriculum can be devised and standardized tests can be formulated. Most parents expect that school will induce basic moral and ethical values in their wards as well as achievement in terminal examination. The school will also prepare students for their place in the wider society, not only in terms of cognitive skills but in social skills and interpersonal relationships, as well. Output indicators include number of graduates at a particular level and their test scores; the information about dropout rate; completion rate, survival rate, examination pass rate, enhancing enrolment and minimizing dropout rate, increasing graduation rate are related to the efficiency of schools.

Keywords: Competence, Completion rate, Dropout rate, Examination, Graduate

1. Introduction

The graduates of schools are the output. They are equipped with necessary knowledge of the language; mathematics and science, which are considered the end-product/output. The knowledge of these graduates relates to cognitive skills in sciences and technical skills in vocational subjects. The effectiveness of the product can be judged by evaluation system. The indicators of the quality product of the education system include evaluation techniques, which are flawed reasons being that there are unfair practices in examination due to which they lack validity and reliability.

For internal efficiency of secondary schools, complexity arises not in distinguishing between teaching and non-teaching outputs, but in specifying precisely the components of the teaching output. This complexity can perhaps be simplified by distinguishing the various kinds of outputs. In addition to the measurement of successful candidates as output, there are two other types of outputs: Academic/cognitive outputs and Non-cognitive/ Non-academic. They are further elaborated in what follows.

1.1. Academic/Cognitive Outputs

Academic/cognitive outputs include learning skills, writing skills, knowledge of arithmetic, special knowledge of skills and specialization. In order to measure the cognitive outputs, the objectives of any particular age-group can be set, common curriculum can be devised and standardized tests can be formulated. The pupils are given pre-course and post-course tests. Then the scores can be adjusted to allow for factors affecting the performance other than the school-such as intelligence quotient (IQ), home background, parents & family and community characteristics and thus a measure of the value added to the pupils' cognitive skills by the school can be obtained. The scores of different students can be weighted to reflect the different scales of values placed on their improvement. It is difficult to relate the improvement in scores or value added of the pupils to the contribution of the school. It has been argued that many other factors outside the school-particularly home, family and community background-have an important influence on students' performance at school which no doubt affects the school effectiveness and efficient performance.

Standardized tests measure the differences in students' gains. Intelligence of students' education and socio-economic background affect students' performance. This brings out the difficulty of relating inputs to outputs. The school-based evaluation of students is not the true measure of their knowledge and achievement as they are not standardized tests and differ from school to school due to different techniques of measurement. It is therefore important that these examination scores be cross tabulated with student (or parental) characteristics and school characteristics in order to control for differences in the students' prior achievement and parental inputs.

Evaluation of the pupils' development is an integral part of any education system. The present system of evaluation is conventional and confined to intellectual attainment of the students based on written examination conducted at the end of the year. Principal of secondary schools conduct annual examination of their students from class 6th to 8th and 5th and 8th classes in feeding primary and middle schools respectively. Boards of Intermediate and Secondary Education conduct external examination at the end of class 9th, 10th, 11th and 12th of the secondary/ higher secondary schools and colleges having higher secondary classes. Boards issue certificates called Secondary School Certificates and Higher Secondary School Certificates to the successful candidates of the above examinations, respectively.

1.2. Non-Cognitive/Non-Academic

Most parents expect that school will induce basic moral and ethical values in their wards as well as achievement in terminal examination. The school will also prepare students for their place in the wider society, not only in terms of cognitive skills but in social skills and interpersonal relationships, as well.

Schools inculcate in students' values such as honesty, justice, tolerance and concern for others. They teach dignity of humanity, labour and good citizenship. These values can be measured by pre-school and post-school psychological tests. Non- academic category is discussed under the following.

1.2.1. Participation Rates

The enrolment at secondary level of education in Pakistan, in general, and KP, in particular, is low as compared to South Asian countries, particularly Sri Lanka and India. National Educational Policy (2009: 29) documented that the ratio between primary and secondary school in Pakistan is 6:1 but it touches the highest level of 13:1 in some areas. There is a need to provide more access to secondary school students by establishing more schools, bringing to school uncovered population of children to increase enrolment and providing access to out of school children.

1.2.2. Attendance Rate of Students

Daily attendance of students and teachers is an important indicator of efficient schools. The attendance of students and teachers increases the chances of participation in school-based activities, which enhances students' gains and their graduation rates. Low attendance rate results in more chances of repetition and dropout, which adversely affects the internal efficiency of schools.

The students are required to attend the school daily in six working days of a week. Leave may only be granted to a student by principal on receipt of a written or personal application from his parents or guardian. The attendance rate is affected both in urban and rural areas because working students in these areas are involved in business and agricultural activities in peak seasons due to which repetition and drop-out rates increase, which negatively affects the internal efficiency of school. A pupil of secondary school absent without leave shall pay a fine of Rs/2 for each day or part of a day during which he is absent. Principals of all secondary schools may remit the fines imposed in case the absence is due to illness or other valid reasons which shall be recorded. The name of any student who is absent from school for six consecutive working days without leave shall be struck off the roll, provided that due warning has been issued by principal to the parents or guardian of the absentee at least three days before such action is taken. A boy thus struck off may be re-admitted at the discretion of principal.

A student who has been struck off from school should be required on re-admission to the same school, to pay all fees and fine due from the beginning of the session or for the period for which he has not already paid. Principal of secondary school is required to send the names of all the pupils who may desire to present themselves as candidates for secondary school certificate examination, provided that such pupils have attended the school with regularity and are of good conduct and have passed in all compulsory subjects at a detention examination. Students appearing in secondary school certificate examination must have attained 75% attendances in the month (March) preceding the examination.

