AEPAM Research Study No. 178

STUDY ON COMPARING SCHOOL PERFORMANCE TO UNDERSTAND WHICH SCHOOLS ARE DOING BETTER BY ASSESSING AND COMPARING QUALITY OF EDUCATION

ACADEMY OF EDUCATONAL PLANNING AND MANAGEMENT
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PREFACE

This is the third study on qualitative aspects of primary level education in Pakistan with focus of comparing the performance of public and private sectors by assessing learning achievement of the students. The first study assessed learning achievement at primary level and the second study was conducted about factors associated with learning achievement of grade V students. Due to time constraints and limited resources, the study targeted fourteen districts out of 105 districts of the country.

It is evident that the efficiency of any education system depends upon many factors. The production of Quality of Education at primary level in Pakistan depends on the optimal utilization of available resources. Since the inception of Pakistan, different governments developed more than half a dozen national education policies. The provincial governments were provided guidelines for the improvement of quality of education in the country. Present government is implementing Education Sector Reforms action plan with emphasis on the improvement of quality of education at all levels, through revision of teacher training curricula and providing physical facilities in the schools of public sector. It has been observed that private sector is playing vital role in quantitative expansion and qualitative improvement of education particularly at primary level and earns maximum profit on the investment simultaneously.

This study is an effort to compare the performance of public and private schools by assessing the learning achievement of the students. The related variables such as teachers' academic and professional qualification, physical facilities, socio-economic background of the students, parental education and other factors that have influence on students' achievement were also included. As the study was confined to fourteen districts of Pakistan, including FATA, FANA and A.J.K, the findings therefore cannot be generalized to the entire country. However, there is a great deal of information on comparing the performance of the schools and about quality of education in public and private sector at national, provincial and district level in this research.

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Executive Summary

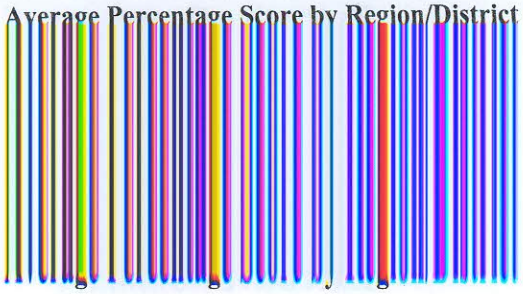
The study was designed to compare school performance to understand which schools are doing better by assessing and comparing quality of education. The focus of the study was to assess the learning achievement of grade five students studying in both public and private schools in Pakistan. For this study, 12 districts from all over the country were selected. From each district 12 primary schools (8 government and 4 private schools were randomly selected and from each school 20 students studying in 5th class were also randomly picked for testing. The total sample of this study consisted of 3442 (1943 boys and 1499 girls). As far as rural urban ratio was concerned, 1724 urban and 1718 rural students were included. 172 Head teachers and 300 teachers (male 133 female 167), were also included in the sample for seeking their opinion about quality of education.

Standardized tests based on national curricula were designed from the textbooks published by Provincial Textbook Boards for class 1-4. The tests were developed in consultation with the Provincial Governments in Mathematics, Science and Language (Urdu). The test for each subject consisted of 25 items. The tests were administered to the randomly selected students of 5th class by the research team of AEPAM.

The study was aimed at assessing learning achievement of grade-5 students of both public and private schools in Mathematics, Science and Language (Urdu). It also aimed identifying important factors such as teachers' attributes, availability of physical facilities in schools and socio-economic factors affecting the quality of education.

The students' average percentage scores in the above subjects were computed and compared with reference to public and private schools, by gender and location. The main findings of the study are presented here. The average achievements scores in Science, Mathematics and Language of both public and private schools are presented in the following table followed by the main factors affecting the quality of education.

Average Percentage Score by Region/District



Districts	Mathematics			Urdu			Science		
	Public	Pvt.	Total	Public	Pvt.	Total	Public	Pvt.	Total
Islamabad	43	43	**43**	59	66	**62**	60	54	**58**
Multan	54	51	**53**	68	81	**73**	67	58	**63**
Attock	45	41	**44**	58	68	**61**	55	57	**55**
Bhakkar	59	59	**59**	68	76	**71**	66	61	**64**
Thatta	37	67	**46**	56	77	**63**	51	58	**53**
Khairpur	54	59	**56**	67	76	**70**	72	66	**70**
Khuzdar	29	26	**28**	47	58	**50**	48	55	**51**
Zhob	54	35	**48**	62	65	**63**	62	55	**60**
D.I.Khan	51	69	**57**	65	80	**70**	61	80	**68**
Kohistan	44	52	**46**	50	71	**57**	48	62	**53**
Khyber Agency	41	46	**43**	52	63	**56**	51	54	**52**
FR Kohat	59	68	**62**	73	80	**75**	66	77	**70**
Gilgit	43	58	**48**	62	77	**67**	62	75	**67**
Rawalakot	37	45	**40**	56	74	**63**	57	61	**58**
National	**46**	**51**	**48**	**60**	**72**	**64**	**59**	**62**	**60**

Pvt. = Private

1) The national mean score in Mathematics, Urdu, and Science was 48, 64 and 60 respectively. It was observed that in Mathematics the performance of the most of the students was not satisfactory. Whereas the performance in Science and Urdu was satisfactory. It is evident from the above table that the students of private schools out performed the students of public schools. A significant difference was observed between the performance of public and private schools. The result indicated that the quality of education was better in private schools as compared to public schools. Gender differences indicated that girls' performance was significantly better than boys in all subjects including Mathematics where usually the boys performed better than the girls. As far as location is concerned, urban students have performed significantly better than the rural students.

2) The students of FR Kohat achieved the highest score in all the three subjects followed by Bhakkar in Mathematics, whereas in Urdu subject students of Multan followed FR Kohat. On the contrary in Science test students of Khairpur and D. I. Khan were the top scorers after FR Kohat. Whereas the students of Khuzdar were low scorers in most of the subjects. As far as rural and urban area is concerned the urban students performed significantly better than rural students in all the subjects. It was interesting to note that the students of private sector

performed significantly better than those of public sector in both urban and rural areas.

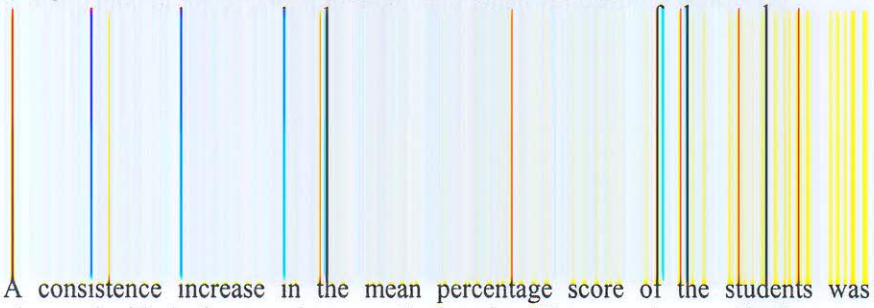
3) When the relationship between scores and the independent variables was established, the study correlated teacher's attributes, parental attributes, and school attributes. These factors included teachers' qualification socio-economic background of the students and availability of physical facilities in the schools. A summary of these factors that influence on student performance is given below.

4) The results of the study indicated that teacher's academic and professional qualification had a positive influence on the students' achievement in general and particularly on the achievement of girls' students. It was also found that teachers' qualification had more influence on the performance of urban students than that of the rural students. The students taught by matriculate teachers obtained the highest score followed by students taught by intermediate level qualified teachers in the urban area. Whereas in rural area, students taught by the teachers who do not hold BA/MA degrees secured the highest score. Significant relationship was found between the academic qualification of the teachers and students achievements in urban area. It was observed that professional qualification of teachers also had positive influence on the performance of the students, particularly those students either taught by C.T teachers or M.Ed teachers. From the rural and urban perspective, teachers' professional qualification had more influence on the performance of the urban students than that of rural students. As far as gender was concerned, teachers' professional qualifications had more impact on the performance of the girls than that of boys in both rural and urban areas.

5) It seemed that teachers' experience had strong influence on the students' achievement. Students taught by teachers having 1-5 experience were the highest scorers followed by the students taught by teachers having 16 years or more experience. It was interesting to note that teachers with 1-5 years of the service, or with more than 16 years experience were effective. Teachers experience had more influence on the girls than on boys and it had more impact on the urban students than of rural students.

6) As regards the school attributes such as availability of drinking water, electricity, boundary wall, toilet, furniture, playground, library and first aid had a positive influence on the students' achievement. A consistence increase in the mean score of the students was found as the number of physical facilities increased in the schools. It shows that availability of physical facilities had strong impact on the performance of the students.

7) The parental education had very positive impact on the performance of children.



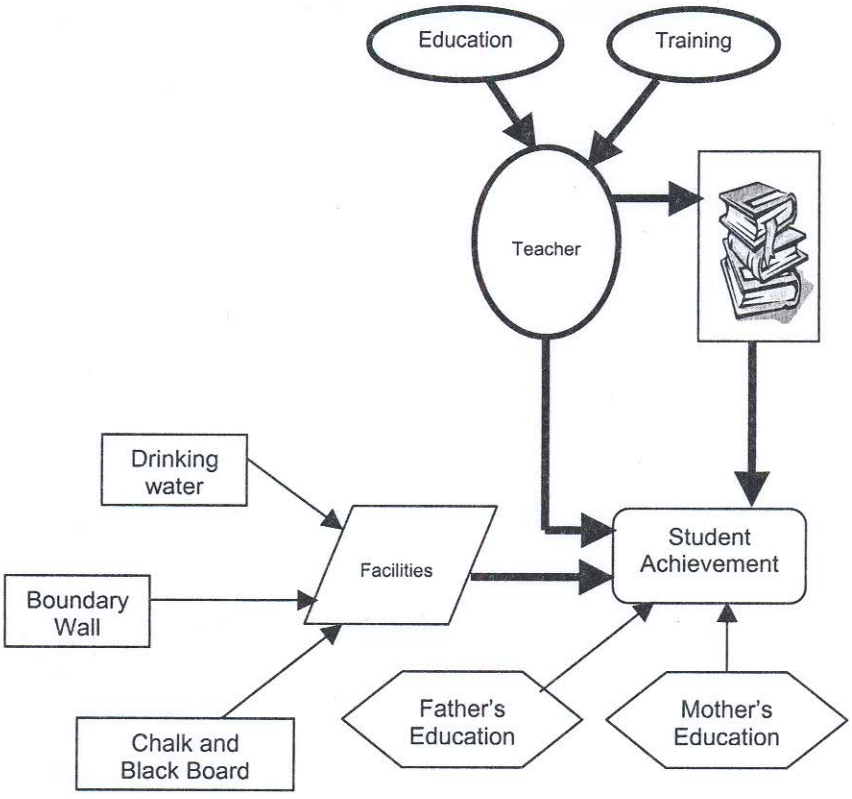
A consistence increase in the mean percentage score of the students was observed with the increase in parents' education. Hence, an increase in the score of the children was observed whose fathers had a master's degree. It was also found that father's and mother's education had more influence on the urban students than on the rural students. It was interesting to observe that level of fathers' education had more impact on the girls' achievement than that of boys, which was contrary to the concept that father usually gives preference to boys than girls in Pakistani culture. Similarly level of mother's education had more impact on the performance of girls than boys, which supported the general view that girls have more attachments with their mothers than boys.

