

## **Assessing the Performance of Students in Subject Mathematics at Primary Level in u.c 65 Hunna-Quetta:**

By

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### **Abstract:**

*Mathematics sets the bases for every scientific expedition and research; it is also believed to be a subject that needs major focus because mathematics also plays a key role in everyday activities. In Balochistan where very few individuals get first class master degree in Mathematics hence with few qualified mathematicians this subject need to be focused. At Primary level where basic skills for mathematics are being taught, this study scientifically assessed the basic mathematical skills of students studying in Govt., Schools.*

### **Introduction:**

It is true that mathematics subject is totally different from other general subjects. All over the world subject mathematics perceived as a core in educational systems. It will be better to say that mathematics is a science and used in daily life. Mathematical achievements can be monitored by teachers learning process and by science and education department. The aim of mathematics subject to develop a constructive approach and student must have the ability to construct their own internal structure for solving their problems by own knowledge. Different questions arise that how mathematics is taught in schools at primary level

### **Curriculum Structure of Mathematics at Primary Level:**

Primary curriculum is classified into five categories;

1= Numbers

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2= Algebra

3= Shapes and distance

4=Measurement

5= Data collection

**1=Numbers;** Numbers are the language of mathematics for solving problems, calculations step by step.

**2= Algebra;** Algebra provides a sequence and patterns.

**3= Shapes and distance;** Expression with lines.

**4= measurement;** Units are the parts of measurement such as kg ,m , l, se .

**5= Data collection;** Aggregation of whole statement is called data and applied for formula.

Therefore in 1983 international commission of Excellence was released a report named scholastic amplitude test of the board of college, according to this report the average mathematics scores had below than 40% in this test united states students score were 30% , there are several causes of score such as little attention towards study , shortage of amplitude test , shortage of basic skills , neglecting concept development , high level of mathematics at primary level. (Fey,J & Sonnabend,T 1983)

In 1984 an international mathematics conference was conducted in Romberg stated, the root of problem can be find at primary level, in this conference supervisors of mathematics aggregated on (back to basics) and stressed< applying mathematics in every day situation >.

Teachers national council was called it stated that basic skills must developed in students than computation, indeed the teachers have the ability to maintain the students for success in future mathematics so standard tool was designed. (Copeland, R. 1983)

Different test was conducted at International levels these tests are called (TIMSS).

### **Third International Mathematics and Science to Studies:**

#### **First Test 1988:**

1988; A mathematical tests carried out among five countries named 'United Kingdom, united states of America, Koreans and, Spanish people.

Without gender difference, in this test Spain and Canadian students were good in MEAN, but Ireland students were poor in geometry and measurement. (Beishuizen, J.J, Hof, Van Putten, C, M. Bouweester,S & Asscher,j.j) )

**Second Test 1991:**

20 countries participated and students were 13 years old in this test Ireland students result was 60 to 61% but still below average in geometry, algebra and measurement. Girl students did well instead of boys (Young Loverige j 1999)

**Third Test 1999:**

In this test two age groups students participated (9 years and 13 years old). Students performance were good both boys and girls .9 years old students did very well. (Lyone, U.M. 1990)

**Pisa Test 2000 Program for International Students Assessment Test:**

This test was conducted by OECD the objectives are as fellows;

The objectives of PISA are as fellows,

1 =Teaching methodology

2= contents of curriculum

According to INTO report that primary curriculum in mathematics required some changes which are as follows.

- 1- Issues identifying
- 2- Problems solution
- 3- Supportive program.

**Pisa Test 2003:**

OECD conducted this test but this time the domain of the test was totally changed. These are as fellows.

- 1- Positive response development
- 2- Problem solving capability
- 3- Development of fundamental skill
- 4- Accurately awareness of mathematical language

Thorndike and Hagan are renowned personalities in the field of education according to them improvement comes by practices, trials and error and repetition. (Chestnut Hill, Lynch, k Close, Sheerin, E., Boland, P)

### **Mathematical Test at National Levels:**

In Pakistan, there is no such type of standardized test or tool bar to check the amplitude of students at any levels, only the annual examinations were conducted at the end of year it measured the ability of students. In 2007 Habibullah shah designs a tool such as answer to question, with the help of this we measure the students learning.

Pakistan has four provinces, Balochistan, Punjab, Sind and Khyber Pukhtonkhawa. Quetta is a big city of Balochistan, in educational sector three examinations were conducted after three months interval. These exams have no standard; only teacher's hands made tests are used to measure to student's amplitude. The student's score in mathematics are decline at primary level.

The purpose of study is to development concept in student, motivate them towards subject mathematics and bring concept improvement at primary level. (Muhammad Habibullah 2007)

### **Objectives:**

- To compare the performance of elementary school boys and girls in the subject of mathematics.

### **Rationale:**

Our research is justifiable because there exists no such scrutiny regarding mathematics at elementary level in Pakistan in public sector schools. Most of the time teacher does not know where and why his his/her students are weak at mathematics. Most students at elementary level in Balochistan did not have sound knowledge of basic mathematics even if they have they cannot translate their mathematical skills to real world problems.