1.2.3. Completion Rate

Completion rate is the percentage of enrolled students who complete a cycle. The more students complete the cycle of a programme indicate the level of efficiency of the schools. According to the Table-1 the percentage completion rate of students from 6th to 9th class is reported by Elementary and Secondary Education Department KP for the years 2001-2010. There is fluctuation in completion rate of students (6th to 9th class) from 2001-02 to 2010-11. The general trend of completion rate (6th-9th class) students shows a steady increase in 2004-05 (highest) with gradually decrease in a haphazard manner and again increase during 2010-11. This was due to the law-and-order situation and terrorist activities in the province and change of government as well as inconsistency in policies and priorities of the government.

Table-1 Percentage Completion Rate of Students (6th to 9th class) in KP

Enrolment	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Class-6	77.40	78.90	80.50	85.55	83.04	83.01	84.78	82.77	83.84	85.39
Class-7	80.90	83.10	90.50	89.23	87.99	87.76	89.64	86.87	87.27	89.64
Class-8	73.40	72.40	74.80	81.12	79.53	82.85	85.56	79.80	79.78	80.36
Class-9	70.10	75.50	77.00	82.54	78.24	84.58	87.29	77.30	80.28	82.88

Source: KP EMIS E&SED (2010-11:177).

1.2.4. Repetition Rate

The student, who does not successfully complete the yearly programme of his education, lags behind the schedule and repeats the programme until he succeeds. The repeaters also tell upon the internal efficiency of schools.

The repetition rate is under-reported, but it is pertinent to mention here that changes occur transversely for class and gender. The mode of changes is interesting in that girls' repetition rate is lower than boys. Therefore, the concept that male (overall repetition rate from 6th to 9th class is 21.51%) repeats more than females (overall repetition rate from 6th to 9th class is 15.91%) is authentic and supported by Khyber Pakhtunkhwa EMIS 2010-11 data.

The repetition rate oscillates in different classes during 2010-11 to a magnitude that it is not easy to perceive a trend to determine the effectiveness of admission policy on it. However, a trend is developed that repetition rate of secondary school scholars is much lower than primary school students. In secondary school, the repetition rate gradually decreased up to Grade 9th. Ninth class repetition rate is the lowest of all the classes in secondary schools. It is probably due to knowledge explosion by mass media, awareness and education among the parents and community that help to play positive role in this connection. Whenever, a student appears in the board's examination of 10th class, he may not be re-admitted to a school and re-appears as a private candidate. Reconstructed Cohort Method was used in the current study.

Table-2 Students' Flow in Government Boys High Schools in KP

Year	Class-6	Class-7	Class-9	Class-8	Class-10
2009-10 Enrolment	156750	134593	120837	103987	86070
2010-11 Enrolment	169186	138647	124702	102548	83559
2010-11 Repeaters	11319	6767	6118	4369	
Promotion Rate (p)	84.13%	88.11%	81.25%	80.36%	
Repetition Rate (r)	7.22%	5.03%	5.06%	4.20%	
Drop-out Rate (d)	8.64%	6.87%	13.69%	15.44%	

Source: KP EMIS E&SED (2010-11:112)

1.2.5. Drop-Out Rate

The drop-out rate is the percentage of students who do not complete a programme and leave it during their study. There are a number of reasons due to which students leave the school in different classes. These include the harsh attitude of teachers, lack of proper educational facilities, poverty of parents and the environment that is not conducive to learning. Since true data of dropout rate is not available, EMIS usually computed it as remaining number after addition of repetition and promotion rates. It is

also computed as hundred percent minus the total percentage of repetition and promotion rates. It is much higher in Pakistan, in general and KP, in particular.

According to the Table-2 dropout rate from 6th to 9th classes were 8.64%, 6.87%, 13.69% and 15.44% respectively in 2010. The dropout rate at 9th grade was the highest than other grades, which was probably due to appearance of the students in boards' examination because most of the secondary schools detain the slow learning students from appearing in the 9th class board examination.

1.2.6. Transition/Promotion to Next Class

The responsibility for promotion of students from one class to another class in secondary school entirely rests with principal in case of 6th to 8th class students on the basis of passing terminal school examination. Students of 9th class are promoted by passing secondary school certificate examination conducted by boards. Transfer cases of students up to 8th class are brought to the notice of the respective Executive District Education Officer by countersigning their school leaving certificates, while migration of students in 9th and higher classes is required to produce migration certificates from one board jurisdiction to another board.

According to the Table-2 transition from 6th to 9th class gradually decreased from 84.13% to 80.36% during the year 2010-11. There are different reasons for this decrease, which have already been mentioned. Moreover, the enrolment during 2010-11 from 6th to 8th class increased as compared to the year 2009-2010 and the reverse is observed from 9th to 10th class.

2. Literature Review

School's outputs are graduates of the school who completed a given cycle of education in stipulated time. They have the requisite knowledge and skills induced by school. It may be in the form of different capacities created in students by schools such as competence in utilizing language, math, social and natural science and citizenship. Poor performance of output indicators may reflect various problems in programme design and implementation or adverse changes in external factors. Output indicators can be categorized into academic/ cognitive and non-academic: participation/ transition.

According to McMahon (1988:37) output indicators are: number of graduates at primary, secondary, and higher levels; number of graduates at each level; test scores on national examinations; distribution of expenditure per pupil, including urban/rural; distribution of achievement levels among pupils.

Bowora (2002:1-2) reported the following four output indicators:

1. Dropout rates, 2.Completion rates, 3.Survival rates and 4. Examinations pass rates.

The European Research Associates (2006:117) wrote in a report that the needs of data for the following outputs have already been defined. They include percent of population, with age group 18-24 in lower secondary, and age group 20-24 graduated from upper secondary education, tertiary graduates in science and technology and literacy percentage.

