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A comparative survey on achievement in mathematics between rural and urban students at Secondary School Level

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ABSTRACT

Mathematics is a subject whose basic knowledge is quite essential for each and every individuals of the world. In the present era of computers, memorization of facts and principles is not sufficient. Teaching and learning of mathematics plays a difficult role in the present century of automation and cybernetics marked the beginning of new scientific and industrial revolution. The aim of the study is to find out the significant differences, if any, in the achievement of secondary school students due to variations in their socio-economic status. For this Descriptive Survey method is used. Samples are taken from rural and urban schools of West Bengal.

Key Words : Achievement, Rural, Urban, Secondary school

INTRODUCTION

Mathematics is a subject whose basic knowledge is quite essential for each and every individuals of the world. So providing mathematical knowledge to the people is very much needed. A primary goal of mathematics teaching and learning is to develop the ability to solve wide variety of complex mathematical problems. In the present era of computers, memorization of facts and principles is not sufficient. Teaching and learning of mathematics plays a difficult role in the present century of automation and cybernetics marked the beginning of new scientific and industrial revolution. National policy of education (1986) has envisaged that "Mathematics should be visualized as the vehicle of communication to train a child to think, to reason, to articulate and to analyze logically. It should be treated as a concomitant to any subject involving analysis and synthesis."

It has already been observed that students' scores less in Mathematics and less are selected for science stream than that of humanities. The reason could be improper study habits and negative attitude towards Mathematics. To know the achievement in Mathematics, the researcher had identified the problem to know the difference between the performances of both rural and urban students in Mathematics at secondary level.

Objectives of the study :

The study has been designed with the following objectives:

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– To study and compare the social and economic condition, family background and qualification of parents of the rural and urban students of secondary level.

– To find out the significant differences, if any, in the achievement of secondary school students due to variations in their socio-economic status.

Hypotheses of the study :

Hypothesis 1: There is no significant difference in the family income of the students of rural and urban schools.

Hypothesis 2: There exists no significant difference in achievement in Mathematics of students' of rural and urban schools.

METHODOLOGY

Sample:

The sample for the present study comprised of 100 students selected from two different secondary schools of West Bengal. The investigator has selected 100 students of class-X from rural and urban High School for this purpose.

Procedure:

The methodology adopted for identifying the socio- economic status of the secondary school students in this study is survey method. The investigator has used achievement test as a tool to get the scores of achievement of the students in Mathematics. The scores of students in Mathematics were used to assess achievement.

Method of data collection :

In order to find out the socio economic status, family income, professions and educational background of family of the students, the investigator has applied survey method. The students were approached individually and were given the response sheet. The response sheets were then collected. After collecting the required data from the students, scoring was done. The total scores were calculated by summing up the scores of each item. Then the data was analyzed in the light of framed objectives.

In order to find out scores of achievement of the students in Mathematics, the investigator has used a questionnaire of achievement test on Mathematics.

Data analysis and interpretation:

The analysis and interpretation of the data was done by using descriptive statistics. The normality of data was assessed by calculating the value of Mean, Median, Mode and S.D. Null hypothesis is tested with the help of t-test.

RESULTS AND DISCUSSION

The result presented in Table 1 show the family income level of the students of two schools. It can be observed that out of 100 students of rural school, 24% of them have a very low family income whereas only 10% students of urban school have the same. On the other hand, 20% students of school-A and 36% students of school-B have a high family income. However, 36% students of school-A and 40% students of school-B have a moderate family income. Therefore, it

can be concluded that the maximum number of students (24%+16%) 40% of school-A belongs to a poor family income whereas only 24% (10% +14%) students of school-B belongs to the same.

Table 1 : Family income level of students

School	Very Low (below Rs.5000)		Low (Rs. 6000-10000)		Moderate (Rs.11000-15000)		High (Rs.16000-20000)	
	No.	%	No.	%	No.	%	No.	%
Rural (A)	12	24	10	20	18	36	10	20
Urban (B)	5	10	7	14	20	40	18	36