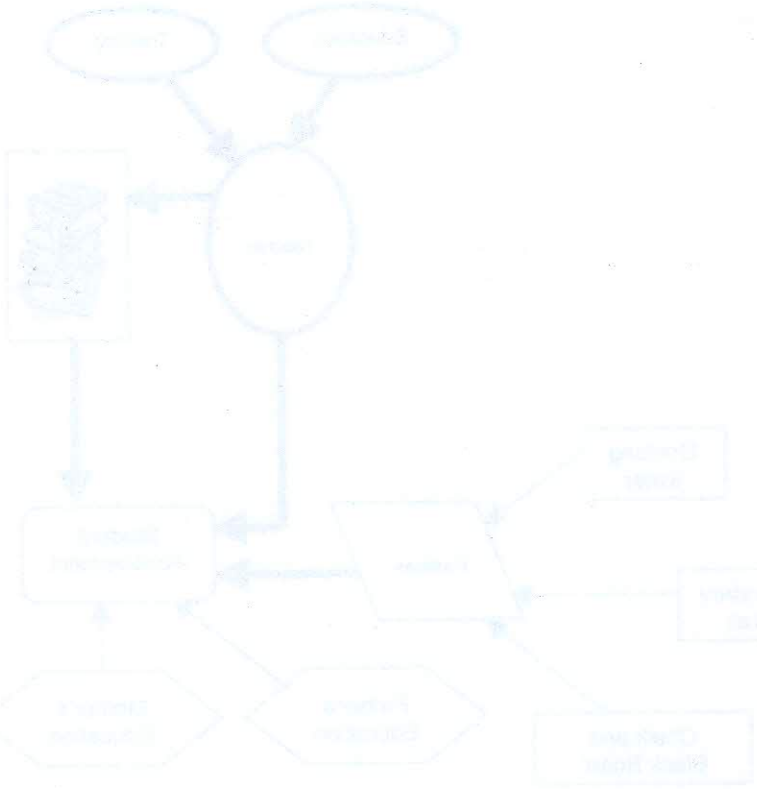
8) The findings of the study suggested various policy options regarding independent variables, for policy makers, for designing pragmatic policy to improve the quality of education in general and particularly in government schools. Presently Pakistan is facing manifold problems such as low enrolment in government schools, high drop out rate at primary level, low quality of education, disparity in rural and urban areas, and gender gap between boys and girls. The study found that urban students out performed their rural counterparts, children of educated mothers had better scores and the performance of girls was better than boys. The emphasis on providing equal opportunities to the students of both rural and urban will enhance the learning achievements of rural students; this will reduce the rural urban disparity. Similarly emphasis on female education will bring more girls in schools with better scores; consequently the gender gap will reduce. As regards teachers' qualification, which is very important factor for enhancing quality of education, the introduction of information technology, is increasing knowledge day by day. The previous knowledge becomes obsolete after few years. Therefore the district management would have to develop refresher courses in various subjects particularly in Mathematics to enhance the knowledge of their teachers in the respective districts for catering the present needs of education.

9) The findings further indicated that private sector is providing comparatively better education than public sector; it is perhaps due to strict accountability system at institutional level in the private sector. District Education Managers have to establish in-built performance evaluation system for monitoring academic activities of the schools functioning under their supervision.

10) The internal efficiency of education system can be improved by providing modern facilities, because physical facilities at school level have very positive impact on the performance of the students. It is recommended that district managers should ensure to provide physical facilities to the school in their respective districts for the improvement of quality of education at primary level in the country.

Physical facilities such as drinking water, boundary wall, chalk and board play an important role in learning and heave serious implications for all managers.





Chapter 1

Introduction

The learning process of individual starts with the arrival of the individual in this world. Hence from the very beginning, learning takes place by imitating the elders and observing their activities at home. Most of the basic skills of life are learned at home. But these basic skills of life are not sufficient for preparing the individual to face the complexities of life. In order to socialize individuals, educational institutions are established. The basic purpose of school is the socialization of individuals and helping in developing certain competencies among them. When a student enters educational institution, she/he has already attained a certain level of development. On one hand every individual has some peculiar intellectual, social and emotional characteristics and on the other hand teachers possess distinct intellectual capabilities, professional competencies and experience which interact with each other during the education process.

School environment is the result of the interaction of teachers, students, learning materials, and activities undertaken for achieving its objectives. Consequently learning outcome is the result of a dynamic and complex interaction of a wide variety of factors. It is imperative that these factors should properly function for the quality of learning. According to Khan et al (2000) "the standard and quality of education varies from school to school". This variation is the result of inputs used by schools. There are various factors affecting the quality of education. In fact there is no standardized achievement test available in the provinces that can be used to examine the quality of education, which can present real picture in this regard.

Keeping in view the importance of quality of education in the present era of information technology and to develop qualitative database AEPAM conducted this research study under the NEMIS Project. The main purpose of this research was to assess learning achievement of primary students of both public and private schools through standardized learning achievement tests in the subjects of Mathematics, Science and Urdu language at national level. The study also tried to identify those factors, which are affecting students' achievement in formal government and private primary schools at national level.

1.2 Rationale

Access to quality primary and elementary education is critical for poverty reduction and economic development of a country. One of the major indictors of quality education is the level of students' learning/achievement, which has been emphasized in various national education policies. The quality of education at primary level is dependent upon many factors which include teacher's qualifications, availability of teaching learning materials, physical facilities and socio-economic back-ground of

students etc. Because of the poor state of affairs, related to quality of education, particularly, at primary level, many parents feel that educating children in formal public primary schools is not worthwhile. If the environment of the school regarding quality of education is improved, the enrolment can be increased and a greater return on investment can be obtained.

Various inputs are required for educating primary school age children; consequently quality of outcomes is dependent on these inputs. Assessment of students' achievement can be used as an instrument through which valuable information can be obtained to assess the quality of education at primary level. This information can help to rationalize inputs on quality especially with regard to availability of physical facilities, learning materials, and appropriateness of teacher training and revision of curricula. This would also provide feedback to policy makers and planners about the performance of education system at primary level.

Like most developing countries, Pakistan is also confronted with the dual challenges of quantitative expansion and qualitative improvement of the education system. Quality education implies meaningful learning and better learning which is usually the result of effective schooling. It implies the effective and efficient use of resources. The education system in Pakistan suffers from the lacuna of shortfall between optimum resources and the reality of budgets.

The purpose of this study is to identify those factors, which are considered effective in teaching and learning process. These factors include: availability of physical facilities, learning materials, teachers' academic and professional qualification, teaching experiences, as well as socio-economic background of students. This study aims at measuring the outcome of effective teaching learning process through students' achievement and exploring relationship between students' achievement and factors related to the quality of education.

1.3 Statement of the problem

Schools are social institutions they are supposed to impart knowledge as well as to socialize members of society. The performance evaluation of the educational institutions is essential to determine quality of education. The main objective of this study is assess the quality of education at primary level by comparing school performance.

1.4 Objectives of the Study

The objectives of this study were as follow:

i) To find out the relationship between teachers' qualifications and students' achievement.

ii) To examine the impact of physical facilities on students' achievement.

iii) To explore the impact of parental education on students' achievement.

iv) To compare the schools' performance through students' achievement by gender and location.

1.5 Significance of the study

This study has immense importance for the educational policy-makers and planners in policy preparation because it will identify the factors that affect the quality of education at primary level. It will also help the district managers to understand problems at primary level.

Moreover, the findings of this study may be helpful for head teachers and teachers who are having direct interaction with students. It will help them to get insight about the factors affecting learning.

The research findings and recommendations will provide strategic guidance to curriculum designers and developers in producing a balanced curriculum for the development of balanced personality of the children. This study may be useful for the parents of the students to understand the impact of socio-economic background on the students' achievement.

1.6 Delimitations of the study

i) Keeping in view the limited time and resources constraints, the study was delimited to only fourteen districts of Pakistan including FATA, FANA and AJK.

ii) The study was further delimited to primary level; the achievement tests were administered to class-5.

1.7 Limitations of the study

It was decided that 12 schools (8 government and 4 private) and twenty students from each school were randomly selected. There were some institutions in the field which had 18/19 students in class five. In such cases, total available students in class five were included. In some institutions, the enrolment was very low. In such cases, more institutions from the same area were included. Further more, F.R Kohat was totally rural area. So all the subjects included in the study were from rural area.

Review of Literature

Various research studies have been conducted on the students' learning/achievement in Pakistan at primary level by various organizations but very few studies have tried to identify the factors affecting the quality of education. These studies indicated low level of students' learning/achievement at primary level in Pakistan particularly in Mathematics.

Shah (1984) reported an average percentage score of 38 in Mathematics of grade-V students and average percentage score of 38 in science of grade IV students (Shah, 1984, pp.211). The Bridges study on "Teacher Characteristics and Students' Achievement in Mathematics and Science, reported as the average (mean) score of 11.7 for Mathematics IV, 12.4 average score for Mathematics V, average score of 13.8 for Science IV and average score of 16.3 for Science V (Warwick and Rimers, 1989, pp.3).

Rugh et al (1991) found the mean percentage score of 21 for Mathematics, and 30 for science. Rugh's study indicated a decline in achievement score for Mathematics from 35 percent in 1984 to 21 percent in 1989 (Rugh et al, 1991, pp.11).

The Harvard study (1992) on "Teacher Certification: Value Added or Money Wasted" reported that the teacher's formal education and experience had a positive effect on the achievement of students in science and Mathematics. While teacher's certification did not improve the classroom practices (Warwick and Rimers, 1992, pp.27-28).

Warwick and Rimers (1992), in another research, reported that teacher's qualification and subject knowledge had strong correlation with students' achievement. Teachers own subject knowledge and formal education had more impact on student's performance than did their pre-service training (Warwick and Rimers, 1992).

A national survey carried out by MSU (1995) to identify "Determinants of Primary Students Achievements, reported students' achievement of an average percentage score of 46 in Mathematics, 74 in general knowledge and 69 in comprehension. This study reported an improvement of 25 percent points during 1989-1995 in Mathematics. In addition, boys' performance was better than the girls in Mathematics by scoring three percent higher points (MSU-SAP, 1995).

Action Aid Pakistan Survey (1999) reported achievement of average percent score of 60 in Mathematics, 67 in Urdu and 71 in the general knowledge of students of public schools. It also indicated better performance of boys over girls (Education For All-The Year 2000 Assessment, Pakistan Country Report, 2000, pp.44-45).

AEPAM (2000) study entitled "Measuring Learning Achievement at Primary level in Pakistan" reported that overall average scores of students for both Science and Urdu was 72 whereas for Mathematics, it was 58 of grade V students. (Khan et al, 2000, p.14).

AEPAM (2002) study entitled "Factors Associated with Learning Achievement of Grade V Students in Public Schools," reported that mean percentage score in Mathematics was 48, whereas for Urdu it was 60 and 65 for Science of grade V students. The same study reported that teachers' academic and professional qualification had a positive impact on students' achievement. (Khan & Shah., 2000,pp.38-44).

Farooq. (2003) Study on "The impact of teachers' characteristics on learning achievement of students at primary level in Rawalpindi district," reported that the total mean percentage score of students in Mathematics was 54 and in sciences it was 64. The study further indicated mean percentage score of 51 in Mathematics for boys and 58 for girls. The mean percentage score in science was 59 for boys and 66 for girls (Farooq, 2003, pp.3).