Atkinson (2005:20) stated that in many parts of the economy, however, not only do prices not exist, but outputs are difficult to define. In particular this is true for many of the goods and services to Government spending are devoted in the context of efficiency analysis, two fundamental issues need to be considered. How should the outputs of the public services sector be defined? And what value should be attached to these outputs?

Smith et al (2006:23) many of the outcomes secured by public service organizations are highly dependent on the characteristics of the population group they serve and the public bodies to which they are responsible. For example, in education:

- Levels of achievement may be related to the inherent ability of pupils. Ability at intake may differ from school to another due to socio-economic status or because of the operation of selection processes;
- attainment is likely to be partly due to the efforts of the pupil's parents or guardians, and these efforts may vary, systematically, across the country;
- Schools have differing freedoms and constraints, as they are answerable to both central Government and their local authority.

The analysis of what was reviewed in aforementioned discussion indicated that output indicators includes number of graduates at a particular level and their test scores; the information about dropout rate; completion rate, survival rate, examination pass rate, enroll more students and minimizing dropout rate, increasing graduation rate are also related to the internal efficiency of schools. [Smith et al (2006:20), Bowora (2002:1-2) and McMahon (1988:37)]

2.1. Academic/Cognitive Category

Behrman et al (2002:22-23) reported in a study a number of factors that were linked with education and usually considered to affect educational outcome of the students. Those included, the provision of adequate school infrastructure such as school building with spacious classrooms, library, laboratory, lavatory facilities, recruitment of qualified, trained & committed teachers, curriculum based on scientific principles and according to needs of community, effective teaching practices and provision of necessary instructional materials; participation of students in school-based activities through regular attendance and study at home; cooperative home environment, as well as, school management.

2.1.1. Impacts of Examination and Assessment

Kellaghan and Greany (2001; 2004:11) carried out two different studies sponsored by World Bank to make an assessment of the positive impact of examination and students' academic achievements. The outcomes of the two studies were that examination should be based on complete courses of the study and it should be ensured that cognitive skills were taught to the students. It was also suggested that the skills evaluated should cover both academic and non-academic areas. The format of examination should include different approaches such as written, oral and classroom assessment. Out of the important recommendation was that board of examination should have the capacity for research that was closely related to the curriculum organization.

National Education System Reform Strategy (NESRS 2007:28) reported the main concerns for strengthening of the evaluation system are: to improve knowledge of evaluation procedure for each grade and level, to support evaluation with the help of modified aptitude-based curriculum and extended secondary level education, and to set up reliable standards and unbiased approaches for evaluation of students' gains.

According to Velez et al. (1993:12-13) there are at least ten factors that were linked to high academic performance while two factors have negative impact on students' learning Outcome. Those positive factors included effective teaching practices; availability of textbooks and curricular materials; efficient pre-service and in-service training; availability of facilities like electricity, water and furniture; experience of teacher, knowledge of curriculum; time on assignment and exposure to curriculum; behaviour of students; pre-schooling; assignment practices by involving parents; and size of school in terms of enrolment. Two factors that have negative impact on students' gains were distance to schools and failure, as well as overage students.

Boissiere (2004:13-14) classified the output into five different categories. First category included physical facilities, equipment and sanitation. Second category was related to curriculum, teaching strategies, textbooks and other support materials. Third category was teachers' effective teaching

practices. Fourth category was the structure of the institution and how it was managed. Fifth category was also not less important. It included the health status of students, their academic abilities and family background. Owolabi (2000:28), in his study, submitted that it was unrealistic to compare results of examination of schools relating successful graduation of a specific cycle, irrespective of the students' inputs, failure and wastage in the institution. Those are likely to have a great influence on their performance at their final year, he stated.

According to a report of World Bank (2006:183) most learning evaluations are curriculum-based and highly academic, which means that the link between knowledge and its use in the lives of individuals becomes relatively tenuous. Some learning evaluations, however, adopt a "life skills" approach that attempts to measure knowledge in the context of how useful it is in real-life situations.

Behrman et al (2002:16) reported that low quality of school education is evident from high failure rate of students at secondary school certificate examination. The major reasons of the inferior quality of education at this level are increase in students' enrolment, rigid Government rules concerning approval of teaching posts, deficient infrastructure, political dominated recruitment, ineffective supervision and inadequate motivation system for educators.

Kellaghan et al (2009:66) stated that measurements are vital to determine success and flow of students to next grade. The assessment outcomes are directly linked to achievement of students. There are numerous uses of examination data. It is used to show quality of education at school level and for accountability of teachers, which has planned and unplanned impacts on teaching-learning processes.

According to a report of UNESCO (2005:16) students' learning outcomes are affected by their family background and socio-economic position. The safety against HIV/AIDS is associated with students' learning outcomes from basic education. The increase return during existence and information about fertility are also associated with basic education. Students' achievements in the area of moral, character building, capabilities and non-cognitive proficiency are not given.

Lloyd et al (2000:113-147) linked the quality aspects of education with dropout in a study of adolescent girls and boys in three districts in Kenya. It was found that factors like course content, pedagogical skills of teachers, teachers' attitudes, school environment and policies as well as teacher-student ratio have impact on the internal efficiency of schools.

The analysis of literature reviewed indicated that students' achievement in evaluation is vital in assessing the school efficiency. The outcomes of evaluation are denoted by percentages of successful students in different divisions and grades. The pass percentage data of students is usually less, revealing school ineffectiveness. It is further used for improving instructional process and learning outcomes of students, which promote internal efficiency of schools. [Kellaghan et al (2009:66), National Education System Reform Strategy (NESRS 2007:28) and Behrman et al (2002:16)]

2.2. Non-Academic: Participation/Transition

The participation rate would include attendance, graduation, completion and drop-out rates. Transition would include promotion to next grade.