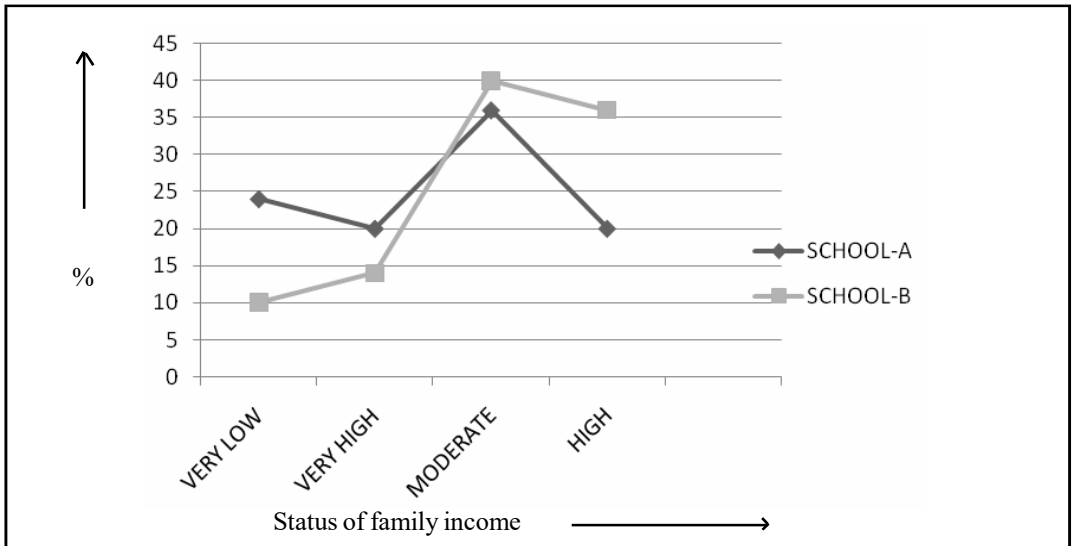

Fig. 1 : Graphical representation of family income of students of two schools

As seen from the Table 2, the mean scores of family income of the students of school-A and school-B were found to be 10480 and 13050 respectively. The standard deviations were found to be 5314 and 4742 respectively. So it is clear from the table that the school-B is in the better position than that of school-A. To know the significance difference in the family income (if any), the researcher paid his attention to the t-test with null hypothesis.

Table 2 : Mean, Median, Mode and S.D. of family income of students of rural and urban schools

School	Mean	Median	Mode	S.D
Rural	10480	11333	13039	5314
Urban	13050	13750	15150	4742

Hypothesis 1:

Here calculated t-value is 2.55 which is greater than the table value at 0.01 level of significance and null hypothesis 1 is rejected at that level. So there is significant difference in the family income of the students of urban and rural schools.

As seen from Table 3 only 12% of the students of school-A were found to be a high family qualification where as the guardians of the students of school-B were found to be 24% for the

same. On the other hand 20% guardians of students of school-A and 4% guardians of school-B were illiterate. The qualification of guardians showed that there were 40% guardians of school-A with very low (below M.P) qualifications [24%+16%], but the guardians of the students of school-B who have the same is 38% [16%+22%]. However, 28% guardians of the students of school-A and 34% guardians of the students of school-B have a moderate qualification. Therefore it can be concluded that the family background of the students of school-A is below the average students of the school-B in this case.

Table 3 : Qualification of guardians of students

School	Illiterate		Very low (upto class v)		Low (below M.P.)		Moderate (above M.P below graduate)		High (graduation and above)	
	No.	%	No.	%	No.	%	No.	%	No.	%
Rural	10	20	12	24	8	16	14	28	6	12
Urban	2	4	8	16	11	22	17	34	12	24