Haq (1998) quoted the finding of various studies on learning/achievements that indicated a very low level of students' learning/achievement. He particularly stated the low achievement of basic competencies of children in a nation wide sample of 11 to 12 year old primary school completers, such as, 34 percent could read with comprehension and 17 percent could write a letter. Other study reported by Haq, indicated that less than 10 percent of the representative sample were competent in basic reading and comprehension (Haq, M., & Haq, K., 1998,pp.77)

Education Ability Test (Level 5) consisting of 50 items for the subject: Language, Mathematics, Science & General Information, and Reasoning was developed by National Institute of Psychology (NIP), Quad-I-Azam University, Islamabad to evaluate students' cognitive educational outcomes. The test items were constructed keeping in view the curriculum and textbooks of grade 4,5,6 and 7. The test was developed for students of grades 4,5, and 6. The mean scores for complete test for students of grades 4,5 and 6 were 24.32,27.55 and 36.17 respectively. The overall increase in the mean scores between various grades was significant. (Ansari Z.A, P.N.Tariq & M.Iftikhar, 1990 pp.7-11).

Ayub (2001) conducted a study on "measuring students achievement in relation to parent involvement." This research indicated that parents' involvement in the educational activities of their children had a positive impact on their achievement. It also found that parents and family environment are important factors responsible for improving the achievement level of students in schools (Ayub 2001,pp.60).

National Education Policy (1992) stated that the quality aspects of education have been compromised because of rapid expansion of the primary education. This calls for an urgent review of the measures needed for raising the quality of education in Pakistan. The policy proposed various measures such as training of teachers, provision of teaching kits to primary schools, special federal funds for improvement of the physical facilities and the gradual increase in the number of primary teachers. (National Education Policy, 1992, pp. 16-19).

National Education Policy (1998-2010) has emphasized on the quality of education. The policy proposes that a system of continuous evaluation should be adopted at the elementary level to ensure attainment of minimum learning competencies. It also proposes raising the minimum educational qualification of primary teachers from Matric to Intermediate level and revising contents and methodology of teachers' education curricula (p. 2-3). The policy further proposes the following steps to improve the quality of education.

- To ensure achievement of minimum level of learning up to 90 percent primary education students by the year 2010.
- To meet the basic learning needs of the child in terms of essential learning tools as well as the basic learning contents.
- Teacher's competence shall be improved and the relevance of training programmes for teachers shall be ensured.
- A monitoring system shall be developed to obtain timely and reliable information on enrolment, retention, completion and achievement. The qualitative monitoring of achievement shall also be introduced. (p. 28-29).

Chapter 3

Methodology

This chapter describes methods and procedures adopted for conducting this study. The study was designed to compare school performance on the basis of students' achievement to understand which schools are doing better by assessing and comparing quality of education. The study aimed at exploring the in-school and out-school factors affecting the learning of the students at primary level. The in-school factors include head teachers/teachers, teaching & learning materials and physical facilities in the schools. The out- school factors include socio-economic background of the children that have direct impact on the performance of the students.

3.1 Population

The focus of the study was to measure the learning achievement of students at primary level in Pakistan. All children studying in class/grade V in both government and private schools in Pakistan served as population for this study.

3.2 Procedure for Selection of Sample

The major task for conducting of this study was to select sample districts, which should be true representative at national level. For selection of the districts, criteria was developed on the basis of socio-economic indicators i.e. language, population, literacy rate, female literacy rate, availability of water, electricity, Radio, TV, medical facilities and other civic facilities. On the basis of these indicators the map of Pakistan was divided into various pockets. From each province three districts were selected and one district from each pocket in order to get representative sample of districts. On this basis, 14 districts from all over the country were selected as sample.

3.3 Sample Selection / Sample Size

According to Best and Kahn (1996) "the sample should represent the population. There is no fixed number or percentage of subjects that determines the size of an adequate sample". Serious efforts were made to select a sample of reasonable size representing students of grade by gender and location. From the fourteen sample districts, 172 schools were randomly selected. From each selected district, 12 primary schools (8 public and 4 private) were randomly selected Twenty students were randomly selected from each school to administer the tests. The total number of students of class-5 at primary level was 3442 to whom the achievement tests in Mathematics, Science and Urdu were administered. Relevant information had also been collected from 172 head teachers and 300 teachers (133 male and 167 female) of class-5. The distribution of sample was as given below:

S. No	District	School	Students				Head Teacher	Teacher	
			Boys	Girls	Urban	Rural		Male	Female
1.	Islamabad	12	141	102	81	162	12	3	15
2.	Multan	14	93	126	184	35	14	7	13
3.	Attock	12	121	120	122	119	12	6	14
4.	Bhakkar	12	120	124	164	80	12	5	11
5.	Thatta	12	134	118	126	126	12	11	13
6.	Khairpur	12	120	134	147	107	12	9	14
7.	Khuzdar	13	143	96	163	76	13	9	16
8.	Zhob	12	199	112	201	110	12	9	12
9.	D.I. Khan	12	125	105	151	79	12	10	11
10.	Kohistan	12	154	85	104	135	12	14	2
11.	Khyber Agency	12	160	78	-	238	12	11	10
12.	F.R. Kohat	12	158	80	-	238	12	15	7
13.	Gilgit	12	135	108	115	128	12	11	13
14.	Rawalakot	13	140	111	166	85	13	13	16
	Total	**172**	**1943**	**1499**	**1724**	**1718**	**172**	**133**	**167**

3.4 Development of Learning / Achievement Tests

The development of learning/achievement tests of Mathematics, Science and Urdu was the major task for conducting this study. Therefore, special efforts were made to develop substantially reliable and valid national tests in the said subjects in view of primary curriculum and the textbooks published by various provincial Text Book Boards. Items-banks based on the national primary curricula and textbooks published by various provincial Text Book Boards were developed. With the help of items-bank, test items were designed.

3.5 Research Instruments

The following research instruments were developed for data collection:

i) Basic Information Sheet (questionnaire) about the students in order to get information in respect of socio-economic factors.

ii) Achievement tests in Mathematics, Science (both in Urdu and English) and Urdu language were developed in consultation with provincial governments. The test for each subject consisted of 25 items.

iii) Questionnaire for teacher/head teachers to get relevant information.

3.6 Pilot Testing of Research Instruments

Pilot testing of achievement tests was made in six government and private primary schools in Islamabad and Rawalpindi. Before pilot testing 35 multiple choice questions of each test were developed. The pilot tested questionnaires were coded and items analysis was carried out. These tests were re-tested by conducting item analysis for each item. The difficulty level and discrimination level of each item for all the three tests were calculated and finally the items with standard discrimination level were retained. Every possible effort was made to arrange the tests items according to difficulty level. In this way only 25 questions for each subject of multiple-choice type were finalized.

Moreover other research instruments were also pilot tested in Islamabad and Rawalpindi. Each and every question included in the research instruments was discussed with AEPAM faculty meeting under the guidance of Chief Investigator. Efforts were made to design comprehensive questionnaires to get relevant information from the subjects included in the sample.

3.7 Procedure of Data Collection

The data were collected by the AEPAM data collection team. The team visited each sample school for administering the achievement tests to the students of class-5. The team also conducted interviews with the teachers of class-5 and with head teachers of the sample school. Every effort was made by the research team to collect the valid and reliable data for the study.

3.8 Data Coding and Entry

Key for data coding and data entry for each test was prepared. The test papers were coded and data were fed in the computer. MS Access data base package was used for data entry. After the data entry, it was cross checked and reviewed for further analysis.

3.9 Data Analysis

Data were subjected to various statistical treatments by using Statistical Package for Social Sciences (SPSS) to work out the overall average score in each subject at national and provincial levels by gender and location. The comparison in scores of students of private and public schools for each subject was also carried out. In order to establish relationship between dependent variable i.e achievement scores and independent variables i.e. physical facilities, teachers' academic and professional qualification, experience and socio-economic factors. Various statistical tests were used to establish relationship between dependent and independent variables.

3.10 Results, Conclusions and Recommendations

On the basis of data analysis, results were framed which are presented in the next chapter. On the basis of the results of the study, conclusions were drawn and recommendations were formulated.

Chapter 4

Results

The results of the students' achievement have been arranged according to the objectives of the study. Every possible effort has been made to present the results in comprehensive manner. The achievements of the students were graded i.e. A1, A, B, C and D. Those students, who obtained marks below 33%, were considered fail. Descriptive statistics such as mean and standard deviation were used for analysis. Moreover, inferential statistics such as t test was applied for significance of mean and correlation between students' achievement and teachers' qualification. Impact of parental education and physical facilities was also examined. The data have been reported by inter-district/province, gender wise and location wise in this section.

4.1 Performance of Students in Mathematics Test at National Level

Table-1

Grade-wise Distribution of Mathematics Scores by School Type

	Public			Private			Total		
Grade	**Mean**	**SD**	**%**	**Mean**	**SD**	**%**	**Mean**	**SD**	**%**
A1: Excellent	85	5	7	86	6	12	85	6	9
A: Very Good	74	2	9	74	2	11	74	2	9
B: Good	65	3	16	64	3	16	64	3	16
C: Satisfactory	52	3	19	52	3	19	52	3	19
D: Poor	40	3	19	40	3	19	40	3	19
F: Fail	22	9	30	22	9	23	22	9	28
National	**46**	**21**	**100**	**51**	**22**	**100**	**48**	**22**	**100**

It is observed that the mean percentage score in Mathematics at national was 48 (48% questions correctly answered). On the average, one in five students performed very well. Half of the students did not qualify the test and they got grade D which indicates that majority of students lack the basic competency in Mathematics.

The above table also shows that mean percentage scores of private schools' students was higher than that of students of public schools. A significant difference was observed between the performance of private and public schools' students.

4.2 Inter-District Differences in Mathematics Test

Table- 2

Average Percentage Score by Region/District

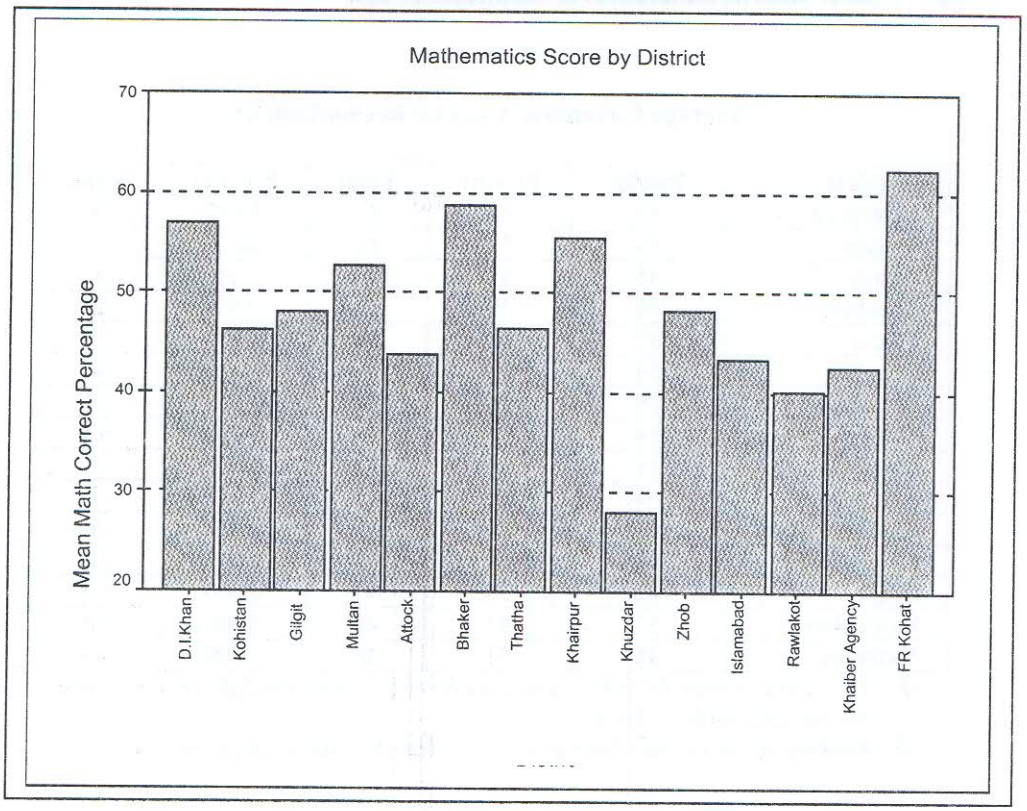
Districts	Public	Private	Total	P.Value	Rank
Islamabad	43	43	43	0.895	9
Multan	54	51	53	0.32	5
Attock	45	41	44	0.10	8
Bhakkar	59	59	59	0.97	2
Thatta	37	67	46	0.000	7
Khairpur	54	59	56	0.072	4
Khuzdar	29	26	28	0.108	11
Zhob	54	35	48	0.000	6.5
D.I.Khan	51	69	57	0.000	3
Kohistan	44	52	46	0.017	7
Khyber Agency	41	46	43	0.031	9
FR Kohat	59	68	62	0.001	1
Gilgit	43	58	48	0.000	6.5
Rawalakot	37	45	40	0.000	10
National	**46**	**51**	**48**	**0.000**	**---**