The European Research Associates (2006:126) documented in a report that students' flow is assessed by promotion, repetition and dropout rates, which are utilized for the purpose of evaluation, monitoring and projecting the efficiency of the education system. Promotion rate is the percentage of students who have effectively completed a class and progressed to the higher class next year. It shows relative size of the cohort who moved to the higher class in a cycle. Repetition rate is the percentage of students who repeat a class once or more. The repetition rate measures the rate at which students repeat classes. A high repetition rate means a high wastage ratio. Dropout rate is the percentage of students who abandon school in a given class without completing a cycle. High dropout rate is the major cause of inefficiency of schools.

UNESCO (2011:19) reported that the association between enrolment ratio and national wealth is very strong. As a group, low-income countries had the lowest participation ratio at 39% in 2009, compared to 64% for lower middle-income countries and 90% for upper middle-income countries. Among high income countries, the average GER reached 100%.

2.2.1. Attendance, Survival and Completion Rate

UNESCO (2011:47) documented that relatively high attendance rates for both boys and girls in Liberia belie significant disparities in participation. It is revealed that an almost 50 percentage point gap in attendance rates between rich boys and poor girls exist. Girls from poor and rural households have the lowest participation rates. In addition, there is a severe age level discrepancy affecting upper secondary school age students from all households, rich and poor, urban and rural: less than 20% actually attend upper secondary or higher education.

Behrman et al (2002:39-40) identified the quality indicator and included in cohort of survival rate of school. The purpose was to see how many students completed a cycle of education after their enrolment at the start. It was concluded that about 30% of students enrolled in grade-1 did not reach grade-6 and round about 30% of students who were enrolled in first year of secondary school did not reach the fourth year. This indicated that the school system was not effective, which adversely affected the quality of schooling.

Aggarwal (2002:63) documented in a study that there is a need to reduce dropout and repetition rates in order to increase retention rate. This will require setting proper school climate, availability of teachers and improving classroom practices.

According to a report of the South African Department of Education (2008:26) a survey was conducted to find out the participation rate of the students as a percentage of those enrolled in schools. The analysis brought to limelight that majority of the students had left the cycle in a given academic year.

A report of the UNESCO (2011:25) revealed that participation levels remain relatively low in the Arab States and in South and West Asia. In the Arab States, the upper secondary GER rose by just 6 percentage points, from 42% in 1999 to 48% in 2009. In South and West Asia, ratios are also low for Bangladesh (45%) and Pakistan (35%). The highest ratio in that region is observed in the Islamic Republic of Iran (81%).

The analysis of above-mentioned discussion revealed that in case of Liberia 50% gaps were found in the attendance rate of rich and poor students. It was also evident that 30% of students enrolled in first year of secondary education do not reach fourth year of the cycle. The retention/survival rate will ultimately increase by reducing repetition and dropout rate. Secondary education graduation ratio is lowest in Bangladesh (45%) and Pakistan (35%) and highest ratio in the region is found in Islamic Republic of Iran (81%). This highlights the inefficiency of secondary education in Pakistan. [UNESCO (2011:25, 47), Behrman et al (2002:39-40) and Aggarwal (2002:63)]

2.2.2. Promotion, Repetition and Drop-out Rate

Aggarwal (2002:71) documented that there were a number of causes and reasons in support of those who completed a programme of study and those who dropout during the currency of a programme. Those causes included, but were not restricted to, the inadequate support of family both financial and moral and the poor academic achievement in the examination as well as the lack of interest of students for different reasons.

A report of UNESCO (2000:44) linked the internal efficiency of education system to different events during a school cycle. These events were termed as promotion, repetition, dropout, and graduation. Wastage was yet another term that was an outcome of the repetition and dropout rates. All these

factors influenced the quality of education, but the inefficient utilization of school resources had significant impact on school effectiveness.

According to Aggarwal (2002:103) certain factors are accountable for repeating of the students. Those included: school attendance, contention of parents, students' negligence of study, inappropriate concentration of educators, lack of textbooks and teaching materials, weak learning outcomes, non-involvement of parents, and communication problems linked to medium of instruction.

It was described in a report (2006 d: 90) of South African Department of Education that internal efficiency denoted the flow of students through the system of education. It was based on consideration of repetition and dropout as well as retention of learners from one class to another. It was, however, considered imperative for efficiency indicator to have valid and reliable data on repeaters.

International Institute of Educational Planning (IIEP 2001:216) reported that repetition constitutes inefficiency and if it is high, it leads to low internal efficiency. High repetition rates, which are prevalent among low-income groups, are a threat to issues of internal efficiency of school system, which in turn reduces the completion rates for any given cohort compromising internal efficiency.

Olatoun (2011: 24) stated that the wastage factors are elements of inefficiency, which are important educational problems worth investigating. It denotes that inefficiency of an educational system constitutes a sort of waste to the system. If a student repeats a class once, he/she will spend seven years instead of the six years, and this is an additional cost to the Government. Worse still, if at the end of the six years, a student fails the terminal examination and he cannot proceed into the tertiary level according to plan, she/he will have to re-enter the course thereby incurring additional costs.

According to Education Sector Analysis (Nigeria 2006:98) drop-out/completion rate is the indicators with which the education system tries to actualize the philosophy of Nigeria Education. Pupils who withdraw prematurely from primary school before completion and those who repeat the same class, while their mates proceed to higher classes in the next academic year are considered as wastage. This wastage threatens the internal efficiency of the education system. It appeared that parents engage their children in income generating activities because of poor socio-economic status of the family. The money realized may be used to meet the daily financial needs of the family.

According to Fonkeng (2006:98) the phenomenon of high repetition is experienced in many third world countries and is an indicator of inefficiency of the educational system. It was further argued that repeating a class increases private and Government cost of education shouldered by parents and states and in addition leads to large classes with attendance, problems of assessment and supervision of pupils, more facilities needed, training and recruiting more teachers and provision of more didactic materials. Repetition of classes may have negative effect on pupils and parents.

