Research Paper Education

Study of The Impact of Mathematical Interest on Reasoning Ability Among Secondary Class Students

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ABSTRACT

This study was conducted to find out the impact of interest in mathematics on reasoning ability among secondary school students. The sample consisted of 240 school students from Barnala district of Punjab state. Mathematical Interest Inventory and Reasoning Ability Test were used to collect data. The statistical techniques were used the Mean, Standard-Deviation, t-test. The result showed that there exists no significant difference in mathematical interest of Urban and Rural, Boys and Girls students.

KEYWORDS | Interest in Mathematics, Reasoning-Ability and PSEB school students.

INTRODUCTION

Kenneth Ross, "Teachers should recognize the theoretical nature of mathematics which idealizes every situation, as well as the utilitarian interpretation of the abstract concepts. If reasoning ability is not developed in the students, then mathematics simply becomes a matter of following a set of producers and mimicking examples without thought as to why they make sense."Many people think mathematics is a difficult subject to study. Some of them fear it and a number of them hate it. However, there a few who like it and even create fun in it. The good thing is that all of them accept that it is a very useful subject because of its utilitarian nature especially in science and technology. A lot of people talk about mathematics but very few do mathematics. Professor Baniel Seka unfolds techniques in creating interest in mathematics- Mathematics taught in the classroom should set the pace in the right direction if we want to achieve better results in terms of performance and application in related fields. Here, we are concerned with the ways in which our pupils learn the organization of the teaching aids available to teachers. Cohen, Martin Paul (2008) this study tested the existence of a positive relationship between interest and problem-solving ability when problems were set in the area of interest among secondary-school students. Results showed that it was not possible to predict the type (context) of problem on which a student will be most successful based on knowledge of the student's interests alone, nor on knowledge of the student's interests and arithmetical reasoning ability. **Hidi (2011)** Studying entitled "Interest and Its Contribution as a Mental Resource in Learning" stated that our preference in processing certain types of information is determined by our interest most of the time. She continued that our interest can also affect our cognitive functions and learning. She proposed that there is a huge difference in psychological and physiological processes when the information received is interesting or not. She further said that there are unique aspects not present when processing uninteresting information. **Diaynostica (2000)** study on working memory capacity explain reasoning ability and a little bit more and suggest that specific working memory resources as opposed to general capacity are the limiting factors for corresponding counterparts in the structure of mental abilities . **Jonathan (2003)** study on in two minds: dual process account of reasoning and to permits abstract reasoning and hypothetical thinking, but it contained with memories of general intelligence. There thermos essentially posit two minds in one brain with a range of experimental psychological evidence showing that two systems complete for control of our interface and actions.**A. Yenilmz and Sungur. S (2011)** study of revealed statistically significant mean different b\w students at high and low formal levels with respect to achievement, and stepwise multiple regression analysis revealed that reasoning ability, prior knowledge and gender were significant predatory of students achievements in photo synthesized reparation plants explaining 41% of the variance.

JUTIFICATION OF THE STUDY

Now a day's student's interest in mathematics is going down and down. If the students keep interest in mathematics then automating they have high level of reasoning. In the present school system teaching of mathematics has become more and more inadequate. It is a little more them burdening the mind with facts. Teachers are generally factual in approach and mostly depend upon chalk and talk method. Very little effort is made up to develop critical and logical approach among students. Today we feel that teaching mathematics suffers from number of defects. We see that students are not taking interest in this subject, they own at getting through the examination because the methods employed for teaching are traditional, stereotyped and out-dated. We can say that interest in mathematics and reasoning ability related to each other. So, Investigator felt need study the reasoning ability and interest in mathematics.

STATEMENT OF THE PROBLEM

STUDY OF THE IMPACT OF MATHEMATICAL INTEREST ON REASONING ABILITY AMONG SECONDARY CLASS STUDENTS

OBJECTIVES

1. To study the difference between mathematical interest of boys and girls
2. To study the difference between mathematical interest of urban and rural students.
3. To study the difference between in reasoning ability of boys and girls.
4. To study the difference between in reasoning ability of urban and rural students.

HYPOTHESES

- There exists no significant difference in mathematical Interest of Boys and Girls.
- There exists no significant difference in mathematical Interest of Urban and Rural students.
- There exists no significant difference in reasoning ability of Boys and Girls.
- There exists no significant difference in reasoning ability of

Urban and Rural students.

DELIMITATION OF THE STUDY

- The study was limited to only 240 students.
- The study was limited to Urban and Rural.
- The study was limited to Barnala district only.
- The study was limited to the 120 boys and 120 girls only.

METHOD AND SAMPLE OF THE STUDY

The method of the present study was descriptive survey. The sampling of the present study was consisted of 240 high school student of Barnala district out of which 120 was randomly selected from urban and rural, boys and girls from each category of schools

TOOLS USED

Mathematical Interest Inventory by **L.N.Dubey**

Reasoning Ability Test by **Sadhna Bhatnagar (1985)**

STATISTICAL TECHNIQUES TO BE USED

Mean, S.D. $S.E_{D.}$ and 't'- ratio were computed.