→ *The district where $P<0.05$ is declared having significant difference between private and public schools.*

→ *Ranking of district has been given according to total mean percentage score.*

The results given in table-2 show that there was no significant difference in the performance of public and private schools students in the districts of Islamabad, Multan, Attock, Bhakkar, Khairpur and Khuzdar. However, significant difference in the performance of students of public and private schools was found in districts of Thatta, D.I. Khan, Gilgit, Zhob, FR Kohat and Rawalakot. Ranking of districts with respect to students' achievement in Mathematics showed that students of FR Kohat achieved the highest average scores followed by students of Bhakhar and D.I. Khan. The students (both private as well as public schools) of Khuzdar district got the lowest average percent score i.e. 28%.

Graph-2



4.3 Students' Achievement by Area in Public and Private Sector

The rural and urban differences show the level of quality of education by location and type of schools. The achievements have also been treated separately for public and private sector schools, which are given in table-3.

Table-3

Location	Public	Private	P-Value
Urban	48	50	0.024
Rural	45	52	0.000
P.Value	0.019	0.077	-

The table-3 mentions that rural students showed better performance than urban students in private schools but the difference of mean score was not significant. Whereas performance of urban students was better than that of rural students in public schools which was significant. In urban as well as rural areas the students of private schools out performed their counterparts in public schools. Further, details of the data of each district are given in table-4.

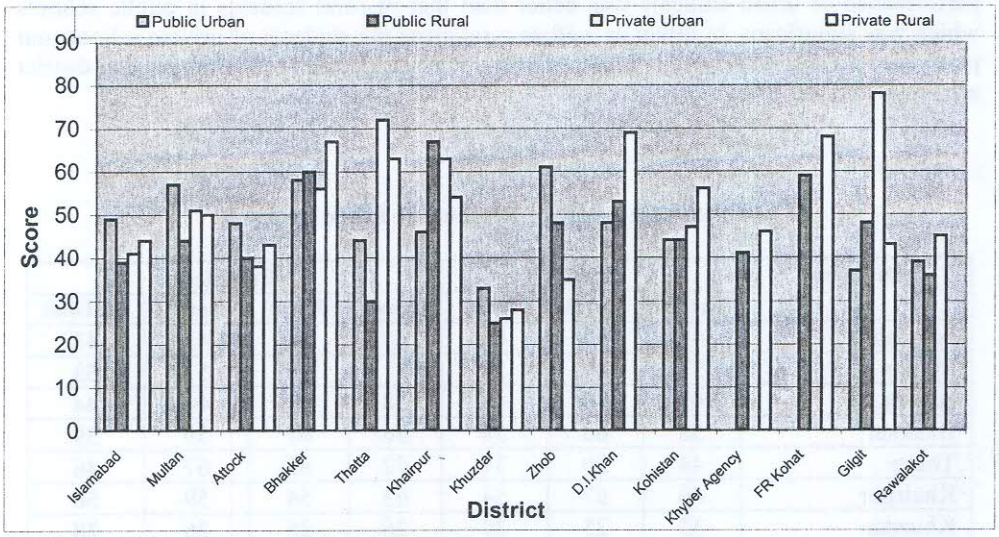
Table-4

District-wise Average Percentage Score by Area

Districts	Public			Private			
	Urban	Rural	Total	Urban	Rural	Total	G. Total
Islamabad	49	39	43	41	44	43	**43**
Multan	57	44	54	51	50	51	**53**
Attock	48	40	45	38	43	41	**44**
Bhakker	58	60	59	56	67	59	**59**
Thatta	44	30	37	72	63	67	**46**
Khairpur	46	67	54	63	54	59	**56**
Khuzdar	33	25	29	26	28	26	**28**
Zhob	61	48	54	35	.	35	**48**
D.I.Khan	48	53	51	69	.	69	**57**
Kohistan	44	44	44	47	56	52	**46**
Khyber Agency	.	41	41	.	46	46	**43**
FR Kohat	.	59	59	.	68	68	**62**
Gilgit	37	48	43	78	43	58	**48**
Rawalakot	39	36	37	45	.	45	**40**
National	**48**	**45**	**46**	**50**	**52**	**51**	**48**

Inter-district differences with respect to location and type of school are presented in table-4. District wise differences of public schools by location indicate that students of public schools in rural areas of Bhakkar, D.I. Khan, Gilgit and Khairpur scored higher than their counterparts in urban schools. On the contrary, students of private schools in urban areas of Multan, Thatta, Khairpur and Gilgit outperformed their counterparts in rural schools.

Graph-3



4.4 Gender Differences in Students' Performance in Mathematics Test

The gender-wise differences in private and public sector and by school location have been presented in table-5.

Table-5

Gender	Public		Private	
	Urban	Rural	Urban	Rural
	Mean	Mean	Mean	Mean
Boys	44	46	47	54
Girls	50	45	56	49
P.Value	0.000	0.967	0.000	0.012

The performance of urban girls students of both public and private schools was better than their boys counterparts. In rural areas the performance of boys and girls of public schools was nearly same whereas performance of urban boys of private schools was better than girls. On the other hand the urban girls students of private schools outperformed their urban counterparts. The trend was consistent with the general observation in the society as in urban schools, girls are performing better, whereas no such trend is visible in rural schools. District wise detail is presented in table-6.

Table-6

District-wise Average Percentage Score by Gender

Districts	Public						Private						
	Urban			Rural			Urban			Rural			
	B	G	T	B	G	T	B	G	T	B	G	T	G. Total
Islamabad	48	50	49	40	38	39	41	.	41	44	42	44	**43**
Multan	48	67	57	41	46	44	41	56	51	.	50	50	**53**
Attock	41	53	48	34	51	40	35	60	38	48	40	43	**44**
Bhakker	47	61	58	60	.	60	52	59	56	69	64	67	**59**
Thatta	33	53	44	29	32	30	73	71	72	60	66	63	**46**
Khairpur	25	56	46	67	66	67	66	59	63	52	56	54	**56**
Khuzdar	27	38	33	28	22	25	25	28	26	32	24	28	**28**
Zhob	60	63	61	39	57	48	37	24	35	.	.	.	**48**
D.I.Khan	56	38	48	67	40	53	71	65	69	.	.	.	**57**
Kohistan	48	38	44	32	53	44	46	56	47	56	.	56	**46**
Khyber Agency	.	.	.	37	44	41	.	.	.	46	.	46	**43**
FR Kohat	.	.	.	68	51	59	.	.	.	68	.	68	**62**
Gilgit	50	25	37	46	50	48	78	79	78	44	42	43	**48**
Rawalakot	37	39	39	39	32	36	43	52	45	.	.	.	**40**
National	**44**	**50**	**48**	**46**	**45**	**45**	**47**	**56**	**50**	**54**	**49**	**52**	**48**

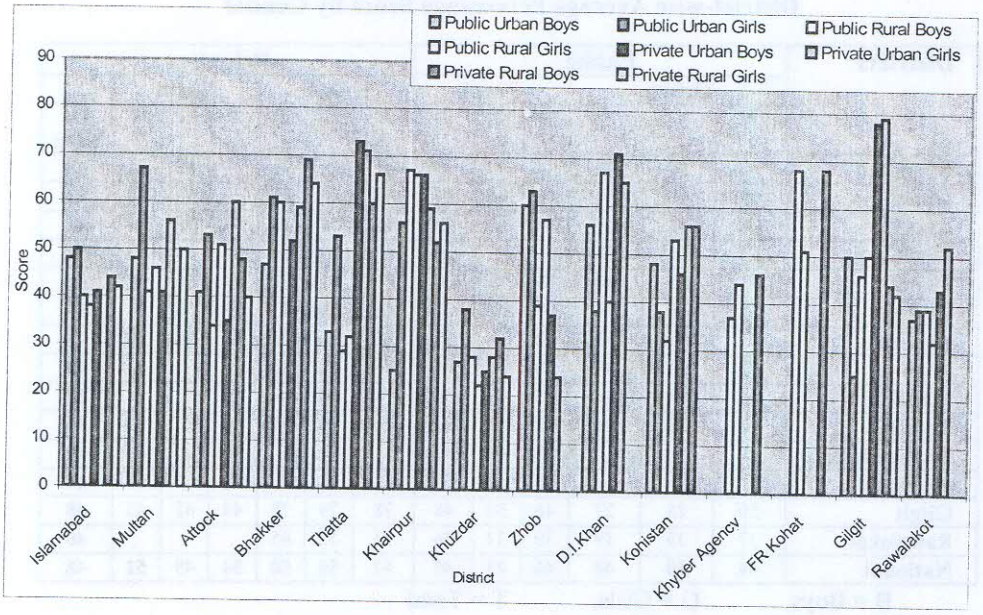
B = Boys, G = Girls, T = Total

Table-6 depicts that urban boys students of public sector performed better than girls students in districts of D.I. Khan, Kohistan and Gilgit. Whereas in rural area of public schools, girls students out scored their counterpart in districts Multan, Attock, Zhob, Khyber Agency, Kohistan and Gilgit, The rural students of public schools of Khuzdar district got the lowest score i.e. 25.

As far as private sector was concerned, girls students of urban areas showed better performance in districts of Multan, Attock, Bhakkar, Rawalakot and Kohistan. In rural areas the performance of boys students was better than girls students, except in Thatta and Khairpur districts.

The above table also shows that there were no schools functioning in urban area of Khyber Agency and FR Kohat in both private and public sectors, whereas in D.I. Khan, Zhob and Rawalakot, no school was functioning in rural areas in private sector, at the time of data collection, therefore no comparison has been made.

Graph-4


Public Urban Boys
Public Urban Girls
Public Rural Boys
Public Rural Girls
Private Urban Boys
Private Urban Girls
Private Rural Boys
Private Rural Girls
Score
90
80
70
60
50
40
30
20
10
0
Islamabad
Multan
Attock
Bhakker
Thatta
Khairpur
Khuzdar
Zhob
D.I.Khan
Kohistan
Khyber Agency
FR Kohat
Gilgit
Rawalakot
District

4.5 Performance of Students in Urdu Test

The performances in Urdu test are presented in the following table.