Ayodele (2002:99) documented analysis of efficiency in education to ensure optimal use of the meager resources allocated to education in order to eliminate or minimize wastage. It was further reported that additional number of years spent by the repeaters in course of repeating classes is also viewed as wastage. Wastage arising from repetition and drop-out of classes by pupils is a threat to effectiveness of schools. It is considered as wastage of scarce resources that could have been employed in other areas of pressing needs. According to Legotlo et al (2002:116) the low level of internal efficiency of school system denoted more wastage and significant increase in the spending on education. The inefficiency of the system can be attributed to the decreasing social benefits as compared to more expenditure on education.

Vasconcelos-Saliba (2004:65) stated that among the programmes targeting grade repetition are summer schools, monetary graduation incentives, accelerated instruction programmes, learning cycle approaches, and flexible promotion based on academic credit mechanisms. Increased fiscal autonomy

at the school level (funded through payroll taxes) and the dissemination of school report cards (in the state of Paraná) are among other programmes designed to improve efficiency.

Cortes Neri et al (2005:66) reported that there is strong evidence that the cumulative effect of repetition at the lower years disproportionately affects poor, minority, and rural children: children from a poor background are more likely to repeat their grades, unlikely to join school, and more probable to drop out and work. According to a report of TTEST (2004:15) it is not an appropriate measure of the learning outcomes that failure and dropout rate are reduced to enhance school efficiency. Record of service data indicated that employment in education department is not priority of several trained primary teachers. Several prospective teachers were unable to get employment and so incapable to carry out the last phase of Traini John, R. (2003:4) stated that internally efficient are those schooling systems, which promote children throughout the cycle and facilitate them to complete the programme in the given number of years. It was further indicated that leaving the school before completion of the programme and repeating the course are indicators of inefficient performance of the schools, which adversely affect the internal efficiency of schools.

A report of World Bank (2006:190-191) showed that empirical literature on education attainment and production functions suggests that variables, like remoteness of school, availability of basic services, school fees, and cash and non-cash transfers have a substantial impact on enrolment and/or grade attainment and that variables such as teacher experience and education, teacher subject matter knowledge, instructional time, textbooks, and other learning materials, have a substantial impact on test scores.

The analysis of foregoing discussion revealed that output indicators measured the extent to which immediate objectives are achieved. The immediate objective of education may be to improve access to secondary education, promote its internal efficiency and/or increase the competence and know-how of students. The internal efficiency is the ability to minimize cost and reduce wastage resulting from repetitions, dropouts and failures. Wastage may occur between grades, that is, those who repeat the grade and those who drop-out of the system between the grades. [South African Department of Education (2006 d: 90), Aggarwal (2002:103) and UNESCO (2000:44)].

Dropout rates are relatively high among lower income groups. These are those pupils who cannot afford to remain in school. Even if schooling is nominally free, there are uniform and notebook costs. There is also another reason that the lower income groups cannot afford the income foregone while their children are at schools. The poor families usually decide about their wards to get education or leave the schooling system at certain grade, so they can work and earn some money, for the family. [Education Sector Analysis (Nigeria 2006:98), Cortes Neri et al (2005:66) and International Institute of Educational Planning (IIEP 2001:216)]

Survival plans demand that all members of a family may work to manage livelihood, which resultantly influence school attendance and dropout. Family earnings and revenues may be related factors in shaping achievements of its household members. The problem of wastage in education arises in many developing nations as a result of high percentage of pupils who repeat classes and those who drop-out of the school. Repetition and dropout may cause to deteriorate the internal efficiency of schools and would be improved by minimizing these factors to enhance survival and graduation rates. [UNESCO (2011:77), Education Sector Analysis (Nigeria 2006:98), TTEST (2004:15), Aggarwal (2002:71) and UNESCO (2000:44)]

3. Methodology of the Study

The study attempted to identify determinants of schools' efficiency through academic and non-academic outputs in the context of Khyber Pakhtunkhwa province of Pakistan. It chose a descriptive methodology based on scientific method of research. Both qualitative and quantitative approaches

were applied for analysis of data. The study was delimited to Boys' High Schools in public sector both in urban and rural areas of five districts of Khyber Pakhtunkhwa province of Pakistan. Girls' schools as well as private schools were not included in the scope of the study.

Population may be target or sampled depending on the situation. The target population of the study was 1229 principals/heads of secondary schools and 4201 senior school teachers in Khyber Pakhtunkhwa province of Pakistan. The sampled population of the current study was 297 principals/heads of secondary schools and 1433 senior school teachers in five districts of five divisions of Khyber Pakhtunkhwa province of Pakistan.

Table-4 Population of High Schools' Principals and Senior School Teachers (SSTs)

Population of Respondents, District-wise	District Bannu	District Kohat	District Lower Dir	District Mardan	District Peshawar	Grand Total
Population of High Schools' Principals	48	44	62	69	74	297
Population of SSTs	248	145	275	410	355	1433

The study chose stratified random sampling technique as the population was spread over five districts. Therefore, districts were purposively selected and sample from every district was randomly chosen in order to provide equal opportunity to subjects, for inclusion in every unit of the population. The sample of the study was adequate because 75 (25%) principals and 359 (25%) senior school teachers were included in the study from all five districts of five divisions of Khyber Pakhtunkhwa province of Pakistan. The following table gives a synoptic picture of the sample in five districts of Khyber Pakhtunkhwa province.

Table-5 Sample of High Schools' Principals and Senior School Teachers (SSTs)

Sample of Respondents, District-wise	District Bannu	District Kohat	District Lower Dir	District Mardan	District Peshawar	Grand Total
Sample of High Schools' Principals %age	12 (25%)	11 (25%)	16 (25%)	17 (25%)	19 (25%)	75 (25%)
Sample of SSTs %age	62 (25%)	36 (25%)	69 (25%)	103 (25%)	89 (25%)	359 (25%)

The following statistical manipulations were used for determination of consistency in data of the respondents.

