

Mathematical Interest of VIII Standard Students: A Comparative Study

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Abstract

The present study was attempted to study the mathematical interest of VIII standard students with respect to their gender and area. A sample of 120 students (consisted of 60 boys and 60 girls studying in VIII class and belonging to rural and urban areas) was drawn from Government Schools of Una district (H. P.) by employing random sampling. Descriptive survey method was used to find out the mathematical interest of VIII class students. For the collection of data Mathematical Interest Inventory by Dubey was used to measure the mathematical interest of VIII standard students. For the analysis of data percentages were calculated to find out the percentage of student having varied mathematical interest and t-test was used to find out the significant difference between two groups. The results of the present study demonstrated that 61% students showed high interest in mathematics, 22% students showed above average interest in mathematics, 9% students showed average interest in mathematics, 7% students showed below average interest in mathematics, and 1% students showed low interest in mathematics. In total, it was found that total sample showed high interest in mathematics. No significant difference was observed between boys and girls on the variable of mathematical interest. Also, it was observed that rural and urban area students did not show any significant difference on mathematical interest. They showed same level of mathematical interest.

Keywords: Mathematics, interest, and mathematical interest.

A sound and productive vocational life demands a sound mathematical background. Mathematics is the mainstay in today's systematic life. Without mathematics one cannot decide many issues in day-to-day life. It is the abstract science which investigates deductively the conclusions implicit in the elementary conceptions of numerical and spatial relations. It is a systematized and organized science, science of logical reasoning, and language of mankind.

Mathematics is the science of measurement, quantity, and magnitude (Mangal, 2013). Mathematics is a science of space,

numbers, magnitude, measurement, and logical reasoning. It involves conversion of abstract concepts into concrete form (Kulshrestha, 2014).

Interest refers to the motivating force that impels us to attend a person, or a thing or an activity or it may be the activity itself. In other words, interest can be the cause of an activity and the result of participation in the activity. Interests are closely related to drives, motives, and emotional responses.

Operationally mathematical interest is defined as the liking of the students to learn mathematics content and participate

in mathematical activities, which is indicated by solving example, studying, and getting involved in mathematics activity as a leisure time pursuit.

Subject-specific interest is an important determinant for successful learning and advanced achievement (Fisher, Dobbs-Oates, Doctoroff and Arnold, 2012; Harackiewicz, Durik, Barron, Linnenbrink-Garcia and Tauer, 2008; Hidi and Renninger, 2006). Students who are interested in their learning activities are likely to report high competence beliefs (Marsh, Trautwein, Ludtke, Koeller and Baumert, 2005; Tracey, 2002), high achievement levels (Koeller, Baumert and Schnabel, 2001) and choose high school courses that are related to their interests (Watt et al., 2012). In some studies, it was observed that female interest in mathematics was markedly lower than male interest (Frenzel, Goetz, Pekrun and Watt, 2010; Nosek, Banaji and Greenwald, 2002). At a young age girls and boys express similar interest in and positive attitudes toward math (Linver, Davis-Kean and Eccles, 2002); however, gender differences in math interest become apparent after elementary school. By eighth grade, boys are more likely than girls to indicate an interest in mathematics (Linver et al., 2002). Eccles, Wigfield, Harold and Blumenfeld (1993) and Wigfield et al. (1997) could not detect any gender differences in generalized mathematics values among primary school children. Heffron, Shoffner and Deacon (n. d.) found no statistically significant differences between genders for the math interest, math outcome expectations, and math self-efficacy measured dimensions. Also, Chavan (n.d.) found no significant gender differences on mathematical interest which indicated that male and female participants showed similar type of interest in mathematics.

Need and Significance of the Study

Mathematics assumes a prominent place in modern education. It uses numbers, signs, shapes and patterns instead of words. It develops scientific attitude among the students. However, the literature reviewed in this study showed that various researchers have come out with varied results, at times supporting each other but sometimes contradicting each other. Thus, it is necessary to assess the interest of students in mathematics. Although, the variable selected in the present study has been studied but not much of the work has been done in this part of country. The present study attempts to fill these research gaps. Hence, research is needed to understand

the interest of students in mathematics.

Objectives

For the present study following objectives were formulated:

1. To find out the percentage of students having different level of mathematical interest.
2. To find out the significant difference between boys and girls on the variable of mathematical interest.
3. To find out the significant difference between rural and urban area students on the variable of mathematical interest.