Table-7

Grade-wise Distribution of Urdu Score by School Type

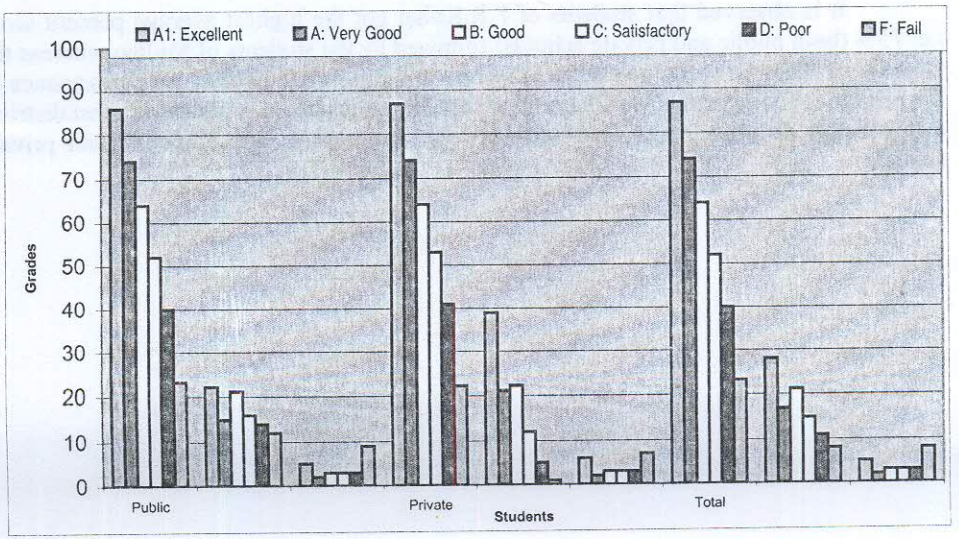
Grade	Public			Private			Total		
	M	%	SD	M	%	SD	M	%	SD
A1: Excellent	86	22	5	87	39	6	87	28	5
A: Very Good	74	15	2	74	21	2	74	17	2
B: Good	64	21	3	64	22	3	64	21	3
C: Satisfactory	52	16	3	53	12	3	52	15	3
D: Poor	40	14	3	41	5	3	40	11	3
F: Fail	23	12	9	22	1	7	23	8	8
National	**60**	**100**	**21**	**72**	**100**	**16**	**64**	**100**	**20**

M= Mean, %=Percentage, SD=Standard Deviation

The table-7 indicates the mean percentage score of 64 (64 % questions correctly answered) in Urdu at national level. The data show that 66% students of both public and private schools obtained A1, A and B grades, and 26% students got C and D grades whereas 8% were unable to pass the test.

The average percentage score of private school students was 72% and 60% for the students of public schools. A significant difference was observed in the performance of public and private school students.

Graph-5



4.6 Inter-District Differences in Urdu Test

Table-8

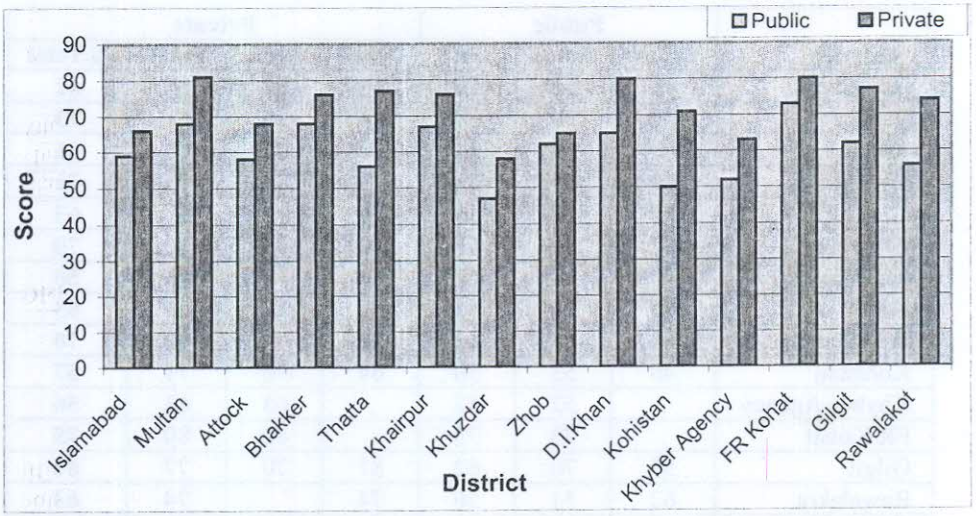
Average Percentage Score by Region/Districts

	Urdu				
Score	**Public**	**Private**	**Total**	**P. Value**	**Rank**
Islamabad	59	66	62	0.00I	7
Multan	68	81	73	0.000	2
Attock	58	68	61	0.000	8
Bhakker	68	76	71	0.000	3
Thatta	56	77	63	0.000	6.5
Khairpur	67	76	70	0.000	4
Khuzdar	47	58	50	0.000	11
Zhob	62	65	63	0.240	6.5
D.I.Khan	65	80	70	0.000	4
Kohistan	50	71	57	0.000	9
Khyber Agency	52	63	56	0.000	10
FR Kohat	73	80	75	0.000	1
Gilgit	62	77	67	0.000	5
Rawalakot	56	74	63	0.000	6.5
National	**60**	**72**	**64**	**0.000**	**-**

→ *Ranking of district has been given according to total mean percentage score.*

It is observed that students of F.R.Kohat got the highest average percent score i.e. 75% (both public and private schools) followed by the students of Multan whereas the students of Khuzdar were the lowest achievers in Urdu. In all districts the performance of the private school students was better than that of public school students. In most districts a significant difference was observed between the performance of public and private schools.

Graph-6



4.7 Students' Achievement by Area in Public and Private schools in Urdu Test

The rural and urban differences showed disparity in regional level and in level of quality of education. Students' achievement has been calculated area-wise. The results are presented in table-9.

Table-9

Location	Public	Private	P. Value
Urban	61	73	0.000
Rural	59	71	0.000
P. Value	0.014	0.093	-

Table-9 indicates that urban students of private schools performed better than the urban students of public schools and the scores differed significantly. Similarly the rural students of private schools outscored their rural counterparts of public schools and the difference was significant. The performance of urban students was slightly better than that of rural counterparts and the difference was significant. Similarly urban students of private schools outscored their rural counterparts but the difference was not significant. District wise details are given in table-10.

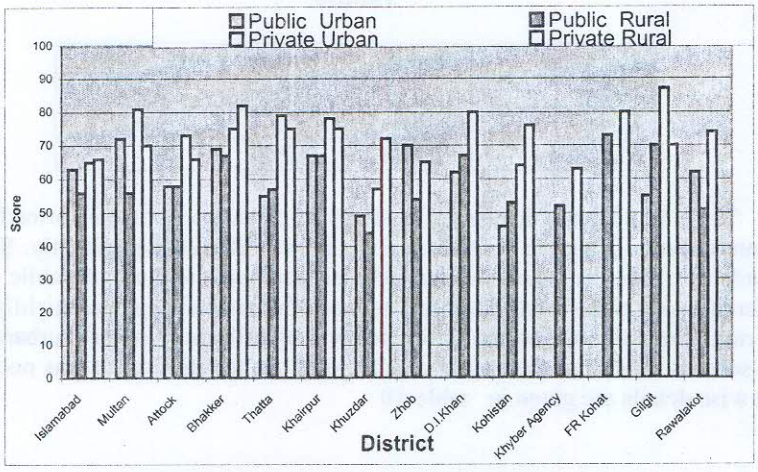
Table-10

District-wise Average Percentage Score by Area

District	Public			Private			
	Urban	Rural	Total	Urban	Rural	Total	G.Total
Islamabad	63	56	59	65	66	66	**62**
Multan	72	56	68	81	70	81	**73**
Attock	58	58	58	73	66	68	**61**
Bhakker	69	67	68	75	82	76	**71**
Thatta	55	57	56	79	75	77	**63**
Khairpur	67	67	67	78	75	76	**70**
Khuzdar	49	44	47	57	72	58	**50**
Zhob	70	54	62	65	.	65	**63**
D.I.Khan	62	67	65	80	.	80	**70**
Kohistan	46	53	50	64	76	71	**57**
Khyber Agency	.	52	52	.	63	63	**56**
FR Kohat	.	73	73	.	80	80	**75**
Gilgit	55	70	62	87	70	77	**67**
Rawalakot	62	51	56	74	.	74	**63**
National	**61**	**59**	**60**	**73**	**71**	**72**	**64**

Table-10 mentions inter-district differences with respect to location and type of the schools. The data shows that students of public schools in urban areas of Islamabad, Multan, Bhakkar, Khuzdar, Zhob and Rawalakot performed better than their rural counterparts. Similarly, students of private schools in rural areas of only two districts Kohistan and Bhakkar scored higher than their urban counterparts. In all other districts, students of urban areas of private sector outscored their rural counterparts.

Graph-7



4.8 Students' Performance in Urdu by Gender

The students' scores of both sectors by gender and location are reported in table-11.

Table-11

Gender	Public		Private	
	Urban	Rural	Urban	Rural
	Mean	Mean	Mean	Mean
Boys	57	56	70	71
Girls	64	63	78	71
P.Value	0.000	0.000	0.000	0.943

It was observed that urban girl students of private sector performed better than their boys counterparts and the difference was significant. Similarly urban girls of public sector also outscored their urban boys counterparts. There was no gender difference in the performance of rural students of private school, whereas rural girl students of private schools outperformed their rural boys counterparts in Urdu and the difference was significant. District wise data are shown in table-12.

Table-12

District-wise Average Score by Gender

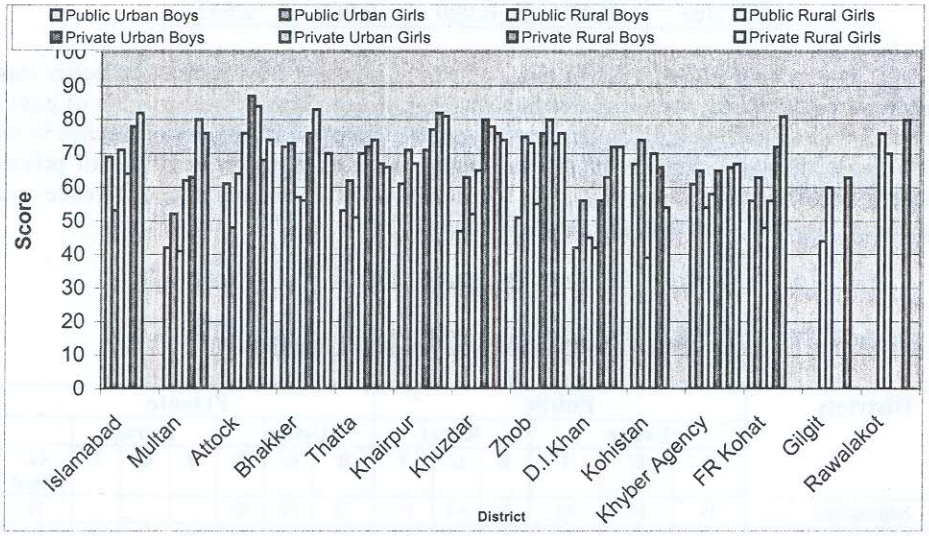
Districts	Public						Private						
	Urban			Rural			Urban			Rural			
	B	G	T	B	G	T	B	G	T	B	G	T	G. Total
Islamabad	69	53	62	71	64	67	78	82	80	-	-	-	**70**
Multan	42	52	46	41	62	53	63	80	64	76	-	76	**57**
Attock	61	48	55	64	76	70	87	84	87	68	74	70	**67**
Bhakker	72	73	72	57	56	56	76	83	81	-	70	70	**73**
Thatta	53	62	58	51	70	58	72	74	73	67	66	66	**61**
Khairpur	61	71	69	67	-	67	71	77	75	82	81	82	**71**
Khuzdar	47	63	55	52	65	57	80	78	79	76	74	75	**63**
Zhob	51	75	67	73	55	67	76	80	78	73	76	75	**70**
D.I.Khan	42	56	49	45	42	44	56	63	57	72	72	72	**50**
Kohistan	67	74	70	39	70	54	66	54	65	-	-	-	**63**
Khyber Agency	61	65	63	54	58	56	65	-	65	66	67	66	**62**
FR Kohat	56	63	62	48	56	51	72	81	74	-	-	-	**63**
Gilgit	-	-	-	44	60	52	-	-	-	63	-	63	**56**
Rawalakot	-	-	-	76	70	73	-	-	-	80	-	80	**75**
National	**57**	**64**	**61**	**56**	**63**	**59**	**70**	**78**	**73**	**71**	**71**	**71**	**64**

B = Boys, G = Girls, T = Total

Table-12 illustrates that urban girl students of public schools performed better than their boys counterparts in districts of Multan, Attock, Bhakkar, Thatta, Khairpur, Zhob and Kohistan. Similarly rural girls of public sector in districts of Attock, Thatta, Kohistan, Gilgit and Khyber Agency outscored their boys counterparts.