Standard Deviation of principals (S_p) =3.03, Standard Deviation of SST (S_t) =23.04

Principals' average per district ($\bar{X}_p$) =15.00, SSTs' average per district ($\bar{X}_{SST}$) =71.80

Co-efficient of variation (C.V) for principals and SST are given as:

$$C.V_p = S_p / \bar{X}_p \times 100$$

$$C.V_{SST} = S_t / \bar{X}_{SST} \times 100$$

$$C.V_p=20.20$$

$$C.V_{sst}=32.09$$

Co-efficient of variation of principals (20.20) is less than SST (32.09), which means that data of principals are more consistent (reliable) than teachers' data.

4. Research Instruments

The study used opinionnaire for collecting data from principals and senior school teachers regarding financial category for improving school efficiency in five districts of Khyber Pakhtunkhwa province of Pakistan. The opinionnaire was administered to the subjects using Likert Scale with five options for each statement. They were handed over to participants and collected in person.

5. Data Collection, Analysis and Discussion

The primary data were obtained through closed-ended opinionnaire personally handed over to the principals and senior school teachers in urban and rural areas in five districts of Khyber Pakhtunkhwa province of Pakistan. The secondary data were obtained from office records, documents and review of relevant literature both in local and global perspectives.

The analysis of data was given both quantitative and qualitative treatment. The quantitative data were supported by statistical measures and converted into percentages in tabular form duly supported by graphic presentation. The qualitative data were placed under different patterns and categories, discussed and interpreted for drawing inferences. Chi-square test was also applied for validation of results.

The following statements were framed under academic and non-academic category and the respondents (principals and senior school teachers) were asked to prioritize their choices out of options: Most Essential, Quite Essential, Essential, and Essential to Some Extent and Not So Essential in accordance to serial number of opinionnaire fielded to the subjects. Schools

- Principal and faculty measure academic outcome of students with respect to test score/ terminal examination score in percentage marks/grade.
- Principal and staff acquire knowledge of participation rate including attendance, graduation, completion and drop-out rate of students.
- Principal and teachers possess information about transition including promotion of students to next grades.

Table-6 Responses of 75 Principals Regarding Academic and Non-Academic Category in Five Districts of KP

Options (Likert Scale)	Statement number	Districts					Total Responses (Row)	Percent-ages (%ages)
		Bannu 12	Kohat 11	Lower Dir 16	Mardan 17	Peshawar 19		
Most Essential	1	6	3	9	8	7	33	14.67
	2	8	3	4	6	6	27	12.00
	3	8	4	7	6	7	32	14.22
Total Resp. (Column)		22	10	20	20	20	92	40.89
Quite Essential	1	4	7	5	4	11	31	13.78
	2	3	5	9	7	11	35	15.56
	3	4	3	7	7	6	27	12.00

Total Resp. (Column)		11	15	21	18	28	93	41.34
Essential	1	2	1	2	5	0	10	4.45
	2	1	3	2	4	2	12	5.33
	3	0	4	1	3	5	13	5.78
Total Resp. (Column)		3	8	5	12	7	35	15.56
Essential To Some Extent	1	0	0	0	0	1	1	0.44
	2	0	0	1	0	0	1	0.44
	3	0	0	1	1	1	3	1.33
Total Resp. (Column)		0	0	2	1	2	5	2.21
Not So Essential	1	0	0	0	0	0	0	0.00
	2	0	0	0	0	0	0	0.00
	3	0	0	0	0	0	0	0.00
Total Resp. (Column)		0	0	0	0	0	0	0.00
G. Total		36	33	48	51	57	225	100

N=75

Out of 225 (75x3) responses of 75 principals in all the five districts 92 (40.89%) responses were opted for 'Most Essential', 93(41.34%) for 'Quite Essential', 35 (15.56%) for 'Essential', 5 (2.21%) for 'Essential to Some Extent' and 0 (0.00%) for 'Not So Essential'. It was found that out of 225 responses a majority of 93 responses were in favour of 'Quite Essential'. It indicated that measuring academic and non-academic category could help promote effectiveness of the schools. The result of this analysis was that measuring academic outcome of students with respect to test score/ terminal examination score, attendance, graduation, completion and drop-out rate of students and their promotion to next grade have positive impact on the internal efficiency of schools. These findings are in line with literature reviewed and uphold the suggestions that attendance and completion of an educational cycle leads to graduation, which reduce repetition and dropout. [UNESCO (2011:47), South African Department of Education (2006 d: 90), Education Sector Analysis (Nigeria 2006:98), Fonkeng (2006:98), Cortes Neri et al (2005:66) Aggarwal (2002:71,103) International Institute of Educational Planning (IIEP 2001:216), and UNESCO (2000:44)].

The data placed in Table-6 were further subjected to statistical measures for validity.

- **H₀** = Academic and Non-Academic Category and Internal Efficiency of Schools are independent, or they are not associated.
- **H₁**=Academic and Non-Academic Category and Internal Efficiency of Schools are not independent, or they are associated.

Level of significance $\alpha=0.05$ (for 95% confidence level)

Critical Region Chi-Sq (cal) $\geq$ Chi-Sq $_{\alpha}(r-1)$ (c-1) d.f.

Chi-Sq (cal) $\geq$ Chi-Sq $_{0.05}(2)$ (4)

Chi-Sq (cal) $\geq$ Chi-Sq $_{0.058} \Rightarrow$ Chi-Sq (tab) =15.51

$$\text{Chi-Sq (cal)} = 3.706$$

Since Chi-Sq (cal) (3.706) is less than Chi-Sq (tab) (15.51), which does not fall in the critical region. So, we accept H_0 and conclude that 'Academic and Non-Academic Category' and 'Internal Efficiency of Schools' are not associated.

