

# Promoting Internal Efficiency of Schools through Students' Characteristics

Muhammad Yunas, PhD Edu.

Elementary and Secondary Education Department,  
Peshawar, Khyber Pakhtunkhwa, Pakistan.  
Email: [muhammadyunas054@gmail.com](mailto:muhammadyunas054@gmail.com)

## Abstract

*The individual differences among students are based on their various characteristics, which can either promote or adversely affect the internal efficiency of schools. Students' characteristics are input indicators used to determine their learning outcomes. Firstly students' prior performances are recorded in terms of grades, divisions and percentages and these positions are obtained on the basis of terminal examinations of the last year. This record is very important as it helps the school in proper placement of the students and provides access to their parents or guardians in case a child requires special help in academic area. Recording of prior performance is not an end in itself but a mean of determining the next stage of learning for the student and the teacher. Secondly demographics of students in terms of age, gender and ethnicity are recorded for better placement and relevant group of students. An efficient education system is one, which has high gross enrollment ratio, less drop-out rate, high transition and retention rate. Thirdly mobility of students from one school to another is due to various reasons i.e. migration of family, change of schools due to repetition, and opening of new school in the vicinity. Students and their homes are related factors and have significant influence on student academic achievement. Students' background and students' readiness to learn contribute significantly to secondary school academic performance.*

**Key words:** Individual Differences, Learning Outcomes, Prior Performance, Demographics and Mobility.

## 1. Introduction

There are individual differences among students whether they are enrolled in a Government High School or Privately Managed School. These individual differences are based on their various characteristics, which can either promote or adversely affect the internal efficiency of schools. Students' characteristics are input indicators used to determine their learning outcomes. There are a large number of students' characteristics, which are recorded for the promotion of internal efficiency of secondary school. Some of them are; prior performance, demographics, poverty and mobility. Coleman et al. (1966) presented a ground breaking report that schools have far less to do with achievement than student's individual and family characteristics. These are described below:

### 1.1 Students' Prior Performances

Students' prior performances are recorded by non-testing or testing techniques. Non-testing techniques provide qualitative assessment of an individual's personality in a comprehensive and reliable

way. Some of the Non-testing techniques are observation, cumulative record and interview. There are many types of testing techniques but for the purpose of current study, formal testing and evaluation were considered. Students' prior performances are recorded in terms of grades, divisions and percentages and these positions are obtained on the basis of terminal examinations of the last year. This record is very important as it helps the school in proper placement of the students and provides access to their parents or guardians in case a child requires special help in academic area. Recording of achievement should provide clear information about students' progress and performance in every field. In a language all the four proficiencies: speaking, listening, reading and writing could be recorded. Recording of prior performance is not an end in itself but a mean of determining the next stage of learning for the student and the teacher.

According to Marzano (2000) student's past performance is a strong predictor of future performance. This highlights the cumulative nature of achievement, which is impacted by many factors. Schools are an obvious and important contributor to student performance, but other relevant influences include inherent and acquired abilities, personality, learning styles, and family and community influences.

## 1.2 Demographics of Students

Demographics of students in terms of age, gender and ethnicity are recorded for better placement and relevant group of students. The name, father name, age, gender, caste/tribe, language, ethnicity and financial position of the students are noted in the admission forms of the school as well as school leaving certificates. A report of the World Bank (2010:69) revealed that student characteristics (for example gender, age and socioeconomic background) affect learning achievement. Their age is recorded as date of birth, which is usually 9-11 years at the time of admission to 6<sup>th</sup> class and date of admission/withdrawal is also mentioned in the school leaving certificate. A report of the World Bank (2005b) indicated that In El Salvador more than 26 percent of secondary students is two or more years overage.

An efficient education system is one, which has high Gross enrolment ratio, less Drop-out rate, high transition and retention rate. Gross Enrolment Ratio (GER), Transition Rate, Drop-out Rate and Retention Rate (based on population of 10-14 years) in Government Secondary Schools in KP is represented in the following table.