HYPOTHESIS 1

There exists no significant difference in mathematical interest of Boys and Girls.

Variable	N	Mean	S.D.	$S.E_{D.}$	't' Value	Level of Significance
Boys	120	32.52	2.80	0.87	0.44	Insignificant
Girls	120	32.88	2.90			

The t-value between the mean score of mathematical interest of Boys and Girls is found to be 0.44. The degree of freedom (df) is 238 at 0.05 levels the table value 1.98 is greater than the calculated value is 0.44. Therefore it is insignificant at this level; at 0.01 level the table value 2.62 is greater than the calculated value 0.44. Therefore, there exists no significant difference in mathematical interest of Boys and Girls." is accepted.

HYPOTHESIS 2

There exists no significant difference in mathematical interest of Urban and Rural students.

Variable	N	Mean	S.D.	$S.E_{D.}$	't' – Value	Level of Significance
Urban Students	120	32.92	2.85	0.13	0.92	Insignificant
Rural Students	120	32.80	2.80			

The t-value between the mean score of mathematical interest of of Urban and Rural students is found to be 0.92. The degree of freedom (df) is 238 at 0.05 levels the table value 1.98 is greater than the calculated value is 0.92. Therefore it is insignificant at this level; at 0.01 levels the table value 2.62 is greater than the calculated value 0.92.Therefore "There exists no significant difference in mathematical interest of Urban and Rural students." is Accepted.

HYPOTHESIS 3

There exists no significant difference in reasoning ability of Boys and Girls.

Variable	N	Mean	S.D.	$S.E_{D.}$	't' Value	Level of Significant
Boys	120	12.58	2.80	0.26	3.85	Significant
Girls	120	12.42	0.04			

The t-value between the mean score of reasoning ability of Boys and Girls is found to be 3.85. The degree of freedom (df) is 238 at 0.05 levels the table value 1.98 is less than the calculated value is 3.85. Therefore it is significant at this level, at 0.01 level the table value 2.62 is less than the calculated value 3.85. Therefore "There exists no significant difference in reasoning ability of Boys and Girls." is Rejected.

HYPOTHESIS 4

There exists no significant difference in reasoning ability of Urban and Rural students.

Variable	N	Mean	S.D.	$S.E_{D.}$	't' Value	Level of Significant
Urban Students	120	21.74	4.07	0.45	9.72	Significant
Rural Students	120	19.27	3.73			

The t-value between the mean score of reasoning ability of Urban and Rural students is found to be 9.72. The degree of freedom (df) is 238 at 0.05 levels the table value 1.98 is less than the calculated value is 9.72. Therefore it is significant at this level, at 0.01 level the table value 2.62 is less than the calculated value 9.72.Therefore "There exists no significant difference in reasoning ability of Urban and Rural students." is Rejected.

MAJOR FINDINGS

1. There was no significance difference in the Mathematical interest of boys and girls.
2. There was no significance difference in Mathematical interest of urban and rural students.
3. There was significance difference in reasoning ability of boys and girls.
4. There was significant difference in reasoning ability of Urban and Rural students.

CONCLUSION

In the light of analysis and interpretation of the data following conclusions were drawn from sample taken in the present study: It is found that there is no significant difference in mathematical interest and reasoning ability of Rural and Urban students. It was also found that there is no significant difference in mathematical interest and reasoning ability of boys and girls.

SUGGESTIONS FOR FURTHER STUDY

- The present study confined only to one subject that is Mathematics. Its scope can be extended to other subjects also.
- Another area, which may be taken up for research may be to construct a standardized inventory to find out the performance of students in Mathematics subjects.
- The investigator restricted the study to 240 students. A large number of samples can be taken.
- The present study is confined to the schools of barnala district only. The area of investigator can be broadened to make the sample more representive. It can be studied at district, state or national level also.
- The present investigation is undertaken on secondary. It can be further extended to the students of other educational levels also.

EDUCATIONAL IMPLICATIONS

In our county, the teachers teach through calk and talk method. If they teach the students by using different methods like Inductive- Deductive, Experimental, Problem-solving, Analytic-Synthetic method etc. then this will be helpful in developing logical, concrete thinking and interest in mathematics among students. If we, Indian want to complete with the rest world, it has to make a great progress in knowledge and its application. So, there is a need to make use of alternative method for making teaching of mathematics more effective. Through the present study has taken subject mathematics into consideration but this can be applied to other subjects also. The study suggests that teachers should be wanted to use more than one method in teaching their subjects in general and mathematics subjects in particulars. The study also makes a point about the text- books. If will be desirable if some teachers are prepared, which may suggest the create interest in mathematics that a particular topic demands. In such an environment, the children will maintain their good and sound health and interest in mathematics of students also increases in such environment. The main role of education is to develop an understanding to manage the interest in mathematics and to develop reasoning ability in difficult situations.

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