It is also evident from the above table that urban girls students of private schools performed better than boys students in districts of Islamabad, Multan, Bhakkar, Thatta, Khairpur, Zhob, D. I. Khan and F.R. Kohat. Similarly girls students of private sector outperformed their boys counterparts in districts Attock, Zhob and Khyber Agency.

Graph-8



4.9 Performance of Students in Science Test

The results of Science test are presented in the following tables.

Table-13

Grade-wise Distribution of Science Scores by School Type Percentage

Grade	Public			Private			Total		
	M	%	SD	M	%	SD	M	%	SD
A1: Excellent	86	18	5	87	24	5	86	20	5
A: Very Good	74	14	2	74	12	2	74	13	2
B: Good	64	25	3	64	23	3	64	24	3
C: Satisfactory	52	18	3	52	20	3	52	19	3
D: Poor	40	14	3	41	14	3	40	14	3
F: Fail	22	11	10	23	7	9	22	10	10
National	**59**	**100**	**20**	**62**	**100**	**19**	**60**	**100**	**20**

M= Mean, %=Percentage, SD=Standard Deviation

Table-13 reveals that the mean percentage score in Science at national level was 60 (60% questions correctly answered). The data show that 56% students of both public and private schools obtained AI, A and B grades. Only 33% students got C & D grades whereas 10% were unable to pass the test. The average percentage score of private school students was 62 whereas it was 59 for the students of public schools. A significant difference was observed in the performance of public and private school students.

4.10 Inter-District Differences in Science Test

Table-14

Average Percentage Score by Region / Districts

Districts	Public	Private	Total	P.Value	Rank
Islamabad	60	54	58	0.003	6.5
Multan	67	58	63	0.000	5
Attock	55	57	55	0.358	7
Bhakker	66	61	64	0.010	4
Thatta	51	58	53	0.002	8
Khairpur	72	66	70	0.007	1.5
Khuzdar	48	55	51	0.032	10
Zhob	62	55	60	0.000	5
D.I.Khan	61	80	68	0.000	2
Kohistan	48	62	53	0.000	8
Khyber Agency	51	54	52	0.359	9
FR Kohat	66	77	70	0.000	1.5
Gilgit	62	75	67	0.000	3
Rawalakot	57	61	58	0.067	6.5
National	**59**	**62**	**60**	**0.000**	**5**

Table-14 depicts that the students of FR Kohat and Khairpur obtained the highest score i.e (both public and private schools) followed by the students of D.I.Khan and Bhakkar whereas the students of Khuzdar were the lowest scorers. In all districts, the performance of the private school students was better than that of public school students. In most districts a significant difference was observed between the performance of public and private school students.

4.11 Students' Achievement in Science Test by Area in Public and Private Schools

The rural and urban differences show disparity in level of quality of education. Students' achievement has been analyzed area-wise. Data are reported in table-15.

Table-15

Location	Public	Private	P. Value
Urban	61	63	0.037
Rural	57	61	0.000
P. Value	0.000	0.193	-

Table-15 describes that urban students performed better than rural students of both public and private sectors and scores differ significantly. The mean score of the urban students of private schools was higher than that of rural students. Similarly the students of private schools outscored their rural counterparts of public schools and the difference was significant. The performance of urban students was better than that of their rural counterparts and the difference was also significant. Similarly urban students of private schools outscored their rural counterparts. District-wise details are presented in table-16.

Table-16

District wise Average Percentage Score by Area

Districts	Public			Private			
	Urban	Rural	Total	Urban	Rural	Total	G.Total
Islamabad	63	58	60	46	55	54	**58**
Multan	70	58	67	58	68	58	**63**
Attock	56	53	55	62	55	57	**55**
Bhakker	66	66	66	57	72	61	**64**
Thatta	52	50	51	54	62	58	**53**
Khairpur	68	79	72	80	52	66	**70**
Khuzdar	61	33	48	55	74	55	**51**
Zhob	69	56	62	55	.	55	**60**
D.I.Khan	58	64	61	80	.	80	**68**
Kohistan	45	51	48	63	62	62	**53**
Khyber Agency	.	51	51	.	54	54	**52**
FR Kohat	.	66	66	.	77	77	**70**
Gilgit	54	70	62	86	68	75	**67**
Rawalakot	62	52	57	61	.	61	**58**
National	**61**	**57**	**59**	**63**	**61**	**62**	**60**

The above table-16 reveals inter-district differences with respect to location and type of schools. The data show that students of public schools in rural areas of Khairpur, D.I. Khan, Kohistan and Gilgit out-scored their urban counterparts whereas students of urban areas of the public sector performed better than their rural counterparts in districts of Islamabad, Multan, Khuzdar, Zhob and Rawalakot. The students of private schools of urban areas of Kohistan, Gilgit, Attock and Khaipur scored higher than their rural counterparts whereas the students of private sector of rural area of Multan, Bhakhar and Thatta scored higher than their urban counterparts.

4.12 Gender Differences in Students' Performance in Science

The students' scores of both sectors by gender and location are reported in table-17.

Table-17

Gender	Public		Private	
	Urban	Rural	Urban	Rural
	Mean	Mean	Mean	Mean
Boys	59	55	62	62
Girls	62	60	65	58
Total	0.030	0.000	0.031	0.023

The performance of girls students of public schools was better than that of boys in both rural and urban areas and difference of mean score was significant. Similarly in the private schools, the performance of rural boys was better than that of rural girls and difference of mean score was also significant. District-wise data are explained in table 18.

Table-18

District-wise Average Score by Gender

Districts	Public						Private						
	Urban			Rural			Urban			Rural			
	B	G	T	B	G	T	B	G	T	B	G	T	G. Total
Islamabad	65	62	63	55	61	58	46	.	46	57	51	55	**58**
Multan	71	69	70	55	60	58	59	58	58	.	68	68	**63**
Attock	54	57	56	45	66	53	62	58	62	57	54	55	**55**
Bhakker	63	67	66	66	.	66	52	61	57	68	77	72	**64**
Thatta	46	57	52	48	52	50	56	53	54	63	61	62	**53**
Khairpur	63	70	68	76	84	79	82	76	80	51	53	52	**70**
Khuzdar	57	65	61	34	33	33	53	61	55	76	72	74	**51**
Zhob	67	70	69	47	66	56	55	51	55	.	.	.	**60**
D.I.Khan	62	52	58	68	60	64	78	83	80	.	.	.	**68**
Kohistan	46	44	45	38	60	51	62	80	63	62	.	62	**53**
Khyber Agency	.	.	.	46	56	51	.	.	.	54	.	54	**52**
FR Kohat	.	.	.	72	61	66	.	.	.	77	.	77	**70**
Gilgit	61	48	54	65	76	70	86	84	86	66	70	68	**67**
Rawalakot	49	65	62	53	51	52	58	68	61	.	.	.	**58**
National	**59**	**62**	**61**	**55**	**60**	**57**	**62**	**65**	**63**	**62**	**58**	**61**	**60**

B = Boys, G = Girls, T = Total

Table-18 illustrates that urban boys students of public schools showed better performance in districts of Islamabad D.I. Khan, Kohistan, Gilgit and Multan whereas the girls students of public sector outperformed their counterparts in districts of Attock, Bhakkar, Thatta, Khairpur, Khuzdar and Zhob in urban area. On the contrary rural girls students of public sector almost showed better performance than boys' students in most of the districts.

The girl students of private sector in urban areas of districts Bhakkar, Khuzdar, D.I. Khan, Kohistan and Rawalakot scored higher than boys students. In the remaining districts the performance of boys students was better than girls students in urban schools. There were not private schools functioning in rural areas of few districts, that is why any comparison among these districts was not possible. However, in the selected districts the girls students of rural private sector in Bhakkar and Gilgit scored higher than their boys counterparts.

4.13 Composite Score

The raw scores of each student in three subject tests were summed up in order to get the composite score. The grade wise distribution of composite score by sector is reported in table-19.

Table-19

Grade-wise Distribution of Composite Scores by School Type

Grade	Public			Private			Total		
	M	%	SD	M	%	SD	M	%	SD
A1: Excellent	84	8	4	85	15	5	85	10	4
A: Very Good	74	14	3	75	15	3	74	15	3
B: Good	64	21	3	65	26	3	65	23	3
C: Satisfactory	52	29	4	53	31	4	52	29	4
D: Poor	39	18	3	40	10	3	39	15	3
F: Fail	24	10	7	27	3	6	24	8	7
National	**55**	**100**	**17**	**62**	**100**	**16**	**57**	**100**	**17**

M= Mean, %=Percentage, SD=Standard Deviation

The data in table-19 show that the mean percentage composite score was 57 (57% questions correctly answered). Half of the students of both sectors got A1, A and B grades, 29% students of both sectors scored grade C, whereas 24% students achieved grade D and F. Comparing the data of the public and private sectors it was observed that the scores of 56% students of private sector fall in category A1, A and B, whereas 43% students of public sector achieved the same grades.

4.14 Inter-District Differences of Composite Scores

Composite scores of the selected districts were compared. The comparison is presented in table-20.

Table-20

Average Percentage Composites Score by School Type

District	Public	Private	Total	P.Value	Rank
Islamabad	54	54	54	1.000	6.5
Multan	63	63	63	0.944	3
Attock	53	55	54	0.153	6.5
Bhakker	64	65	65	0.636	2.5
Thatta	48	68	54	0.000	6.5
Khairpur	64	67	65	0.141	2.5
Khuzdar	41	46	43	0.026	8
Zhob	59	51	57	0.000	5
D.I.Khan	59	76	65	0.000	2.5
Kohistan	47	62	52	0.000	5
Khyber Agency	48	54	50	0.002	7
FR Kohat	66	75	69	0.000	1
Gilgit	56	70	61	0.000	4
Rawlakot	50	60	54	0.000	6.5
National	**55**	**62**	**57**	**0.000**	

The scores reported in table-20 indicate that there was no significant difference of mean in public and private schools in districts of Islamabad, Multan, Attock, Bhakkar and Khairpur. However, significant difference was observed in districts of D. I. Khan, Kohistan, Gilgit, Thatta, Zhob, Rawalakot and FR Kohat. The students of F.R. Kohat achieved the highest average scores followed by students of D. I. Khan Bhakkar, and Khairpur. The students of the Khuzdar remained the lowest scorers in the composite scores. A significant difference was found in the performance of public and private sector at national level.