**Table-1 GER, Transition, Dropout and Retention Rates in Secondary Schools**

Gender	Gross Enrolment Ratio (GER 6 <sup>th</sup> to 10 <sup>th</sup> class)	Transition Rate 5 <sup>th</sup> to 6 <sup>th</sup> class	Dropout Rate 6 <sup>th</sup> to 10 <sup>th</sup> class	Retention Rate 6 <sup>th</sup> to 10 <sup>th</sup> class
Male	32%	79%	46%	53%
Female	19%	74%	43%	57%
Total	26%	77%	45%	54%

**Source: KP EMIS Elementary and Secondary Education Department (2010-11:16)**

Sayed and Soudien (2005) described South African schools' policy by stating that all children have a right to be admitted in school, in reality schools had interpreted the policy to suit their interest and ended up excluding certain children from particular ethnic backgrounds.

### **1.3 Mobility (Rate of Transferring)**

Schools are social organizations where miniature societies exist comprising the students and teachers. National scene indicated that the demographics of communities in rural areas of Pakistan are changing due to rapidly increasing migration of rich and middle class families to cities and urban areas. These changes do produce problems for school principals in the form of migration of students and smooth flow of enrolment. Mobility of students from one school to another is due to various reasons i.e. migration of family, change of schools due to repetition, and opening of new school in the vicinity. Most of repeaters often change school and their mobility (rate of transferring) is recorded in admission and withdrawal register, along with father name, date of birth, caste, religion, serial number, class in which studying, and date of admission and withdrawal.

Students and their homes are related factors and have significant influence on student academic achievement. Students' background and students' readiness to learn contribute significantly to secondary school academic performance. Borge and Naper(2006:240) stated that student characteristics have an impact on the school efficiency. Reason being that the number of students with special needs comes out as significant, and a large number of students with special needs are associated with low efficiency.

Nyagura and Riddell (1993:25) documented students' characteristics are gender, age, duration of pre-school and primary school, absenteeism, home assignment in the subject of Mathematics and English, number of off-spring in the family and education of parents.

According to Legotlo et al (2002:116) the dedication to work is affected by level of troublesome behaviour of the students. They sometimes overlooked the directions of teachers and supported a tradition of escapism from work. A few students are involved in political activities and are leaders of disrupting Associations. Students are discouraged due to non-availability of teachers and books, even if they love education.

The analysis of literature reviewed indicated that students' characteristics are classified on the basis of their physical features, gender, age, health, absenteeism duration of schooling, number of children in family and their behaviour. All these characteristics are important inputs of education, which affect internal efficiency of schools. [Nyagura and Riddell (1993:25) and Legotlo et al (2002:116)].

## **2. Methodology of the Study**

The study attempted to promote internal efficiency of secondary schools through students' characteristics 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-2 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-3 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).

### 3. 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.

#### 4. 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 students' characteristics and the respondents (principals and senior school teachers) were asked to prioritize their choices out of the options: 'Most Essential', 'Quite Essential', 'Essential', 'Essential to Some Extent' and 'Not So Essential' in accordance to serial number of opinionnaire fielded to the subjects. School:

1. Records prior performance of students through test scores.
2. Holds profile of the demographics (age and ethnicity) of students.
3. Has record of economic status of students to afford expenses of co-curricular activities.
4. Checks the mobility (rate of transferring) of students from one school to another.

**Table-4 Responses of 75 Principals Regarding Students' Characteristics 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	7	2	12	10	11	42	14.00
	2	3	1	6	6	6	22	7.33
	3	6	2	4	2	2	16	5.33
	4	5	1	10	2	2	20	6.67
Total Resp (Column)		21	6	32	20	21	100	33.33
Quite Essential	1	2	5	3	3	7	20	6.67
	2	5	3	5	3	5	21	7.00
	3	3	1	8	4	4	20	6.67
	4	6	0	1	1	5	13	4.33
Total Resp. (Column)		16	9	17	11	21	74	24.67
Essential	1	0	0	1	3	1	5	1.67
	2	1	5	4	5	7	22	7.33
	3	2	6	0	2	4	14	4.67
	4	0	4	3	8	4	19	6.33
Total Resp. (Column)		3	15	8	18	16	60	20.00
Essential To Some Extent	1	3	3	0	1	0	7	2.33
	2	3	1	1	3	1	9	3.00
	3	1	2	4	5	5	17	5.67
	4	0	6	1	3	5	15	5.00

