

## **POOR PERFORMANCE IN MATHEMATICS AT SECONDARY LEVEL**

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### **ABSTRACT**

*The progress of the country depends upon the progression of the skill and scientific knowledge. The scientific knowledge can be progressed in the students by offering them. Steadiness curriculum enhanced education facilities and well qualified teachers. Therefore, it is the necessity of well prepared and methodical curriculum of science education. The education of science is based predominantly the science curriculum. The study was originated to observe the factors that indication to students" poor performance in mathematics. The study was carried out Manzoor colony, Karachi, Pakistan. The mathematics which is being educated in the entire schools of Manzoor colony is not gratifying the needs of teachers and students. They are facing problems in explaining and considerate the topics. It illustrates the difficulties of the content.*

*The study addressed the poor performance in mathematics at secondary school. The study was carried out in Manzoor colony, Jamshaid town Karachi. Overall strategy of research was survey. The population of the study consisted of the teachers working in the government and private schools in the area. The total number of schools are approximately 150 and numbers of male and female teachers are about 300 and 4320 students. Stratified random sampling design was adopted. Total sample size was 50 teachers and 100 students drawn from 180 schools. Questionnaire was used for collection of data .questionnaire was*

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*personally administrated by the using the data was analyzed by using inferential chi-square statistical procedure table with the frequencies were used. The significant factors leading the poor performance included insufficient teaching faculty, students' absenteeism, poor assessment techniques and poor teaching methods. Teachers were showing concern about training programs, actively based curriculum, and improve the quality of the text books. It was recommended that training programs were accompanied and quality of text books were improved.*

**Key Words:** Poor Performance, secondary level

## INTRODUCTION

Mathematics is playing a vital role in every field of life. It is such a broad subject it perhaps used in so many other subjects. Its application and Implication has been found in every field of our daily lives. The importance of Mathematics imagine in our lives without it the life can come to standstill. Mathematics coaching necessitate skills, knowledge, understanding and great ability. For numerous pupils, mathematics is a series of challenges and hurdles, which they face with passion and determination. For many others however, Mathematics is a daily experience of continued failure and irrelevance. Mathematics education fails too many students. It fails students on the margins of society, it fails children from ethnic minorities, and it fails students from social and cultural backgrounds that are different from the majority of mathematics teachers. Mathematics is not just a complex collection of skills, perception and beliefs. Mathematics education in particular is the only route through which we can create a more socially just society. if mathematics outside school constructs a reality over which individuals may feel powerless ,then mathematics within school also help to construct individuals through feelings of belonging and exclusion. The noteworthy factors leading to poor performance included insufficient teaching force, students' absenteeism, poor entry marks, poor assessment system and meager teaching methods. The intermediation strategies proposed included completing the syllabus in time. Establishment of acceptable and qualified teaching force and in- service programs.

Greaber and weisman (1995) agree that mathematics helps the individual to understand the environment and to give accurate account of the physical phenomena around every person. Setidisho (2001) propose that no other subject forms a strong binding force among various branches of science as mathematics, knowledge of the science without it often remain superficial. McGuire (2000) indicate many factors in low performance of students ,but this study emphasis on the context of three classified factors, first is the teacher factor ,which is comprise of mastery of the subject matter , instructional skills and strategies , class room management , communication skills and personality . Second is student factor which includes study routine, time management, and superiority and curiosity toward mathematics. Third is environmental factor such as parents' values, assertiveness, class room sittings, and classmates. In Manzoor colony,

## **INTRUDCTION.**

In this chapter the review focuses on the factor that are responsible for the student low performance in mathematics of secondary school some of the reasons aspects to the low performance in mathematics by scholars comprises, shortage of qualified mathematics teachers, teaching methods poor facilities, poor assessment lacking of ability to translate mathematical measuring to real words meaning, lack of practice and lack of mathematical interest. The quality of text book negative attitude towards mathematics and un-suitable teaching method has been viewed as possible factors responsible for low performance in mathematics. Use of traditional chalk and talk methods (Edward & Knight, 1994), Mathematics thing and (fright and George will, 1990), limited background in mathematics freight and anxiety, and some government policies (Avimbade 1995), lack of problems solving abilities and self-concepts and achievement

Motivation, Akinsola, 1994, the present study therefor, factor responsible for the low performance in mathematics what encouragement there are and to find out some of the most important factors that influence the low performance in mathematics in Manzoor Colony Secondary Schools with the aim of recommending and preferred solution. This will be reviewed under the following.