Hypotheses

On the basis of above stated objectives following hypotheses were framed:

1. There is no significant difference between boys and girls on the variable of mathematical interest.
2. There is no significant difference between rural and urban area students on the variable of mathematical interest.

Delimitations

The study under investigation was delimited to the following:

1. The study was delimited to VIII class students only.
2. The study was delimited to Government Schools of Una district (H. P.) only.

Methodology

Design of the Study

For the present study descriptive survey method was used to examine the mathematical interest of VIII class students.

Sample

For the study, a sample of 120 students (60 boys and 60 girls studying in VIII class and belonging to rural and urban areas) was drawn from Government Schools of Una district (H. P.) by employing random sampling. Students' consent

was informed and their participation was volunteer. There was no clinical history of students.

Tool

For the present study, Mathematical Interest Inventory by Dubey was used to measure the mathematical interest of VIII standard students. This inventory only indicated the extent of preference and dislike to a given group of activities or subjects. There are 40 items in the inventory in which 20 items indicating liking and 20 items indicating disliking for mathematics. There was no right or wrong answers. The reliability co-efficient of the Mathematical Interest Inventory was found to be 0.89 by using rational equivalence method and 0.91 by using split-half method. The questionnaire was quite valid as ensured by its content validity.

Procedure

For the collection of data a prior permission was sought from the school principals. The investigator explained the purpose of present study to adolescents. The subjects were assured that their responses and information given about them will be kept confidential and used for research purpose only. After assurance the Mathematical Interest Inventory was given to students with a time period of 15 minutes.

Statistical Techniques

Percentages were calculated to find out the percentage of students having different level of mathematical interest. t-test was used to find out the significant difference between two groups on the variable of mathematical interest.

Results and Discussion

Interpretation of results has been done hypothesis-wise as given below:

Table 1. Percentage of Students with Different Levels of Mathematical Interest

Level of Mathematical Interest	Class Interval	Frequency	Percentage
Low Mathematical Interest	0-14	1	1%
Below Average Mathematical Interest	15-20	8	7%
Average Mathematical Interest	21-26	11	9%

Above Average Mathematical Interest	27-32	26	22%
High Mathematical Interest	33-40	74	61%

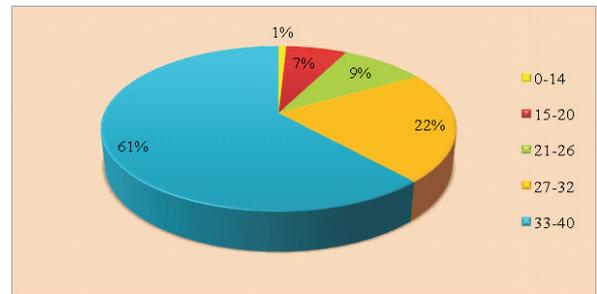


Fig. 1. Pie Diagram Showing Percentage of Students with Different Levels of Mathematical Interest

Table 1 represents the percentage of students with different levels of mathematical interest and it is also represented by pie diagram in figure 1. It was found that 1% showed low interest in mathematics, 7% showed below average interest in mathematics, 9% showed average interest in mathematics, 22% showed above average interest in mathematics, and 61% students showed high interest in mathematics. It also demonstrated that most of the students showed high interest in mathematics.

Table 2. Comparison of Boys (N = 60) and Girls (N = 60) on Mathematical Interest

Variable	Boys		Girls		t-value
	Mean	S. D.	Mean	S. D.	
Mathematical Interest	33.27	6.58	32.20	6.64	0.884

*Significant at 0.05 level (1.98)

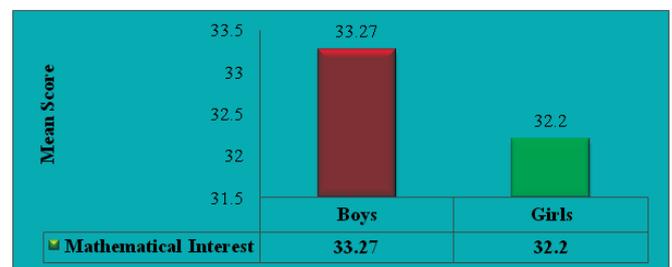


Fig. 2. Bar Diagram Showing Comparison of Boys and Girls on Mathematical Interest

Table 2 represents the gender difference on the variable of mathematical interest. The value of t-ratio was found

to be 0.884, which is not significant at 0.05 level. This demonstrated that boys and girls did not differ significantly on mathematical interest. This indicated that their interest in mathematics was nearly same as shown in figure 2. Thus, the null hypothesis, “There is no significant difference between boys and girls on the variable of mathematical interest” stands accepted.