Total Resp. (Column)		7	12	6	12	11	48	16.00
Not So Essential	1	0	1	0	0	0	1	0.33
	2	0	1	0	0	0	1	0.33
	3	0	0	0	4	4	8	2.67
	4	1	0	1	3	3	8	2.67
Total Resp. (Column)		1	2	1	7	7	18	6.00
G. Total		48	44	64	68	76	300	100

**N=75**

Out of (75x4)300 responses of 75 principals in all the five districts 100 (33.33%) responses were opted for 'Most Essential', 74 (24.67%) for 'Quite Essential', 60 (20.00%) for 'Essential', 48 (16.00%) for 'Essential to Some Extent' and 18 (6.00%) for 'Not So Essential'. The analysis indicated that out of 300 responses a majority of 100 responses were in favour of 'Most Essential'. It revealed that students' characteristics were necessary inputs for effective teaching learning process. The results of analysis indicated that students' characteristics was more useful for promoting internal efficiency because these characteristics are prerequisite for their placement and learning outcomes, which improve effectiveness of schools. These findings are supported by literature review, which indicated that students' characteristics are essential for enhancing their learning outcomes. [Legotlo et al (2002:116) and Nyagura and Riddell (1993:25)].

The data placed in Table-4 and the results of the analysis were further subjected to statistical measures for validity.

**H<sub>0</sub>** = Students' Characteristics and Internal Efficiency of Schools are independent or they are not associated.

**H<sub>1</sub>** = Students' Characteristics and Internal Efficiency of Schools are not independent or they are associated.

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

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

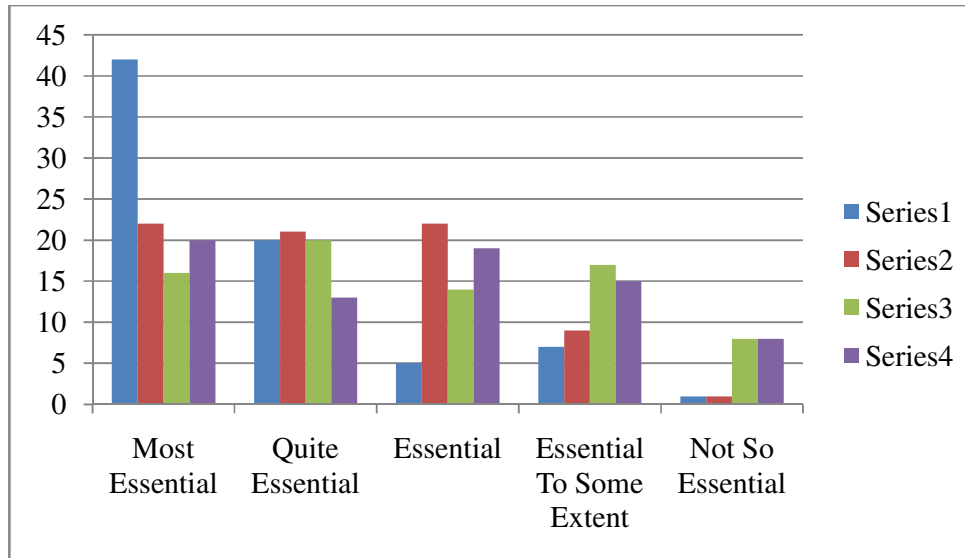
$\text{Chi-Sq (cal)} \geq \text{Chi-Sq}_{0.05} (3) (4)$

$\text{Chi-Sq (cal)} \geq \text{Chi-Sq}_{0.05} 12 \Rightarrow \text{Chi-Sq (tab)} = 21.03$

$\text{Chi-Sq (cal)} = 45.998$ .