1. The teachers / Principal factors.
2. Student approach and commitment.
3. Method of teaching mathematics.
4. The use of instructional materials in mathematics teaching.
5. The school environment factors.

## **TEACHING MATHEMATICS.**

### **2.21.1 TEACHING MATHES.**

The initiation teacher of mathematics is able to:

- Apply correct mathematical reasoning to derive endorsed conclusions from a set of grounds.
- Apply standards of inductive reasoning to make inferences and use deductive methods to evaluate the validity of inferences.
- Use formal and informal thinking to explore, investigate and justify mathematical ideas.
- Recognize example of erroneous reasoning.
- Appraise mathematical arguments and proofs, and provide

conclusive arguments for mathematical theorems.

- Use the language of mathematics as a specific means of expressing mathematical ideas.
- Evaluate the structure of mathematical systems and use the structural properties of mathematical system.
- Explore and apply essential number theory concept and principals in a variety of situations.

Researchers have been trying to distinguish critical components of mathematics teacher's knowledge. Shulman (1986) suggested that there are at least three components of knowledge for teaching, subject matter content knowledge, curricular knowledge and pedagogical content knowledge. The extremely structured knowledge packages these teachers seem to reveal characteristic of all three types of knowledge Shulman hypothesized. Ball & Bass (2000a, 200b) suggest that mathematical knowledge for teaching is different from the mathematical knowledge used by other specialists, just as the mathematical knowledge for accounting; engineering is different from the mathematical knowledge essential for physics.

### **2.21.2 STUDENTS EXPECTANCY**

Mathematics is a language we use every day ,it builds and draws on intangible understanding ,skills and helps us make decisions and solve problems .students are expected to;

- Determine when it is most advantageous to use technology in solving a problem, and choose what algebraic or geometric manipulations are necessary to make best use of technology.
- Experiment, perceive patterns, classify relationships, make and test mathematical inference, and find counter examples.
- Distinguish between relevant and extraneous information, identify missing information, sequence arrange information.
- Indicate the virtual advantages of exact and approximate solutions to problems and give answers to a specified degree of exactness.
- Explain, check, justify, prove, and judge the reasonableness of results using sound mathematical reasoning.
- Express solutions clearly and reasonably using appropriate mathematical notation, terms and clear language, support solutions with evidence, in both oral and written.

### 2.21.3 TEACHER QUALIFICATION.

Who is not certainly worn out by the system (size, 1984) .based on concise definition Farrell (1984) consequential the indicators of teacher proficiencies in mathematics teaching and learning. Two types of abilities were identified. The first type is as mastery and the second is labelled elaboration types. Moreover; it was suggested that the first type of skill is a definite ability that secondary school mathematics teachers should assured possess. Farrell (1979) cautioned the over –use or abuse of the mastery style of teacher skills. She claimed this class of proficiency should be combined with the progressive type. As an instance, following the signs of mathematics teacher skills provided base- line information for readers:

1. Teacher give history, etymology of terms & symbols.
2. Teacher explain why practices are being demonstrated.
3. Teacher before practice counting and measuring examples before a new formula is developed and points out the effectiveness of the formula.

From research testimonies, econometric analysis have indistinctly demonstrated that, some teachers are significantly more effective than others and that these differences have lasting effect on student learning.

Whitty (1996) classifies two sets of qualities that distinguishing a successful professional teachers, professional feature and professional training, communication and association as well as creation and application.

Professional capabilities include knowledge and considerate of children and their learning. Subject acquaintance curriculum, the educational system and the teacher role. A number of studies approved have indicated the need for teacher’s academic qualification in their various teaching subjects

Swan & Jones‘ (1985) conclude that teachers should collect applicable training in the subject concern areas so that their class room training could be above board.