### **Research Question:**

Is there statistically significant difference in test scores assessing basic mathematical skills of (Arthematics, Measurements & Geometry) based on gender among boys and girls at primary level studying in Government primary schools of Hanna Quetta?

**H0:** There is no statistically significant difference in test scores assessing basic mathematical skills of (Arthematics, Measurements &

Geometry) based on gender among boys and girls at primary level studying in Government primary schools of Hanna Quetta?

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**Research Methodology:**

It was a cross-sectional study conducted at U.C 65 Hunna Quetta. A sample size is (106) students of 5<sup>th</sup> class in government primary schools including both Girls /Boys through Systematic Sampling method. All these students were subjected towards test prepared from their book which is designed by Balochistan text board for all primary schools across the province.

**Study Design:**

Cross sectional

**Study Setting:**

District Quetta circle Hanna U.C. 65.

**Study Duration:**

4 months

**Data sources:**

Primary Data collection

**Data collection tool:**

A test prepared from the Primary School mathematics text book approved by Balochistan text book board.

**Study Population:** Primary school students

**Target/Theoretical population:**

Students of primary schools studying in Govt Schools of Balochistan

**Sampling Unit:**

All voluntary primary schools students willing to participate in the study

**Sampling frame:**

List of registered children in all the Govt., primary schools of U.C 65 District Quetta.

**Inclusion & Exclusion Criteria:**

All those students studying in 5<sup>th</sup> class in Govt primary Schools studying mathematic book approved by Text Book Board of Balochistan for elementary schools were included in the study while others will not be considered.

**Sample Size:** A sample size of about 106 was generated by Statistical software ofEPi-Info.

**Sampling Technique:**

Step1 List of all the Govt., primary Schools (boys/Girls) were acquired from the Deputy District Education Officers Zargoan town Quetta and it was identified that there exists 20 Govt., Primary schools (Boys + Girls Primary Schools) in UC 65 Hanna and all of them were included in the study.

Step2 A total of 120 students (Boys + Girls) were found to be registered in the 5<sup>th</sup> class in all the 20 Primary Schools of Hanna, out of which there were 50 Girls and 70 boys.

Step3 In order to complete 106 sample size we use formula of proportionate sampling hence 44 girls ( $50/120 \times 106 = 44$ ) out of all the registered Girls (i.e. 50) were included in our research. The 44 girls were selected using Systemic Sampling technique applied to their names in the school Registration Register, and computer generated Nth number student was included into our study. Similarly, 62 boys ( $70/120 \times 106 = 62$ ) were included our research out of all the registered Boys (i.e. 70). The 62 Boys were selected using Systemic Sampling technique applied to their names in the school Registration Register, and computer generated Nth number student was included into our study.

Hence the Sampling technique used was Systemic Sampling.

**Plan of Analysis:**

SPSS version 22 was used for Data analysis; Descriptive statistics (with mean score and SD) are shown in the form of Frequency tables, bar-charts and Pie-charts. "Independent Sample t-tests" is used to compare mean scores of boys and girls in Arthimatics, Measurements & Geometry.

### **Results:**

Out of 120 students 50 were Girls while 70 were Boys, all of these students were found to be from lower socio-economic background. It was found that each section of Mathematics that is being taught at Government at Primary level needs special attention.

### **Descriptive Statistics:**

15 Female students were poor performers securing 0-40% marks while 20 girls performed Average securing 41- 80% marks lastly 9 students were Excellent Performers they secured 81-100% marks in the test in Arthimatics Section of the test about 34% Girls performed poorly in the Arthimatics scoring 0-40% marks, while 46% performed average securing 41-80% marks in the test and similarly 20% girls performed Excellently securing 81-100% score in the test in Arthimatics.

10 Female students were poor performers securing 0-40% marks while 13 girls performed Average securing 41- 80% marks lastly 21 students were Excellent Performers they secured 81-100% marks in the test in Measurement Section of the test about 23% Girls performed poorly in the Measurement scoring 0-40% marks, while 29% performed average securing 41-80% marks in the test and similarly 40% girls performed excellently securing 81-100% score in the test in Measurement.

2 Female students were poor performers securing 0-40% marks while 4 girls performed Average securing 41- 80% marks lastly 38 students were Excellent Performers they secured 81-100% marks in the test in Geometry Section of the test about 2% Boys performed poorly in Geometry scoring 0-40% marks, while 3% performed average securing 41-80% marks in the test and similarly 95% Boys performed excellently securing 81-100% score in the test in Geometry.

5 boys were poor performers securing 0-40% marks while 50 boys performed Average securing 41- 80% marks lastly 7 students were Excellent Performers they secured 81-100% marks in the test in Arthimatics Section of the test about 8% Boys performed poorly in the

Arthimatics scoring 0-40% marks, while 81% performed average securing 41-80% marks in the test and similarly 11% Boys performed excellently securing 81-100% score in the test in Arthimatics.

13 boys were poor performers securing 0-40% marks while 35 boys performed Average securing 41- 80% marks lastly 14 students were Excellent Performers they secured 81-100% marks in the test in Measurement Section of the test about 21% Boys performed poorly in Measurements scoring 0-40% marks, while 29% performed average securing 41-80% marks in the test and similarly 23% Boys performed excellently securing 81-100% score in the test in Measurements.