Table 3: Comparison of Rural (N = 60) and Urban (N = 60) Students on Mathematical Interest

Variable	Rural Students		Urban Students		t-value
	Mean	S. D.	Mean	S. D.	
Mathematical Interest	32.95	6.78	32.52	6.47	0.358

*Significant at 0.05 level (1.98)

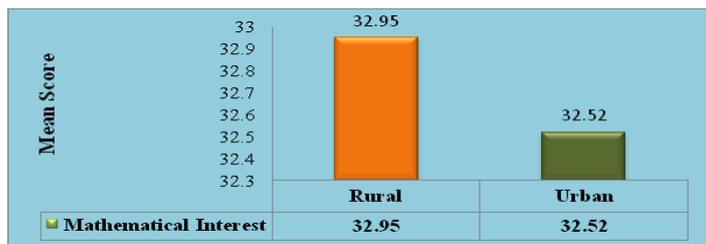


Fig. 2. Bar Diagram Showing Comparison of Rural and Urban Students on Mathematical Interest

Table 3 represents the comparison of rural and urban students on mathematical interest. The t-ratio was found to be 0.358 which is not significant at 0.05 level of confidence. This demonstrated that rural and urban students did not show any significant difference on mathematical interest. They showed approximately same interest in mathematics as shown in figure 3. Thus, the null hypothesis, “There is no significant difference between rural and urban area students on the variable of mathematical interest” stands accepted.

Results of the present study demonstrated that boys and girls did not differ significantly on mathematical interest. Studies by Eccles et al. (1993) and Wigfield et al. (1997) could not detect any gender differences in generalized mathematics values among primary school children. Heffron et al. (n. d.) found no statistically significant differences between boys and girls for the math interest, math outcome expectations and math self-efficacy measured dimensions. Also, Chavan (n.d.) found no

significant gender difference on the variable of mathematical interest which indicated that male and female participants showed similar type of interest in mathematics. All these researches are in accordance with the results of the present study and supported the findings of the study. However, the difference between boys and girls on mathematical interest was not significant but girls were somewhat less interested in mathematics as shown by mean score. Some studies highlighted the same result i.e. girls indicating somewhat less interest in mathematics as compared to boys (Watt, 2006; Fredricks and Eccles, 2002; Jacobs, Lanza, Osgood, Eccles and Wigfield, 2002; Gottfried, Fleming and Gottfried, 2001). There may be some factors that can affect the interest of boys and girls in mathematics like family environment, peer group influence, career aspirations, level of student, teaching methods, teaching strategies, capacity, capability to understand the concept of mathematics etc. All these factors contribute in the development of mathematical interest or disinterest among students.

Main Findings of The Study

- ❑ The results of the present study revealed that most of the students showed high interest in mathematics.
- ❑ No significant gender difference was observed on the variable of mathematical interest.
- ❑ No significant difference was observed between rural and urban area students on the variable of mathematical interest. This demonstrated that they were equally interested in mathematics.

Conclusion

Mathematics is the main subject of school curriculum. It develops many skills among children. Results of the present study demonstrated that mathematical interest among children was high. They were very much interested in mathematics. Also, no significant difference was observed between boys and girls, and between rural and urban area students on the variable of mathematical interest. The findings of the present study suggested that teachers and parents should take care of interest of students in mathematics for their better achievement. Students should provide equal and more facilities to increase their mathematical interest.

Educational Implications

Following are some implications of the present study:

- ❑ Government school teachers may be given more incentives to strengthen their interest to teach mathematics.
- ❑ Teachers can stimulate the interest of students in mathematics by teaching with models, charts, online tutorials and multimedia packages.
- ❑ Students may be given more opportunities to take part in general mathematics examinations.
- ❑ Rural and urban students may be provided equal facilities for studies.

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