The national policy on Education (revised edition, 2004) indicated the persistence of teacher education to be:

1. To produce highly ambitious, meticulous and efficient classroom

teachers for all levels of our education system.

2. To provide teachers with the knowledgeable and professional background acceptable for their assignment and make them adaptable to any changing situation, not only in the life of their own country but in the world wider.
3. To improve teachers commitment to the teaching profession.

The National mathematical center (NMC) in 1989 sets among its objective , to train and develop high level personnel and in the mathematics sciences including mathematics , mathematics education , computer science , theoretical physics and statistics for the institution through research , lecture series , workshops conferences seminars and linkages .

For effective teaching the teacher must acquire a basic qualification in the subject, professional training, assignation in professional activities and personal passion for mathematics.

#### **2.21.4 TEACHING EXPERIENCE.**

The mathematics teacher should get prospect of observing a few demonstration lessons by more experienced teachers and then should be required to teach lesson. Hansen (1988) postulated that teacher who have spent more time studying and teaching are more effective overall and they settled higher order thinking skills for meetings the needs of assorted students and hence increasing their performance.

Felter (1999) investigated the relationship between the measure of teachers experience and Student's accomplishment in science and Mathematics. He initiate that teaching experience as measured by years of service correlated positively with students test results. Other studies on the influence of teacher experience on the students learning have set up a positive relation ship between teacher's efficiency and their years' experience, a part from of the differences in these findings and how current novice teachers may finally become, during the first year of teaching they are clearly less effective than more experienced teachers and whatever be the case and experience matter (colt felter, 2007).

#### **2.21.5 THE SCHOOL ENVIRONMENT.**

The physical environment of the school influence academic

performance of the students.

Onwuchekwa (1985) explained that the physical scenery of the class room, teaching aids to Mention a few; develop teaching, learning and attainment. It is a fact that adjacent environment of the students inspiration their performance. For instance the quality of the school building has direct effect on students, performance. Students perform enhanced academically in better buildings.

Researchers (Carols, 1993, Lackney, 1999, Black, 2001) have found that students in old buildings scored 5-7 % points lower than students in new buildings and so established  
In independent findings that there is a relationship between the school building condition and  
Students' accomplishment.

#### **2.21.6 STUDENTS' ASSERTIVENESS AND COMMITMENT.**

Ezewu (1985) confirmed that a child who has a positive attitude towards what he learns will be highly encouraged to participate in activities that support learning thereby evolving a positive self – concept in relation to the total teaching environment. One of the most significant factors for improving performance is students' participation by participation it means how much time, energy , determination students' devotion to the learning process assertiveness therefor relate to the approach we act or react and the style we perform our thinking is what result in our assertiveness. Our action depends on our attitude. There is now a beneficial deal of research sign to suggest that the more time and struggle students devote in the learning process and the more extremely they engage in their education the superior will be their evolution and attainment. Their contentment with their educational experiences and their determination in school, and the more probable they are to continue their learning.

Assertiveness therefor is vital to the dynamics of behavior and determine how far a student's Learns. If student has a positive attitude towards mathematics, he will not only adore studying it but will also develop pleasure from the knowledge of mathematical ideas he gains.

Obodo (2002) explain further, if a students has a positive attitude to mathematics he will absolutely be interested in its teaching and learning



the chief incentives for the emerging

Maintaining the students' interest in mathematics. With hypocritical attitudinal change, continuous interest and perpetual challenge, mathematics would no longer seem to the students boring and useless to real life issues and increasingly incomprehensible but a subject that will be longed for the aim of indulgent such an investigation, the researcher hoped would be useful for teachers of mathematics in secondary school manzoor colony Karachi.

## **RESEARCH METHODOLOGY**

### **3.1 INTRODUCTION.**

This chapter gives an indication of what was done to achieve the goals of the present study. The purpose was to survey that investigating the factors responsible for students' low performance in mathematics of secondary school examination in Manzoor colony, in Jamshaid town, Karachi. In this regard, the chapter describes the method and techniques used in collection of data, the research design, population and sampling, research instrument used and how data was analyzed.

### **POPULATION AND SAMPLE**

The target population for this study consists of all mathematics teachers in selected secondary school of Manzoor colony Karachi. The sample was made up of 45 teachers and 100 students who were randomly selected from thirty schools which were randomly selected from all the secondary schools in Manzoor colony Karachi.