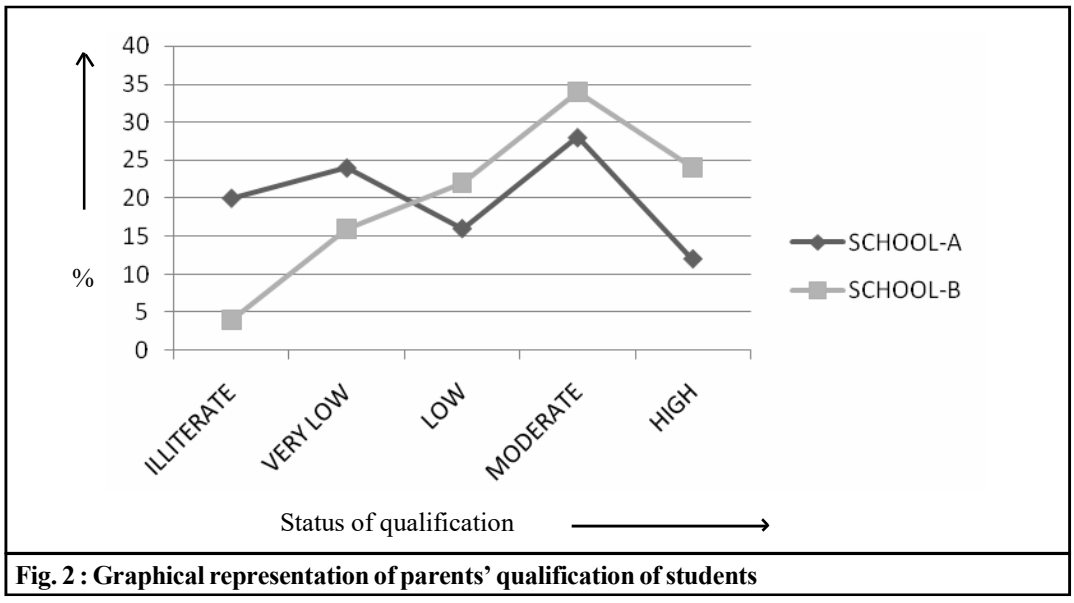

Fig. 2 : Graphical representation of parents' qualification of students

The result presented in Table 4 show the professions of guardians of students of two schools. It can be observed that out of 50 students of school-A, 20% guardians of students are serviceman whereas 36% guardians of school-B belongs to the same. On the other hand, 30% guardians of students of both school A and B belongs to the business. The professions of guardians of students of school-A were found to be 34% who belongs to cultivation section. Surprisingly, none of the guardians of students of school-B fell under the level of cultivation. However, 16% of guardians of

Table 4 : Professions of guardians of students

School	Service		Business		Cultivation		Others	
	No.	%	No.	%	No.	%	No.	%
Rural(A)	10	20	15	30	17	34	8	16
Urban(B)	18	36	15	30	0	0	17	34

students of school-A and 34% of guardians of school-B fell under the level of 'others'. Therefore, it can be concluded that the total strength of service level of school-A is lower than that of school-B. But the total strength of business level of school-A is equal that of school-B.

Table 5 : Mean, Median, Mode and S.D of scores in Achievement in Mathematics of school-A

School	Mean	Median	Mode	S.D.
Rural	23.8	22.625	20.275	14.0627

Here Mean > Median > Mode

So, the distribution has positive skewness. Therefore we can say that most of the scores tend to lower limit of the measurement scale.

Table 6 : Mean, Median, Mode and S.D of scores in Achievement in Mathematics of school-B

School	Mean	Median	Mode	S.D.
Urban	26.1	26.375	26.925	13.55

Here it is found that, Mean < Median < Mode

So, the distribution has negative skewness. Therefore we can say that most of the scores tend to upper limit of the measurement scale.

Null hypothesis is tested and it is found that there exists significant difference in achievement in mathematics of students' of rural and urban schools.

Hypothesis 2:

Here calculated t-value is 2.76 which is greater than the table value at 0.01 level of significance and null hypothesis 2 is rejected at that level. There exists significant difference in achievement in Mathematics of students' of rural and urban schools.

The study found that the maximum numbers of students of rural school belong to a poor family (44%) where as 24% students of urban school belong to the same. So, there is a basic difference in the family income of rural and urban students of schools at secondary level.

Therefore, it can be concluded that, the achievement of students in Mathematics were significantly influenced by the family income of the students. Also the type of qualification of guardians of students has significantly influenced the achievement of students in Mathematics. The profession of guardians of students of rural and urban schools could be one of the factors of low achievement in Mathematics.

The study also found that the means of scores of students of rural school and urban school in achievement in Mathematics are 23.8 and 26.1 respectively. So the rural school's (school-A) students have a slightly worse achievement in Mathematics than the urban school. On the other hand, the distribution of scores of students of achievement in Mathematics has positive skewness for rural school and negative skewness for urban school. Finally, it can be summed up that, the socio-economic status of students has significantly influenced the achievement of students in Mathematics.

Conclusion :

With regards to the achievement of students in Mathematics locality wise, the study revealed the following: In all cases of achievement in Mathematics the performances of the rural area students was comparatively worse than the urban students. The social and economic condition of the rural student has significantly influenced their achievement. So their social and economical

problems should be erased. The Govt. should take necessary steps to develop them properly. Most of the parents and family members of the rural students were uneducated, poor, labour and workers, as they were from uneducated family of low socio-economic status; they lack back the knowledge of importance of education for future life. So the teachers should be aware of their problems and motivated them either in the classroom or outside the classroom to improve further the standards of rural students. The urban students were comparatively better achiever in mathematics than the rural students but to get better result the teachers should be trained properly.

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