Table-7 Responses of 359 SSTs Regarding Academic and Non-Academic Category in Five Districts of KP

Options (Likert Scale)	Statement number	Districts					Total Respon ses (Row)	Percent- ages (%ages)
		Bannu 62	Kohat 11	Lower Dir 69	Mardan 103	Peshawar 89		
Most Essential	1	29	10	26	38	27	130	12.07
	2	24	8	27	37	28	124	11.52
	3	28	16	26	29	23	122	11.33
Total Resp. (Column)		81	34	79	104	78	376	34.92
Quite Essential	1	20	17	28	28	31	124	11.52
	2	25	15	18	30	34	122	11.33
	3	21	5	19	37	30	112	10.40
Total Resp. (Column)		66	37	65	95	95	358	33.25
Essential	1	11	8	12	29	24	84	7.80
	2	7	10	20	26	20	83	7.71
	3	11	11	15	29	26	92	8.54
Total Resp. (Column)		29	29	47	84	70	259	24.05
Essential To Some Extent	1	2	1	3	7	6	19	1.76
	2	6	3	2	8	5	24	2.22
	3	2	4	8	7	8	29	2.69
Total Resp. (Column)		10	8	13	22	19	72	6.67
Not So Essential	1	0	0	0	1	1	2	0.18
	2	0	0	2	2	2	6	0.56
	3	0	0	1	1	2	4	0.37
Total Resp. (Column)		0	0	3	4	5	12	1.11
G. Total		186	108	207	309	267	1077	100

N=359

Out of (359x3)1077 responses of 359 senior school teachers in all the five districts 376 (34.92%) responses were opted for 'Most Essential', 358 (33.25%) for 'Quite Essential', 259 (24.05%) for 'Essential', 72 (6.67%) for 'Essential to Some Extent' and 12 (1.11%) were in favour of 'Not So Essential'. The analysis indicated that out of 1077 responses a majority of 376 responses were in favour of 'Most Essential'. It revealed that measuring academic and non-academic category could help promote schools' efficiency. The result of this analysis was that measuring academic outcome of students with respect to test score/ terminal examination score, attendance, graduation, completion and drop-out rate of students and their promotion to next grade have positive impact on the internal efficiency of schools. These findings support the suggestions contained in different citations and confirm the view that attendance and completion of an educational cycle leads to graduation, which reduce repetition and dropout. [UNESCO (2011:47), South African Department of Education (2006 d: 90), Education

Sector Analysis (Nigeria 2006:98), Fonkeng (2006:98), Cortes Neri et al (2005:66) Aggarwal (2002:71,103) International Institute of Educational Planning (IIEP 2001:216), and UNESCO (2000:44)].

The data placed in Table-7 were further supported by application of statistical measures for validity.

- H_0 = Academic & Non-Academic Category and Internal Efficiency of Schools are independent, or they are not associated.
- H_1 = Academic & Non-Academic Category and Internal Efficiency of Schools are not independent, or they are associated.

Level of significance $\alpha=0.05$ (for 95% confidence level)

Critical Region $\text{Chi-Sq (cal)} \geq \text{Chi-Sq}_{\alpha}(r-1) (c-1) \text{ d.f.}$

$\text{Chi-Sq (cal)} \geq \text{Chi-Sq}_{0.05}(2) (4)$

$\text{Chi-Sq (cal)} \geq \text{Chi-Sq}_{0.058} \Rightarrow \text{Chi-Sq (tab)} = 15.51$

$\text{Chi-Sq (cal)} = 5.616$

Since $\text{Chi-Sq (cal)} (5.616)$ is less than $\text{Chi-Sq (tab)} (15.51)$, which does not fall in the critical region. So, we accept H_0 and conclude that 'Academic & Non-Academic Category and Internal Efficiency of Schools' is not associated.

6. Outcome of the Study

It was found that out of 225 responses of principals and 1077 responses of senior school teachers a majority of 93 (41.34%) and 376 (34.92%) responses were respectively in favour of 'Quite Essential' and 'Most Essential' respectively. It indicated that measuring academic and non-academic category could help improve the internal efficiency of the schools. Majority of principals and senior school teachers concluded that measuring academic outcome of students with respect to test score/ terminal examination score, information about attendance, graduation, completion and low drop-out rate of students and their promotion to next grade have positive impact on the internal efficiency of schools.

- There are two important aspects of effective school organization: access and quality. In order to improve access of not enrolled students to school the following measures are suggested:
 - Commitment and political will of the Government is essential for implementation of 'Compulsory Education Act' in letter and spirit.
 - Financial aspects of parents and children should be compensated by providing monetary incentives for income foregone to the poor people of the province.
 - Parents should be motivated to extend to their wards financial support, uniforms and free textbooks and exercise books.
- Curriculum at secondary level should be made relevant to local environment according to the needs and aspirations of communities and cognitive abilities of students, emphasizing more technical aspects to develop dignity of labour.

In order to promote retention rate, repetition and drop-out rates should be substantially reduced by the following measures:

- Health and nutrition of children should be improved by periodical checking of students by medical doctors and providing them necessary food items throughout the province.
- The focal point of teachers' attention should be slow learners for whom special classes be arranged to reduce repetition and drop-out rates.

- Continuous assessment should be made to improve learning outcomes of students.
- Teacher training programmes should be restructured in such a way that prospective teachers acquire mastery over subjects and pedagogical skills.