These nine schools are:

1. Al-Farooq Secondary School
2. AWADH Public School
3. Green Flag Secondary School
4. Al-ILM Secondary School
5. NABI BAGH Secondary School
6. HI-RANK Secondary School
7. THE ASIAN GRAMMAR Secondary School
8. AL-SHAFAQ Secondary School
9. AL-SEHAR Secondary School
10. MALIR Government Secondary School.
11. AFAQ Boys Secondary School

12. AL-QUBA Secondary School.
13. SADIQ FOUNDATION Secondary School.
14. GOHER Secondary School.
15. HIRA PUBLIC Secondary School.
16. AL-KHAIR Secondary School.
17. ELAZIAN Secondary school.
18. MADNI FOUNDATION Secondary School.
19. MEEZAN Secondary School.
20. AL-FURQAN Secondary School.

## RESULT AND DISCUSSION

### 4.1 SURVEY OF FINDINGS

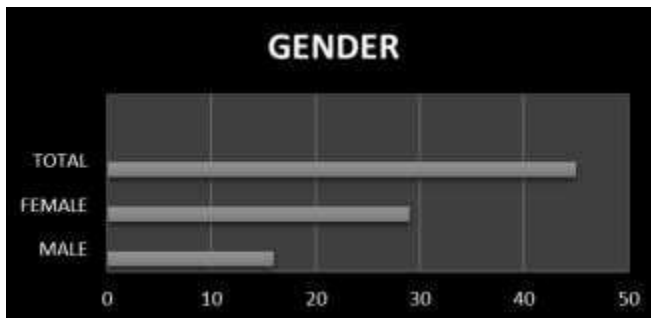
The survey findings analyzed linearly in order to have a better comprehensive and understanding between the relationship of dependent and independent variables , the total sample of 45 teachers and 100 students has been extracted from the nine schools of Manzoor colony Karachi.

## DEMOGRAPHIC INFORMATION.

### 4.1.1 GENDER

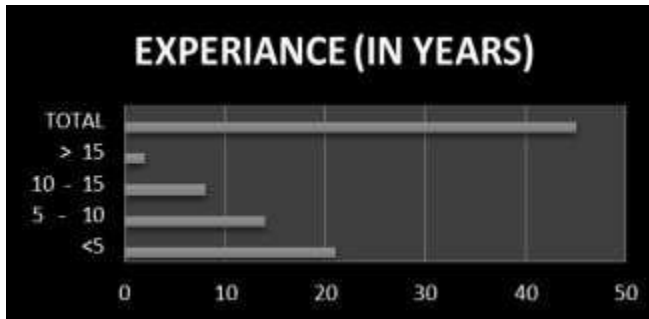
**TABLE- 1**

MALE	FEMALE	TOTAL
16	29	45



Major sample collected from female respondents (total 29, 64.5%) total sample size respondent to the research while male (total 16, 35.5%) of sample size.

**GRAPH NO 4**  
**EXPERIENCE (IN YEARS)**



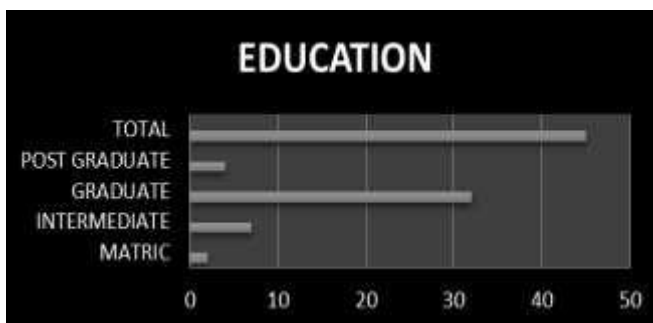
**4.1.4 EDUCATION.**

**TABLE 4.**

<i>POST GRADUATES</i>	<i>GRADUATES</i>	<i>INTERMEDIATE</i>	<i>MATRIC</i>	<i>TOTAL</i>
4	32	7	2	45

The above table shows that 32 respondents were graduates and 7 respondents were intermediate whereas only 4 respondents are post graduate and 2 have obtained matriculation certificate so it is calculated that at majority of respondents i ,e 32 were graduates following graph shows the pictorial diagram of the data.