4.15 Students' Achievement by Area on Composite Test

Table-21

Location	Public	Private	P. Value
Urban	57	62	0.000
Rural	54	62	0.000
P. Value	0.000	0.782	-

The mean percentage score of urban students of public sector was 57 and rural was 54, which was significant, whereas there was no difference in the performance of private sector students by location and they got the same score. District wise result by location is reported in table-22.

Table-22

	Public			Private			
Districts	**Urban**	**Rural**	**Total**	**Urban**	**Rural**	**Total**	**G. Total**
Islamabad	58	51	54	51	55	54	**54**
Multan	66	53	63	63	63	63	**63**
Attock	54	50	53	57	55	55	**54**
Bhakker	64	64	64	63	73	65	**65**
Thatta	50	46	48	69	67	68	**54**
Khairpur	60	71	64	74	60	67	**65**
Khuzdar	47	34	41	46	58	46	**43**
Zhob	66	53	59	51	.	51	**57**
D.I.Khan	56	61	59	76	.	76	**65**
Kohistan	45	49	47	58	65	62	**52**
Khyber Agency	.	48	48	.	54	54	**50**
FR Kohat	.	66	66	.	75	75	**69**
Gilgit	49	63	56	83	60	70	**61**
RawalaKot	54	46	50	60	.	60	**54**
National	**57**	**54**	**55**	**62**	**62**	**62**	**57**

It was observed from the above table that urban students of public sector in Islamabad, Multan, Attock, Thatta, Khuzdar, Zhob and Rawalakot performed better than their rural counterparts. The urban students of private sector of Attock, Gilgit and Khairpur outperformed their rural counterparts. At national level there was no significant difference in the performance of students of private sector by location, whereas a significant difference was found in the performance of students of public sector by location.

4.16 Gender differences in Students' Performance

The composite student scores of both sector by gender is report in the following table:

Table-23

Gender	Public		Private	
	Urban	Rural	Urban	Rural
	Mean	Mean	Mean	Mean
Boys	54	52	60	62
Girls	59	56	66	60
P.Value	0.000	0.000	0.000	0.037

It was observed that the performance of urban girls students of public sector was better than their boys counterparts. Similarly urban girls students of private sector Outperformed their boys counterparts. The result was found significant for both sectors by gender and location. District wise data are presented in table-24.

Table-24

Districts	Public						Private						
	Urban			Rural			Urban			Rural			
	B	G	T	B	G	T	B	G	T	B	G	T	G. Total
Islamabad	58	59	58	49	53	51	51	.	51	56	54	55	**54**
Multan	64	70	66	51	54	53	59	66	63	.	63	63	**63**
Attock	49	58	54	43	62	50	57	64	57	57	53	55	**54**
Bhakker	57	66	64	64	.	64	58	66	63	73	74	73	**65**
Thatta	42	58	50	43	50	46	70	67	69	66	67	67	**54**
Khairpur	46	67	60	72	68	71	75	72	74	59	61	60	**65**
Khuzdar	42	53	47	36	33	34	44	51	46	60	56	58	**43**
Zhob	65	69	66	42	64	53	53	43	51	.	.	.	**57**
D.I.Khan	62	48	56	69	55	61	76	77	76	.	.	.	**65**
Kohistan	45	44	45	37	59	49	57	72	58	65	.	65	**52**
Khyber Agency	.	.	.	43	54	48	.	.	.	54	.	54	**50**
FR Kohat	.	.	.	72	61	66	.	.	.	75	.	75	**69**
Gilgit	57	40	49	58	67	63	84	82	83	59	62	60	**61**
Rawalakot	48	55	54	47	46	46	57	67	60	.	.	.	**54**
National	**54**	**59**	**57**	**52**	**56**	**54**	**60**	**66**	**62**	**62**	**60**	**62**	**57**

B = Boys, G = Girls, T = Total

Table-24 mentions that urban girls students of public sector performed better in districts of Islamabad, Multan, Attock, Bhakkar, Thatta, Khairpur, Khuzdar, Zhob and Rawalakot. On the contrary, rural boys students of public sector outperformed their girls counterparts in districts of Khairpur, Khuzdar, D. I. Khan and FR Kohat.

It was revealed from the scores that urban girls of private sector scored the highest scores in districts of Multan, Attock, Bhakkar, Khuzdar, D. I. Khan and Rawalakot as compared to boys students. Whereas, rural girls students of private schools in districts of Gilgit, Bhakkar, Thatta, and Khairpur outscored their boys counterparts. At national level urban girls of private sector outperformed their rural counterparts, whereas rural boys outscored their urban counterparts.

4.17 Impact of Teachers' Academic Qualification on Students' Achievement

Table-25

Academic Qualification	Location			Gender		
	Urban	Rural	Total	Boys	Girls	Total
Matric	62	59	**60**	62	59	**60**
FA/F.Sc	61	55	**58**	57	59	**58**
BA	58	57	**58**	56	60	**58**
MA	61	57	**59**	59	58	**59**
Total	**60**	**57**	**58**	**57**	**59**	**58**

** Significant relationship observed in urban area at 0.05 level of significance*

It was observed that higher level of teachers' academic qualification had not any positive impact on students' performance. Matriculate teachers and teachers with master degree had the same impact on students' achievement. In urban areas teachers' academic qualification had more impact than in rural area. Significant relationship in students' scores was observed in urban areas.

4.18 Impact of Teachers' Professional Qualification on Students' Achievement

Table-26

Professional Qualification	Location			Gender		
	Urban	Rural	Total	Boys	Girls	Total
PTC	58	52	55	53	57	55
CT	60	63	62	61	64	62
B.Ed	58	57	57	58	56	57
M.Ed	63	63	63	58	66	63
Total	**60**	**57**	**58**	**57**	**60**	**58**

** Significant relationship observed in urban area at 0.05 level of significance*

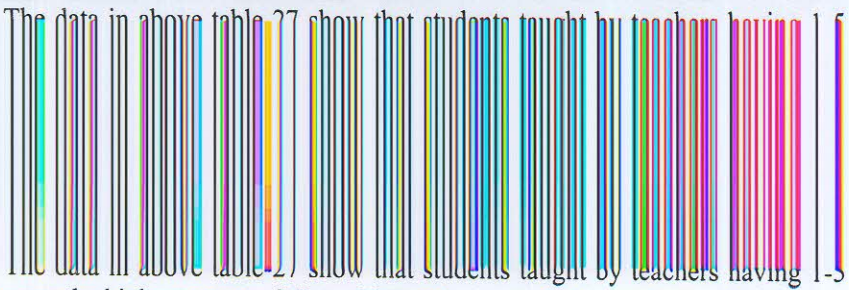
It was observed that professional qualification of teacher had a significant effect on students' achievement. The students taught by M.Ed teachers got the highest scores followed by the students taught by C.T teachers. The students taught by PTC teachers got the lowest score. It seemed that the professional qualification of teachers had positive effect on students' achievement.

4.19 Impact of Teachers' Experience on Students' Achievement

Teaching learning is a complex process that demands proper interaction between students and teachers. Teaching profession demands to learn methods and techniques for imparting knowledge to the students. It is usually expected that teachers through experience get command of subjects and learn teaching skills with the passage of time. In addition, in-service training of teacher also play a crucial role for enhancing professional skills of teachers. The impact of teachers experience on students' achievement was explored and the data are presented in table-27.

Table-27

Experience	Location			Gender		
	Urban	Rural	Total	Boys	Girls	Total
1-5	64	60	62	62	61	62
6-10	56	52	54	53	56	54
11-15	58	56	57	54	60	57
16+	59	56	57	55	59	57
Total	**60**	**57**	**58**	**57**	**59**	**58**



experience were the highest scorers followed by students taught by teachers with 16 years or more experience. It is interesting to note that the students taught by teachers having 6-10 years of experience got the lowest scores. As far as gender was concerned, teachers' experience had more impact on the performance of girls than boys and it had more impact on the performance of urban students.

4.20 Impact of Physical Facilities in the School on Students' Performance

Physical facilities are the essential elements to facilitate teaching-learning process. The impact of physical facilities on students' achievement can be seen in table-28.

Table-28

S. No	Basic Facility	Mean % Score
1.	Water and Electricity	56
2.	Water, Electricity Toilet,	60
3.	Water, electricity, boundary wall, toilets, furniture, playground, and dispensary	62
	Total	**58**

It was observed from the above table that availability of physical facilities in a school had a significant impact on students' performance. The availability of drinking water, electricity, and boundary wall, toilets for students, furniture, playground, and dispensary were determining factors and had positive impact on students' achievement.

4.21 Impact of Fathers' Education on Students' Performance

The father's education level is very crucial determining factor on a child's performance. Many educationists believe that educated fathers are usually more conscious about educating their children as compared to uneducated fathers. Impact of fathers' education on their children is shown in table-29.

Table-29

Father's Education	Urban	Rural	Total	Boys	Girls	Total
Illiterate	55	53	54	53	56	54
Literate	50	59	54	54	55	54
Primary	60	54	56	56	57	56
Middle	57	55	56	55	57	56
High	59	58	59	59	59	59
FA/B.Sc	64	58	61	62	61	61
BA/B.Sc	64	63	64	62	65	64
MA/M.Sc	65	60	64	63	64	64
National	**59**	**56**	**57**	**56**	**59**	**57**

It is observed that children of illiterate and literate fathers showed same performance. As the fathers' education increased from middle to BA/B.Sc, a consistent increase in average percentage score of children was noted. The level of father's education had even more impact on urban students than rural students. The level of father's education had more influence on the girls' performance than on boys. A significant difference was noted in average percentage scores of children whose fathers had higher level of education.

4.22 Impact of Mothers' Education on Students' Performance

Mother plays vital role in character building and personality development of her children. The impact of level of mothers' education on the performance of their children was explored and scores are presented in table-30.

Table-30

Mother's Education	Boys	Girls	Total	Urban	Rural	Total
Illiterate	56	57	56	57	56	56
Literate	53	57	55	56	52	55
Primary	57	59	58	60	56	58
Middle	59	60	59	61	57	59
High	58	65	62	63	60	62
FA/F.Sc	57	63	60	61	57	60
BA/B.Sc	58	64	61	61	62	61
MA/M.Sc	63	65	64	65	60	64
National	**56**	**59**	**57**	**59**	**56**	**57**

A consistence increase in the mean percentage score of students was observed with increasing level of their mother's education. However, a declining trend was observed in the mean score of children as the level of mother's education increases after intermediate level. The same trend was observed with the father's education. The level of mother's education had more impact on the urban students rather than on rural students. It was also observed that level of mother's education had more impact on the performance of girls than that of boys. A significant difference was found in average percentage scores of children with mothers having higher levels of education.

4.23 Impact of Fathers' Occupation on Students' Performance

The father's occupation is a symbol of social status. This study examined the impact of father's occupation on the achievement of students. The data are reported in table-31.