Since  $\text{Chi-Sq (cal)} (45.998)$  is greater than  $\text{Chi-Sq (tab)} (21.03)$ , which falls in the critical region. So we reject  $H_0$  and conclude that 'Students' Characteristics' and 'Internal Efficiency of Schools' are not independent. The data were graphically represented in Figure-1.

**Figure-1 Responses of 75 Principals Regarding Students' Characteristics**



**Table-5 Responses of 359 SSTs Regarding Students' Characteristics in Five Districts of KP**

Options (Likert Scale)	Statement number	Districts					Total Responses (Row)	Percentages (%ages)
		Bannu 62	Kohat 36	Lower Dir 69	Mardan 103	Peshawar 89		
Most Essential	1	27	14	34	44	42	161	11.21
	2	23	4	25	16	19	87	6.06
	3	19	10	19	16	15	79	5.50
	4	19	4	22	12	12	69	4.81
Total Resp. (Column)		88	32	100	88	88	396	27.58
Quite Essential	1	21	6	18	34	29	108	7.52
	2	15	8	12	28	23	86	5.99
	3	18	7	12	29	15	81	5.64
	4	18	7	13	16	14	68	4.74
Total Resp. (Column)		72	28	55	107	81	343	23.89
Essential	1	9	10	9	17	14	59	4.11
	2	12	17	19	36	29	113	7.87
	3	12	9	25	38	31	115	8.01
	4	11	11	17	35	31	105	7.31
Total Resp. (Column)		44	47	70	126	105	392	27.30
Essential To Some Extent	1	5	5	7	6	3	26	1.81
	2	11	5	4	19	11	50	3.48
	3	11	8	7	14	16	56	3.90
	4	12	11	10	19	20	72	5.01

Total Resp. (Column)		39	29	28	58	50	204	14.20
Not So Essential	1	0	1	1	2	1	5	0.35
	2	1	2	9	3	7	22	1.53
	3	2	2	6	7	12	29	2.02
	4	2	3	7	21	12	45	3.13
Total Resp. (Column)		5	8	23	33	32	101	7.03
G. Total		248	144	276	412	356	1436	100

**N=359**

Out of (359x4)1436 responses of 359 senior school teachers in all the five districts 396 (27.58%) responses were opted for 'Most Essential', 343(23.89%) for 'Quite Essential',392 (27.30%) for 'Essential', 204 (14.20%) for 'Essential to Some Extent' and 101 (7.03%) for 'Not So Essential'. It revealed that out of 1436 responses a majority of 396 responses were in favour of 'Most Essential'. The results of analysis indicated that students' characteristics were useful for promoting internal efficiency because they are prerequisite for their placement in suitable classes and learning outcome as they have bearings on school effectiveness. These findings are in line with what was reviewed in literature and confirm the assumption that students' characteristics are essential for enhancing their learning outcomes. [Legotlo et al (2002:116) and Nyagura and Riddell (1993:25)].

The data placed in Table-5 were further validated with the help of statistical measures.

**H<sub>0</sub>** = Students' Characteristics and Internal Efficiency of Schools are independent or they are not associated.

**H<sub>1</sub>** = Students' Characteristics and Internal Efficiency of Schools are not independent or they are associated.