**GRAPH NO.4**



## ITEM NO 2

Teachers are properly trained to teach mathematics.

**TABLE # 4.2 Application of chi- square ( $\chi^2$ ) is as follows :**

Conditions	$f_0$	$F_e$	$f_0 - f_e$	$(f_0 - f_e)^2$	$(f_0 - f_e)^2 / f_e$
Strongly agree S A	11	9	2	4	0.4
Agree A	10	9	1	1	0.1
Undecided U	5	9	-4	16	1.7
Disagree D	14	9	5	25	2.7
Strongly disagree SD	5	9	-4	16	1.7
TOTAL					
$\Sigma (f_0 - f_e)^2 / f_e$					6.6

### Conclusion:

$$df = K - 1$$

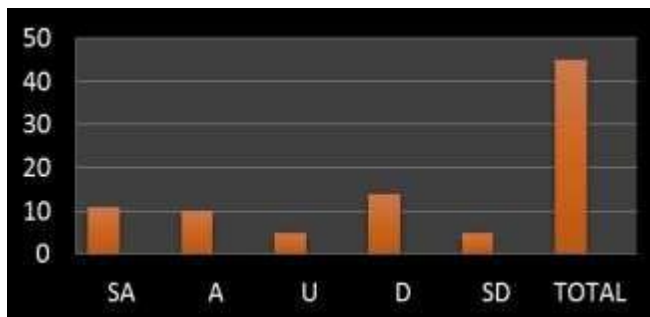
$$5 - 1 = 4$$

$$\alpha = 0.05$$

$$\text{Tabulated } \chi^2 = 9.48$$

Referring to tabulated of  $\chi^2$  at  $\alpha = 0.05$  in the 4 degree of freedom the tabulated  $\chi^2 = 9.48$  is greater than the computed  $\chi^2 = 6.6$  the null hypothesis is accepted and it is conclude that teachers are properly trained to teach mathematics.

### GRAPH



The above graph shows that mostly respondents are dis agree (total 14, 31.1%) and then followed by strongly agree (total 11,24.4%) and then agree (total 10,22.2%) while respondent of undecided and strongly disagree both same (total 5 ,11.11%) so, conclude that teachers are properly trained to teach mathematics.

### ITEM NO 3

Administration of institution provides all necessary facilities to teacher.

Analysis of the problem

$$H_0 : F_0 = F_e$$

$$H_1 : F_0 \neq F_e$$

$$\alpha : 0.05$$

Decision Rule : Reject  $H_0$  if  $\chi^2 \geq \chi^2 \alpha$

Statistical Test (Audrey et al., 1969) :  $\chi^2$

$$\chi^2 = \sum \frac{(f_0 - f_e)^2}{f_e}$$

Where

$\sum$  = sum of

$f_0$  = observed frequency

$f_e$  = Expected frequency

**TABLE # 4.3 Application of chi- square ( $\chi^2$ ) is as follws :**

Conditions	$f_0$	$f_e$	$f_0 - f_e$	$(f_0 - f_e)^2$	$(f_0 - f_e)^2 / f_e$
Strongly agree S A	3	9	-6	36	4
Agree A	7	9	-2	4	0.4

Undecided U	9	9	0	0	0
Disagree D	20	9	11	121	13.4
Strongly disagree SD	6	9	-3	9	1
TOTAL	45	45			
$\sum (f_0 - f_e)^2 / f_e$					18.8