Table-31

Fathers' Occupation	Urban	Rural	Total	Boys	Girls	Total
Government Servant	58	55	57	55	59	57
Private Job	60	60	60	59	61	60
Agriculturist	62	58	59	58	61	59
Trader/Shop Keeper	61	56	59	59	59	59
Laborers	57	56	57	55	59	57
National	**59**	**56**	**57**	**56**	**59**	**57**

It was observed that children of private jobholders were the highest scorers, whereas the children of government employees and laborers were the lowest scorers. It was interesting to note that children of government employees and laborers as well as farmers and small traders had the same score. The father's occupation had more impact

on the performance of urban students as compared to rural students. Similarly father's occupation had more impact on the performance of girls than that of boys.

4.24 Impact of Mothers' Occupation on Students' Performance

It is usually observed that occupation of mother is also considered as social status symbol. Mother contributes in socio-economic uplift of the family in general and particularly of her children. The data regarding impact of mothers' occupation on students' performance are presented in the following table-32.

Table-32

Mother Occupation	Urban	Rural	Total	Boys	Girls	Total
House Wife	59	57	58	56	59	58
Make things at home	60	52	57	56	58	57
Government Servant	58	58	58	57	60	58
National	**59**	**56**	**57**	**56**	**59**	**57**

It was observed that children of the mothers of government service and housewife got the same scores. However, mother's occupation had more impact on the performance of urban children as compared to rural children. It was also noted that mother's occupation had more impact on the performance of girls than on boys.

4.25 Views of the Students About Homework

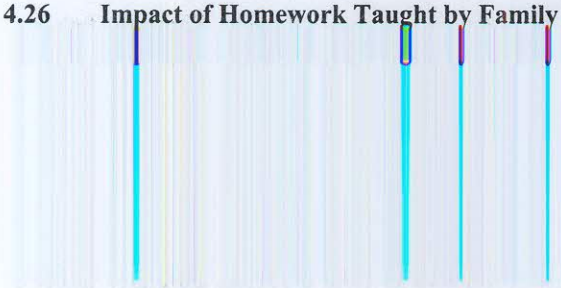
Students were asked about homework whether their parents helped them in doing homework. Their responses are reported in the following table-33.

Table-33

Homework	Frequency	Percentage
No Response	76	2
Yes	2435	71
No	931	27
Total	**3442**	**100**

The table-33 illustrates that 71% students get help from their parents at home and they achieved slightly better score than those children who did not get help from their parents. However, no significant difference was found.

4.26 Impact of Homework Taught by Family Members



Students were also asked about their family members who helped them in doing their homework. Their responses are shown in table-34.

Table-34

Homework	Frequency	Percentage	Mean
No Response	561	16	55
Father	917	27	58
Mother	380	11	58
Brother	754	22	56
Sister	548	16	59
Any other person	282	8	58
Total	**3442**	**100**	**57**

The data show that students taught by their sisters got highest scorers followed by those students who were helped by their parents. However, there was no significant difference in the students' scores either helped by family members or helped by other than family member.

4.27 Impact of Tuition on Students' Performance

Tuition has become tradition in our society. The impact of tuition was worked out and data are presented in following table:

Table-35

Tuition	Frequency	Percentage	Mean	S.D.
No Response	34	1	57	17
Yes	1020	30	58	17
No	2388	69	57	17
Total	**3442**	**100**	**57**	**17**

It was observed that tuition had no positive impact on the students' performance and no significant difference was found in performance of students.

4.28 Impact of Breakfast on Students' Performance

It is usually assumed that breakfast has significant effect on the students' achievement. The data regarding this factor are given below:

Table-36

Breakfast	Frequency	Percentage	Mean	SD
No Response	74	2	51	17
Yes	3272	95	61	18
No	96	3	57	17
Total	3442	100	57	17

It was observed that the performance of students who take breakfast was better than those who came to school without breakfast and the difference was significant.

4.29 Impact of Weight of the Students on their Performance

Table-37

Weight of the Students	Frequency	Percentage	Mean	S. D
20-25	542	16	57	18
26-30	966	28	58	17
31-35	860	25	57	17
36-40	615	18	59	17
41-45	231	7	57	15
46-50	131	4	59	16
51-55	68	2	55	19
55-60	29	.8	52	14
Total	**3442**	**100**	**57**	**17**

All students included in the sample were weighted before administering achievement test. The data indicated no significant relationship of students' weight with their achievement.

Chapter 5

Findings, Conclusions and Recommendations

5.1 Students' performance in Mathematics, Urdu and Science

i) The mean percentage score in Mathematics, Urdu, and Science was 48, 64 and 60 respectively at national level. Performance of most of the students in Mathematics was poor, whereas most of the students performed well in Urdu and Science. The performance of private school students in most subjects was better than the public school students. Similarly the performance of urban students in all subjects was better than rural students. It was interesting to note that the performance of rural students of private sector was better than their urban counterparts in Mathematics. Performance of urban girls of both sectors was better than their boys counterparts in Mathematics. It contradicts the traditional belief of better performance of boys than girls in Mathematics. The findings of this study indicate that the performance of girl students in all subjects including Mathematics was better than that of boys students.

ii) The findings of the study indicated that scores of 39% students of private school in Mathematics fall in A1, A and B category whereas the scores of 31% students of public schools fall in the same category. In Urdu, the scores of 82% students of private school students fall in A1, A and B category whereas the scores of 58% students of public schools fall in the same category. This indicates the outstanding performance of private school students as compared to public schools. In Science, the scores of 59% students of private school fall in A1, A and B category whereas the scores of 57% students of public schools fall in the same category. It is a matter of grave concern for the policy makers and planners dealing with the public sector education.

iii) Inter-District difference shows that students of FR Kohat, Bhakker and D. I. Khan are the highest achievers in Mathematics whereas the students of Khuzdar and Rawalakot are the lowest scorers. The students of FR Kohat, Multan, and Bhakker got highest scores in Urdu whereas the students of Khuzdar and Khyber Agency got lowest scores. The students of FR Kohat, Khairpur and D.I. Khan got highest scores in Science whereas the students of Khuzdar and Khyber Agency got lowest scores.

5.2 Composite Score of Students' Performance in Three Subjects

The total mean percentage composite scores for both sector was 57. It was 55% for public schools and 62% for private schools. The difference was significant. The scores of 56% students of private schools fall in A1, A and B category whereas the scores of 43% students of public schools fall in the same category. Majority of the students of districts of F.R. Kohat, D.I. Khan and Khairpur got the highest average composite percentage scores whereas most of the students of districts of Khuzdar and Khyber Agency got the lowest scores. The urban students of public school performed better than their rural counterparts. Girls students of both sectors performed better than their boys counterparts.

5.3 Impact of Teachers' Qualification and Experience on Students' Performance

i) It was found that Teacher's academic and professional qualification had positive impact on the students' achievement. It had more impact on the performance of girl students than boy students. Similarly teachers' qualification had more influence on the performance of urban than the rural students.

ii) It was also found that students taught by matriculate teachers got the highest score followed by students taught by teachers holding M.A. degree. The urban students taught by Matriculate teachers got the highest score followed by F.A./F.Sc. teachers or with M.A. degree. Similarly urban students taught by Matriculate teachers got the highest score followed by teachers having B.A./M.A. degrees. It was evident that teachers academic qualification had more impact on urban students than on rural students. Boys students taught by Matriculates teachers got the highest scores followed by teachers holding Master's degree whereas girls students taught by teachers having B.A. degree scored better.

iii) Teacher's professional qualification had significant effect on students' achievement. The students taught by teachers having Certificate in Teaching (CT) and having M.Ed. qualification got the highest scores. The rural students either taught by C.T. teachers or M.Ed. teachers were the highest achievers. Similarly urban students taught by C.T. teachers or by M.Ed. teachers, got the highest scores. Girls students taught by M.Ed. teachers got the highest score whereas in case of boys they got highest score when they were taught by C.T. teachers.

iv) It was found that teachers' experience had a positive influence on the students' achievement. Students taught by teachers having 1-5 years experience were the highest scorers followed by the students taught by teachers with 16 years or more experience. It was interesting to note that teachers either in the first 5 years of their service were effective or after 16 years. Teachers experience had more influence on the girls than boys and it had more impact on the urban than rural students.

5.4 Impact of Physical Facilities on Students ' Performance

It was observed from the data that availability of physical facilities in a school had a significant impact on students' performance. The availability of drinking water, electricity, boundary wall, toilets, furniture, playground, and dispensary were determining factors and had positive impact on students' achievement.

5.5 Impact of Parental Education on Students' Performance

i) The data showed that children of illiterate and literate fathers performed equally. As fathers' education increased from middle level to graduation, a consistent increase in average percentage score of children was noted. The level of father's education had more impact on urban students than on rural students. The level of father's education had more influence on the girls' performance than that of boys. A significant difference was found in average percentage scores of children with fathers having different levels of education.

ii) A consistence increase in the mean percentage score of students was observed with increasing level of their mother's education. However, a declining trend was observed in the mean percent score of children as the level of mother's education increases after intermediate level. The same trend was observed with the father's education.

5.6 Impact of Parental Occupation on Students' Performance

It was observed that children of private job holder were the highest scorers, whereas the children of government servants and laborers were the lowest. It was interesting to note that children of government servants and laborers as well as farmers and small traders had the same score. The father's occupation had more impact on the performance of urban students as compared to rural students. Similarly father's occupation had more impact on the performance of girls than boys.

Conclusions

1. It was concluded that the performance of most of students of both sectors in Mathematics was poor whereas most of the students performed well in Urdu and Science tests at national level.
2. The performance of Private school students in most subjects was better than Public school students. Similarly performance of urban students in all subjects was better than that of rural students.
3. Girl students' performance was significantly better than their boys counter-parts in all subjects including Mathematics.
4. In private schools, 82% students scored A1, A and B grades in Urdu whereas 58% students of Public schools scored the same grades which indicate the outstanding performance of Private school students as compare to that of Public school students.
5. Students of FR Kohat, Bhakkar, D.I. Khan, Multan, Khairpur got the highest scores in most of the subjects whereas the students of Khyber Agency and Khuzdar achieved lowest in most subjects which indicates the poor performance of students belonging to these districts.
6. Teacher's academic qualification had positive impact on the performance of students. It had more impact on urban than rural students. Students taught by matriculate teachers and holding M.A degree got the highest scores.
7. Teacher's professional qualification had significant effect on student's achievement. Students taught by teachers having certificate in teaching (C.T.) and M.Ed degree achieved highest scores.
8. Teacher's experience also had a positive influence on students' achievements. Students taught by teachers having 1-5 years of experience got the highest score followed by students taught by teachers having 16 years or more experience.
9. The availability of drinking water, electricity, boundary wall, toilets, furniture, playground, and dispensary are determining factors and have positive impact on students' achievement.
10. The level of parental education particularly mother's education had a significant impact on the performance of their children.

On the basis of findings and conclusions, the following recommendations are made for the policy makers, decision makers and educational planners.

1. Refresher courses for Mathematics teachers may be arranged at district level to enhance the skills and knowledge in teaching of Mathematics.
2. Private sector is providing comparatively better education than public sector. It is recommended that monitoring mechanism of schools and classroom supervision should be improved at district level.
3. Urban public students significantly performed better than their rural counterparts. It is recommended that appropriate measures may be taken to decrease the disparity between the urban and rural students.
4. Availability of physical facilities at school level has a significant impact on the performance of the students. It is recommended that proper arrangements should be made at district level to provide adequate physical facilities in each school.

Implications

- Findings of the study cannot be generalized because of the small sample size.
- The study has identified some crucial factors affecting the quality of education, which need further exploration through research studies.
- Further study needs to be undertaken with an adequate sample size on regular basis.

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