References

- Aggarwal, Y. (2002). *Regaining Lost Opportunity: The Malaise of School Inefficiency*. National Institute of Educational Planning and Administration, New Dehli, India.
- Atkinson, T. (2005). *Atkinson Review: Final Report. Measurement of Government Output and Productivity for the National Accounts* (Palgrave Macmillan, Basingstoke), UK.
- Ayodele, J.B. (2002). *Efficiency in Education* in A. A. Akinlua and E. B. Kolawole (eds.) *Topical Issues in Research and Education*, Institute of Education Occasional Publication, University of Ado-Ekiti, Nigeria.
- Behrman, J. R., Anil B. Deolalikar, and Lee-Ying Soon.(2002). *Conceptual Issues in the Role of Education Decentralization in Promoting Effective Schooling in Asian Developing Countries*. Economics and Research Department, Working Paper Series No. 22, Asian Development Bank, Manila, Philippine.
- Boissiere, M. (2004). *Determinants of primary education outcomes in developing countries: Background paper for the evaluation of the World Bank's support to primary education*. Washington, D. C.: The World Bank Operations Evaluation Department, USA.
- Bowora, L.C. (2002). *Quality Performance Indicators*. Harare: Ministry of Education Sports and Culture, Zimbabwe.
- Côrtes, Neri Marcelo, Emily Gustafsson-Wright, Guilherm Sedlacek, and Peter F. Orazem (2005). "The Responses of Child Labor, School Enrollment, and Grade Repetition to the Loss of Parental Earnings in Brazil, 1982–1999." *World Bank Social Protection Discussion Paper Series 512*, World Bank, Washington, DC, USA.
- Department of Education (2006d). *South Africa's Education Investment: Key Trends and Policy Implications 2005*. Directorate: Economic Analysis. Version 11 October 2006. Unpublished Mimeo, South Africa.
- Department of Education (2008). *Ministerial Committee on Learner Retention in the South African Schooling System: Progress Report to the Minister of Education*, Mrs GNM Pandor, MP. 27 March, South Africa.
- Elementary & Secondary Education Department (2010). *Annual Statistical Report of Government Schools 2010-2011*. Government of Khyber Pakhtunkhwa: Peshawar, Pakistan.
- European Research Associates (2006). *Key Education Indicators on Social Inclusion and Efficiency: Final report*, Luxembourg.
- Fonkeng, E. G. (2006). *Strategies to Reduce Repetition in Cameroon Primary schools*. An unpublished PhD. Thesis: University of Yaoundé, Cameroon.
- International Institute of Educational Planning (2001). *School supervision in four countries: Vol. 2, National Diagnosis*, Paris: IIEP, France.
- John, R. (2003). *Can we attain the Millennium Development Goals in Education and Health through Public Expenditure and Aid?* Overseas Development Institute: London, UK.
- Kellaghan, T and Greaney, V (2004). *Assessing student learning in Africa*. Washington, D. C: World Bank, USA.
- Kellaghan, Thomas, Vincent Greany and T. Scott Murray (2009). *Using the Results of a National Assessment of Educational Achievement*. Washington, D.C: The World Bank, USA.

- Legotlo, M.W. Maaga, M.P. Sebegu M.G. Westhuizen, P.C. Mosoge, M.J. Nieuwoudt H.D. and Steyn H.J. (2002) Perceptions of stakeholders on causes of poor performance in Grade 12 in a province in South Africa. Department of Education, University of North West, Mmabatho, South Africa. *South African Journal of Education*, 22(2): 111-118, South Africa.
- Lloyd, C. B., Mensch, B. S., & Clark, W. (2000). The effects of primary school quality on school dropout among Kenyan girls and boys. *Comparative Education Review*, 44, 113-47, Kenya.
- McMahon, Walter W. (1988). Framework for Collecting and Analyzing Data on the Provision of Public Education: An Efficiency-Based Management Information System. Faculty Working Paper No. 1492, College of Commerce and Business Administration, University of Illinois, Urbana-Champaign, USA.
- Ministry of Education (2006). Education Sector Analysis: Federal Ministry of Education, Nigeria.
- Ministry of Education (2009). National Education Policy 2009. Government of Pakistan: Islamabad, Pakistan.
- National Education System Reform Strategy (2007). Grade 5 National Assessment Survey (ASLO, EDP2-World Bank). Vientiane: Ministry of Education, Lao PDR.
- Olatoun, A. A., (2012). Resource utilization and internal efficiency in Nigerian secondary schools: Implications for socio problems of education. *International Journal of Sociology and Anthropology*, Vol. 4(1), pp. 23-30 Nigeria.
- Owolabi, S.O (2000). Demographic analysis in educational management. Ibadan: Lower House publishers, Nigeria.
- TTEST (2004a). Teacher training and recruitment into the teaching profession Operational Study 3, February Vientiane, Ministry of Education, Lao PDR.
- UNESCO (2000). Education for All Year 2000 Assessment: Statistical Document, World Education Forum Dakar, Senegal.
- UNESCO (2005). EFA global monitoring report 2005: Education for All, the quality imperative. 2005, Paris: France.
- United Nations Educational, Scientific and Cultural Organization (UNESCO) (2011). Global Education Digest 2011: Comparing Education Statistics across the World, UNESCO Institute for Statistics, Montreal, Canada.
- Vasconcelos-Saliba, Alcione. (2004). Governance and Accountability Tools for Accountability: School Report Cards—the Case of Paraná Brazil. Presentation at the International Conference on Governance Accountability in Social Sector Decentralization, World Bank, Washington, DC, USA.
- Velez, E., Schiefelbein, E., & Valenzuela, J. (1993). Factors affecting achievement in primary education: A review of the literature for Latin America and the Caribbean. Washington, D. C: Department of Human Resources Development and Operations Policy, World Bank, USA.
- [30] World Bank (2006). Meeting the Challenges of Secondary Education in Latin America and East Asia: Improving Efficiency and Resource Mobilization. Washington, DC: World Bank, USA.