### Conclusion:

$$df = K - 1$$

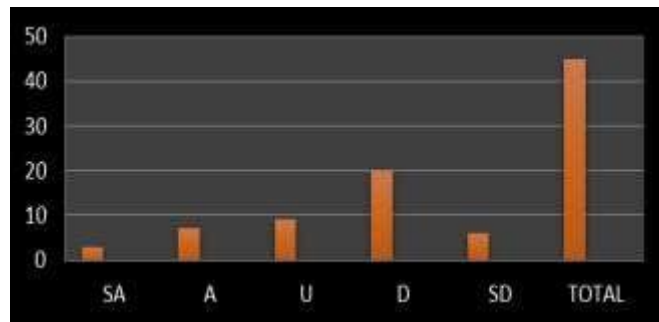
$$5 - 1 = 4$$

$$\alpha = 0.05$$

$$\text{Tabulated } \chi^2 = 9.48$$

Referring to tabulated of  $\chi^2$  at  $\alpha = 0.05$  in the 4 degree of freedom the tabulated  $\chi^2 = 9.48$  is less than the computed  $\chi^2 = 18.8$  the null hypothesis is rejected and it is conclude that administration of institution do not provide all necessary facilities to teacher.

### GRAPH



The above graph shows that mostly respondents are disagree (total 20,44.44%) and then followed by undecided (total 9,20%) and then agree (total 7,15.6%) while respondent of strongly disagree (total 6,13.33%) and respondent of strongly agree (3,6.7%) so, conclude that administration of institution do not provides all necessary facilities to teacher. it is importance to note that lack of interest of administration are

the root of the poor performance of student's in mathematics of secondary school (Manzoor colony).

#### **ITEM NO 4**

Mathematics teachers apply different teaching techniques to teach mathematics effectively.

Analysis of the problem

$$H_0 : F_0 = F_e$$

$$H_1 : F_0 \neq F_e$$

$$\alpha : 0.05$$

Decision Rule : Reject  $H_0$  if  $\chi^2 \geq \chi^2_{\alpha}$

Statistical Test (Audrey et al., 1969) :  $\chi^2$

$$\chi^2 = \sum \frac{(f_0 - f_e)^2}{f_e}$$

Where

$\sum$  = sum of

$f_0$  = observed frequency

$f_e$  = Expected frequency

**TABLE # 4.4 Application of chi- square ( $\chi^2$ ) is as follows :**

Conditions	$f_0$	$F_e$	$f_0 - f_e$	$(f_0 - f_e)^2$	$(f_0 - f_e)^2 / f_e$
Strongly agree S A	11	9	2	4	0.4
Agree A	14	9	5	25	2.7
Undecided U	5	9	-4	16	1.7
Disagree D	9	9	0	0	0
Strongly disagree SD	6	9	-3	9	1
TOTAL	45	45			
$\sum (f_0 - f_e)^2 / f_e$					5.8

## Conclusion:

$$df = K - 1$$

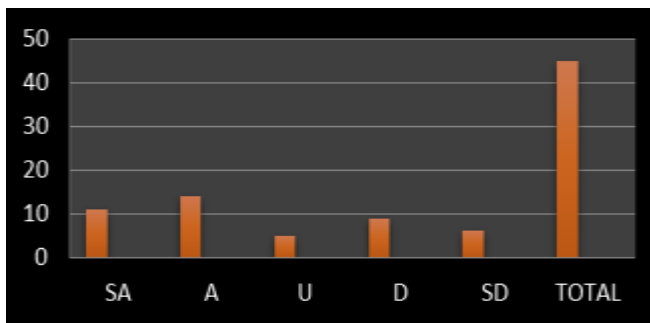
$$5 - 1 = 4$$

$$\alpha = 0.05$$

Tabulated  $\chi^2 = 9.48$

Referring to tabulated of  $\chi^2$  at  $\alpha = 0.05$  in the 4 degree of freedom the tabulated  $\chi^2 = 9.48$  is greater than the computed  $\chi^2 = 5.8$  the null hypothesis is accepted and it is concluded that mathematics teachers apply different teaching techniques to teach mathematics effectively.

GRAPH#



The above graph shows that mostly respondents are agree (total 14, 31.1%) and then followed by strongly agree (total 11, 24.4%) and then disagree (total 9, 20%) while respondent of strongly disagree (total 6, 13.3%) and undecided (total 5, 11.1%) and conclude that mathematics teachers apply different teaching techniques to teach mathematics effectively.

### ITEM NO 7

Most of teachers try to make mathematics subject more interesting.