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

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

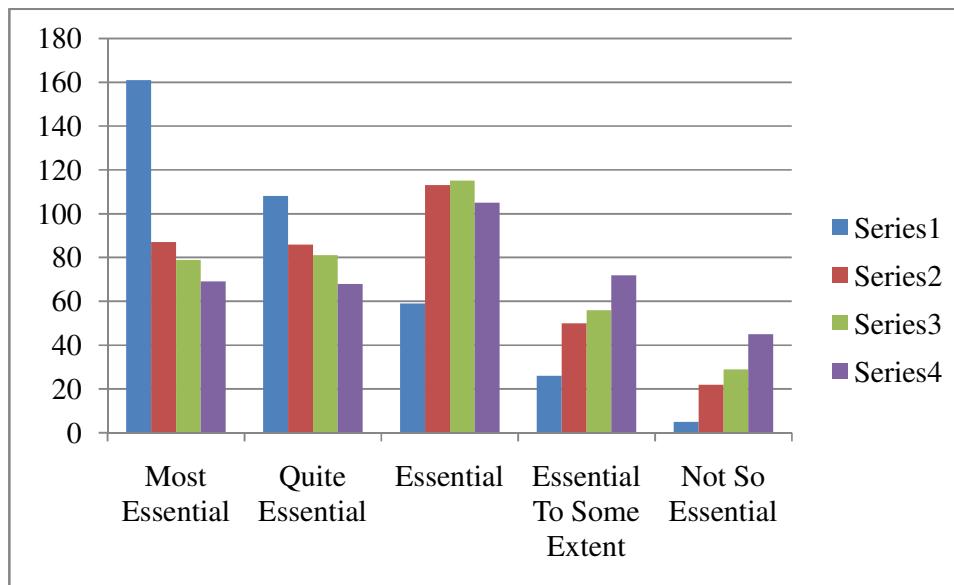
$\text{Chi-Sq (cal)} \geq \text{Chi-Sq}_{0.05} (3) (4)$

$\text{Chi-Sq (cal)} \geq \text{Chi-Sq}_{0.05} 12 \Rightarrow \text{Chi-Sq (tab)} = 21.03$

$\text{Chi-Sq (cal)} = 138.449$

Since  $\text{Chi-Sq (cal)} (138.449)$  is greater than  $\text{Chi-Sq (tab)} (21.03)$ , which falls in the critical region. So we reject  $H_0$  and conclude that 'Students' Characteristics' and 'Internal Efficiency of Schools' are not independent. The data were graphically represented in Figure-2



**Figure-2 Responses of 359 SSTs Regarding Students' Characteristics**

### 5. Outcome of the Study

The data indicated that out of 300 responses of principals and 1436 responses of senior school teachers a majority of 100 (33.33%) and 396 (27.58%) responses were respectively in favour of 'Most Essential'. The argument supported the statements that students' characteristics were most essential for their learning outcomes. Majority of principals and senior school teachers deduced that students' characteristics were 'Most Essential' for promoting internal efficiency because they are prerequisite for their placement in suitable classes and better learning outcomes as they have bearings on school effectiveness. The previous performance of students should be recorded in test scores for their placement in suitable classes, sections and allocation of subjects according to their abilities, so that, due to individual differences, high achievers may not dominate low achievers.

### References

- Borge, Lars-Erik and Naper, Linn Renée (2006). Efficiency Potential and Efficiency Variation in Norwegian Lower Secondary Schools. *Public Finance Analysis*, 62 (2): 221-249, Norway.
- Coleman, James S., E.Q. Campbell, C.J. Hobson J., McPartland, A.M. Mood, F.D. Weinfield, and R.L York (1966). *Equality of Educational Opportunity*. Washington, DC: U.S. Government Printing Office.
- Elementary & Secondary Education Department (2010). *Annual Statistical Report of Government Schools 2010-2011*. Government of Khyber Pakhtunkhwa: Peshawar, Pakistan.
- Legotlo, M.W. Maaga, M.P. Sebego 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.
- Marzano, Robert J.(2000). *A New Era of School Reform: Going Where the Research Takes Us*. ERIC Document Reproduction Service. No. ED454255. Aurora, CO: Mid-continent Research for Education and Learning.

- Nyagura, L. M., & Riddell, A. (1993). *Primary school achievement in English and mathematics in Zimbabwe: A multi-level analysis*. Washington DC: World Bank, USA.
- Sayed, Y. and Soudien, C. (2005) 'Decentralisation and the construction of inclusion education policy in South Africa,' *Compare*, 35(2): 115-125.
- World Bank (2005b). *Mexico: Determinants of Learning Policy Note*. Report No. 31842-MX, Colombia and Mexico Country Management Unit, Education Unit, Human Development Department, Latin America and the Caribbean Region, World Bank, Washington, DC.
- World Bank (2010). *The Education System in Malawi*: World Bank Working Paper No.182. Washington, DC: World Bank, USA.