1boy performed poorly securing 0-40% marks while 2 boys performed Average securing 41- 80% marks lastly 59 students were Excellent Performers they secured 81-100% marks in the test in Geometry Section of the test about 2% Boys performed poorly in Geometry scoring 0-40% marks, while 3% performed average securing 41-80% marks in the test and similarly 95% Boys performed excellently securing 81-100% score in the test in Geometry.

#### **Inferential Statistics:**

<b>SNO</b>	<b>Students</b>	<b>N</b>	<b>M</b>	<b>SD</b>	<b>Skew</b>	<b>Kurtosis</b>
1	Boys	62	50	1.06	0.11	-0.14
2	Girls	44	49	0.95	-0.57	-0.55

The Boys group (N=62) performed in the Arthimatics with  $M=50$  ( $SD=1.06$ ). By contrast Girls group (N=44) got numerically low scores with  $M=49$  ( $SD=0.95$ ). To test the hypothesis that boys and girls would perform statistically significantly different at the Arthimatics scores an independent sample T - Test achieved and mentioned in The table # 2, both boys, girls distribution were appropriately typical for purpose of leading an independent sample T - Test. (examples of Skew  $< |2.0|$  and Kurtosis  $< |9.0|$ , Schmider, Ziegles, Danay, Beyers & Burther. 2010). Similarly, assumption homogeneity on variance was verified and fulfilled through Leven's F test,  $F(34) = .17$ ,  $p = .679$ . Autonomous models T - Test has been linked with statistically important result outcome,  $t(34) = 3.09$ ,  $p = .004$ . Therefore, boys have been linked statistically through higher mean test scores than girls. Cohen's d was estimated at 1.03 which is a large effect based on Cohen's (1992) guidelines.



SNO	Students	N	M	SD	Skew	Kurtosis
1	Boys	62	65	2.03	0.12	-0.12
2	Girls	44	62	0.92	-0.59	-0.40

The Boys group (N=62) performed in the Measurements with  $M=65$  ( $SD=2.03$ ). By contrast Girls group (N=44) got numerically low scores with  $M=62$  ( $SD=0.92$ ). To test the hypothesis that boys and girls would perform statistically significantly different at the Measurement scores an Independent sample T - Test achieved and mentioned in The table # 3, both boys, girls distribution were appropriately typical for purpose of leading an independent sample T - Test. (examples of Skew  $< |2.0|$  and Kurtosis  $< |9.0|$ , Skew  $< |2.0|$  and Kurtosis  $< |9.0|$ ; Schmider, Ziegles, Danay, Beyers & Burther.2010). Similarly, assumption homogeneity on variance was verified and fulfilled through Leven's F test,  $f(42) = .19, p = .452$ . The Independent samples t-test was associated with a statistically significant result effect,  $t(42) = 4.04, p = .001$ . Thus boys group was associated statistically with Higher mean test scores than girls. Cohen's d was estimated at 1.07 which is a large effect based on Cohen's (1992) guidelines.

SNO	Students	N	M	SD	Skew	Kurtosis
1	Boys	62	82	1.05	0.16	-0.18
2	Girls	44	80	0.97	-0.60	-0.56

The Boys group (N=62) performed in the Geometry with  $M=82$  ( $SD=1.05$ ). By contrast Girls group (N=44) got numerically low scores with  $M=80$  ( $SD=0.97$ ). To test the hypothesis that boys and girls would perform statistically significantly different at the Geometry scores an Independent sample T - Test achieved and mentioned in The table # 4, both boys, girls distribution were appropriately typical for purpose of leading an independent sample T - Test. (examples of Skew  $< |2.0|$  and Kurtosis  $< |9.0|$ , Skew  $< |2.0|$  and Kurtosis  $< |9.0|$ ; Schmider, Ziegles, Danay, Beyers & Burther.2010). Similarly, assumption homogeneity on variance was verified and fulfilled through Leven's F test,  $f(53) = .21, p = .543$ . The Independent samples t-test was associated with a statistically significant result effect,  $t(53) = 3.02, p = .003$ . Thus boys group was associated statistically with Higher mean test scores than girls. Cohen's d

was estimated at 1.05 which is a large effect based on Cohen's (1992) guidelines.

### **Conclusion & Recommendations:**

There was significant difference in the scores for Boys and Girls in Arthematics and Measurements while there was no significant difference in the scores for Boys and Girls in Geometry. In conclusion, it is hereby stated that in overall assessment for mathematics the boys performed better than the girl one of the major reason could be lack of interest by the authorities towards female education. Just by changing the curriculum we could not uplift the standard of the mathematical skills in the students studying at Govt., Primary Schools focus must be given to

- Teacher's refresher courses.
- Opinion of teacher must be considered during curriculum development.
- Mathematics should be taught activity based.
- A test system at every level (District, Provincial and National) must be established to assess the abilities of students.
- Mathematics must be practiced on applied bases.
- Maximum time must be given to the subject.
- On hand practice must be given to the students.

Other researches must be conducted in this regard.

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