TABLE # 4.6 Application of chi-square ( $\chi^2$ ) as follows :

Conditions	$f_0$	$F_e$	$f_0 - f_e$	$(f_0 - f_e)^2$	$(f_0 - f_e)^2 / f_e$
Strongly agree S A	13	9	4	16	1.77



Agree A	15	9	6	36	4
Undecided U	10	9	1	1	0.11
Disagree D	6	9	-3	9	1
Strongly disagree SD	1	9	-8	64	7.11
TOTAL	45	45			
$\sum (f_0 - f_e)^2 / f_e$					13.99

### Conclusion:

$$df = K - 1$$

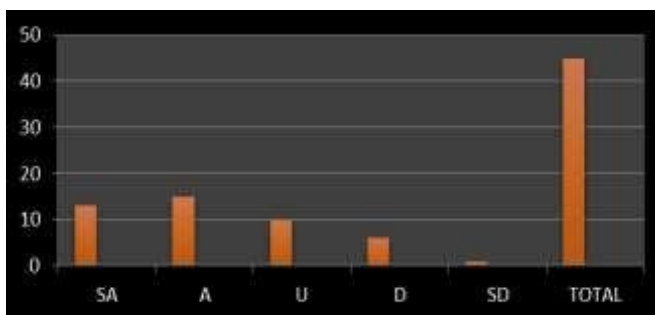
$$5 - 1 = 4$$

$$\alpha = 0.05$$

Tabulated  $\chi^2 = 9.48$

Referring to table of  $\chi^2$  at  $\alpha = 0.05$  with degree of freedom = 4 the tabulated  $\chi^2 = 9.48$  is less than the computed  $\chi^2 = 13.99$  the null hypothesis is rejected and it is concluded that most of teachers do not try to make mathematics subject more interesting and lack of preparation are the root of low performance in mathematics of secondary school (Manzoor colony Karachi).

### GRAPH



The above graph shows that mostly respondents are agree (total 15, 33.33%) and then followed by strongly agree (total 13, 28.9%) and then undecided (total 10, 22.22%) while respondent of strongly disagree (total

6, 13.33%) and then strongly disagree (1, 2.22%) concluded that most of teachers try to make mathematic subject more interesting.

### ITEM NO 8

## MATHEMATIC TEACHERS TEACH ACCORDING TO MENTAL LEVEL OF STUDENT.

TABLE # 4.6 Application of chi- square ( $\chi^2$ ) is as follows :

Conditions	$f_0$	$F_e$	$f_0 - f_e$	$(f_0 - f_e)^2$	$(f_0 - f_e)^2/f_e$
Strongly agree S A	17	9	8	64	7.11
Agree A	20	9	11	121	13.44
Undecided U	2	9	-7	49	5.44
Disagree D	5	9	-4	16	1.77
Strongly disagree SD	1	9	-8	64	7.11
TOTAL	45	45			
$\sum (f_0 - f_e)^2/f_e$					34.87

### Conclusion:

$$df = K - 1$$

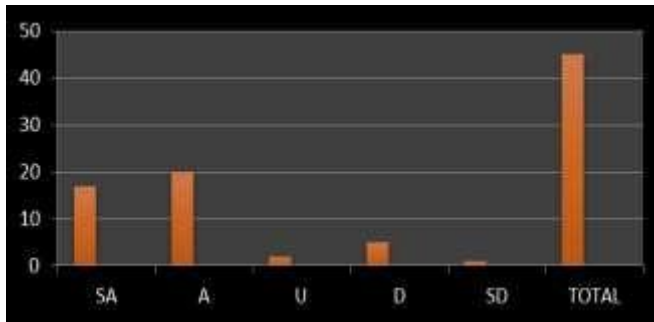
$$5 - 1 = 4$$

$$\alpha = 0.05$$

$$\text{Tabulated } \chi^2 = 9.4$$

Referring to table of  $\chi^2$  at  $\alpha = 0.05$  with degree of freedom = 4 the tabulated  $\chi^2 = 9.48$  is less than the computed  $\chi^2 = 34.87$  the null hypothesis is rejected and it is concluded that most of teacher do not teach according to mental level of student.

GRAPH



The above graph shows that mostly respondents are agree (total 20, 44.44%) and then followed by strongly agree (total 17, 37.77%) and then disagree (total 5, 11.11%) while respondent of undecided (total 2, 4.44%) and then strongly disagree (1, 2.22%) concluded that most of teacher teach according to mental level of student.

### C. CONCLUSION

Education is a three crease process of informing knowledge, developing skills and instructing proper interest attitude and morals. The schools are mostly concerned with the first part of the development. Imparting knowledge. In our institutions the process was carried out in an unsatisfactory way. The curriculum places an emphasis on transmitting learning there is no satisfactory provision for practical actions and experiences. It is mainly controlled by external assessment. more over as the elaboration of useful skills and the inculcation of the right of interest attitudes and ethics are not given necessary accent the curriculum becomes not only out of stop with modern knowledge but also out of fun with the life style of the people .there is thus urgent need to revise up grade and improve the school curriculum.

This current study was expected at surveying the factors responsible for students' poor performance in mathematics secondary school (Manzoor colony) Karachi.

The findings of this survey definite the fact that ,teacher factor , students approach and assurance .technique of teaching mathematics , use of instructional materials and the school environment are to great scope valid

factors that influence students' poor performance in mathematics in secondary school (Manzoor colony). These findings therefore would be of excessive relief to governments, teachers, students, professional policy makers and presents in providing a solid springboard to launch a new outline to finding a lasting solution to the perpetual poor performance issues in mathematics at secondary school (Manzoor colony).

Conclusion strained from the findings of teacher's questionnaire are as under:

1. Majority of mathematics teachers were not competent according to the changing world of knowledge, so in-service training should be arranged.
2. Most of the teachers were agree to develop the activity based curriculum of mathematics as students take more interest.
3. The examination system is not evaluating properly .students focus on getting marks rather than learning, so examination system should focus on learning rather than trend of getting marks.
4. Teachers identify the problems of students and needs of society therefore maximum contribution of teachers be ensured in the curriculum elaboration process.
5. Most of teachers agree that mostly students face challenging to understand the concepts. Therefore, practical application should be focused.
6. Majority teachers were agreed that number of solved sample should be increased, which create the interest in students.
7. The content helped in understanding the basic concepts of mathematics although their efficiency for developing critical thinking was undefined.

Quality of education vary on the quality of teachers and reflects on the measures both qualitative and quantitative of teacher education such as improvement and management teacher education programs , providing infrastructure pre – service and in – service education of teachers and teacher educators , curriculum gratified and methods.

### **RECOMMENDATION**

In view of the findings of this survey, the following are the major recommendations;

1. Since the existing study was limited to secondary school (Manzoor colony), similar studies could be carried out to inlet the junior & middle schools as well as other sector of education.
2. The academically expert and professionally skilled mathematics teachers may be appointed in the secondary schools.
2. Mathematic teachers‘ pre –service and in- service training must be encouraged and supported.
3. Religious references may be explained in the book where required.
4. Sufficient audio- visual aids may be avoided to teachers in order to improve the efficiency of the process.
5. It is fundamental to regulate science education in association with Pakistan science and research council.
6. There is need to provide student opportunity of listening to skilled teachers from outside and arrange mathematical demonstrations and presentation.
7. Burdened curriculum may be escaped; curriculum may be designated according to the available academic time period.

8. The selection of content for secondary level may be based upon the interest and requirement for development of scientific expertise and attitude of students.
9. The students acquire the opportunities of mathematics hobbies, amusing mathematics, mathematical projects, mathematical games mathematical innovation and mathematical discussion and debates.
11. Government and educational policy makers at the national and state levels must provide all school ascetically equal to enhance teaching learning competence and positive achievement. Acceptable funding to empower the provision infrastructure facilities, enlistment of qualified teachers, conducive school environment, improved conditions of service for teachers and mechanism for periodic supervision and system checks.
12. Climate of school and class may be improved by using the boards and charts.
13. The teacher should be destined to plan his lesson it is further recommended that the reflective and critical thinking approach should be used.
14. Government should accelerate and boost formation of active parent – teacher association by providing technical and financial encouragement for their activities.
15. The parent's should collaborate with the teachers for counseling and direction of students.
16. Internal evaluation system should be introduced.

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