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IMPACT OF SOCIO-ECONOMIC PARAMETERS IN MATHEMATICAL ACHIEVEMENT AT SECONDARY STAGE OF EDUCATION ON GUMA HABRA II BLOCK

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Abstract

Mathematics plays a vital role at secondary stage of education among the boys and girls respectively. Socio-economic and socio-cultural factors also influence mathematical achievement as well as educational upliftment for the pupil at large.

Curriculum development always emphasized on mathematics as a compulsory subject. The subject mathematics enhance cognitive development of the brain, develop reasoning ability, explore problem solving aptitude along with behavioral characteristic excellence.

21st century is a beginning of drastic challenges in the context of education, philosophy, sociology, history, education, anthropogenies, languages. While mathematics is a compulsory subject in the curriculum decorum.

Hence the present study was based on impact of socio-economic parameters like reasoning ability, problem solving ability and mathematical ability among the 400 students of Guma Habra Block II of North 24 Parganas District of West Bengal. The study has direct impact on the mathematical achievement influenced by the socio-economic parameters.

It has also observed that girls are good in mathematical achievement than the boys irrespective of parameters. Socio-economic condition does not affect in mathematical achievement among them especially in the girls' students and boys also depicts medium scoring value in their mathematical achievement.

Keywords: Achievement, Education, Economy, Mathematics, Social.

INTRODUCTION

Education and Mathematics are the both sides of a same coin. One is interrelated with other. The socio-cultural and socio-economic duo always intermingle with each other. One has no value with other. The common and specific root of the both social aspects, especially economic connotations are based on mathematics as subdue fact.

Mathematics is treated as an essential learning path throughout the Globe. It is a core subject in teaching –learning process. There is no such obliteration from curriculum system without Mathematics.

Mathematics is a compulsory tool for the study orientation in the curriculum development process and its impact is emphasized in the secondary stage of education specifically in the parameters of academic achievement in Mathematics.

Review of Literature

There were several researches who explored in the Mathematical achievement as a specific ground of socio-economic aspects in the curriculum process.

Lidong Wang & et. Al pointed out in the article on the topic of “Socio-economic status and Mathematics achievement in China”, published in ZDM Mathematics Education, Springer, that individuals along with society at a glance for its practical and utilitarian purpose. It was noted in ancient and current time space which enhances Mathematics the subject is an essential tool and most important subjects should by families and schools.

Socioeconomic Influence on Mathematical Achievement: What Is Visible and What Is Neglected authored by Paola valero, Mello ney Graven and et.al presented their paper in the 12th International Conference on Mathematical Education on 11th February 2015 published in Springer where they established and offer a synoptic overview of the main points that the team finds relevant to address concerning what is known and what is neglected



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Achievements in mathematics by socioeconomic status and home educational resources was emphasized by Robyn Caygill and Sarah Kirkham, was published in TIMSS, December 2008. They were denoted that the home education and its resources which can be used as a proxy measure for socioeconomic enhancement of the student's.

Suparna Sanyal Mukherjee established the symbiotic relationship between theory and practice and its intermingling activity looming in the context of education in Impact of socioeconomic lineament among the rural pupil in secondary stage of education from Howrah District of West Bengal in the International Journal of Research in Social Sciences, Vol7, issue 3, March2017.

Hence, to determine the impact of socioeconomic parameters in Mathematical achievement in secondary stage of education, the present sequel was conducted at Guma, Habra Block II of North 24 Pargana District of West Bengal. The study was relied upon reasoning ability, problem solving ability and mathematical ability of Boys and Girls at secondary stage of education is concerned.

Mathematics and Secondary Stage of Education

It has been observed that the children at secondary stage of education are not yet been interested in mathematics as such. Due to several problems, they have faced since admission. The reasoning ability, problem solving ability always influences mathematical achievement in the curriculum development. In the process of mathematics achievement, the learners' aptitudes always play a vital role in the curriculum orientation. The socio-cultural, socioeconomic factors embedded the actualities of mathematics. The present study has emphasized among the children of Guma of Habra BLOCK II of South 24 Parganas District of West Bengal.

The secondary stage of education enunciated a nuclear formation with proton neutron like reasoning ability, problem solving attitude to reach its goals like mathematical achievement.

Mathematics As a Subject of Curriculum

Mathematics are an essential learning path for curriculum development, exploration through behavioural uplifting, creativity, cognitive development, reasoning ability enhancements, scoring in mathematics ensure impact in achievement of mathematics amongst the students in secondary stage of education.

2 1st century is a beginning of drastic challenges in the context of education, philosophy, sociology, history, anthropogenies, languages. While mathematics is a compulsory subject in curriculum aspects. It can consider as a nucleus of the all subjects are concerned. Hence, secondary stage of education can be enhanced with mathematics for future orientation of the pupils for better establishment in the society.

Socio-economic Factors Influence on Mathematical Achievement

It is known that socioeconomic factors have an influence on mathematical achievement. At this present juncture such link has become a "fact" that researchers, teachers, administrators and politicians have at hand: "the better off you—and your family—are, the more likely you will do well in school, including mathematics". Such a statement embodies its opposite: "the worse off you—and your family—are, the more likely you will do poorly in school and mathematics". Studies defining socio-economic status (SES) and showing its relation to school performance emerged at the beginning of the 20th century. The specification of the relationship for school mathematics was enunciated as a problem for society and for research in the 1960s. However, it is only in the 1980s that such issue started to be a focus of attention of the mathematics education community. What is known so far—which may be part of a common-sense understanding of the topic—and what seems to be forgotten—which are critical readings challenging the common-sense—were the central questions that have guided the work at large.



Results & Discussion

Table 1.FREQUENCY DISTRIBUTION AMONG THE BOYS & GIRLS OF THE STUDIED SCHOOL FOR GUMA HABRA BLOCK II

Parameter	Categories of boys' achievement								Categories of girls' achievement							
	A		B		C		D		A		B		C		D	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
Reasoning ability	21	10.5	48	24	61	30.5	70	35	21	10.5	47	23.5	55	27.5	77	38.5
Problem solving ability	18	9	55	27.5	63	31.5	64	32	22	11	48	24	55	27.5	75	37.5
Mathematical ability	21	10.5	61	30.5	60	30	68	34	23	11.5	51	25.5	48	24	78	39

BELOW A MEANS 80%-100% MARKS, B MEANS 60% -79%, C MEANS 40% -59%, D MEANS 40%

The table 1 exhibits highest scoring value in the category of D both the categories among all the parameters, varies from 32% to 39%, i.e below 40%. 32% is identified problem solving ability of the boys and 39% girls have the ability of mathematical achievement, other parameters are maintaining equilibrium.

The lowest scoring value observes in the category of A, is showing 9% to 11.5% which propagates 80% to 100% marks categories. 9% problem solving ability follows in the boy's category and 11.5% mathematical ability exhibits in the girls.

The medium scoring follows in the categories of B and C, the marks vary from 60% to 79% and 40% to 59% respectively. The all parameters of these categories are maintaining equilibrium in the respective fields.

Thereby, table 1 categorically depicts the exact situation of the Habra Block II. The reasoning ability, problem solving ability and mathematical ability among the boys and girls needs acceleration to reach its goal.

Table 2:SOCIO- ECONOMIC STATUS OF THE STUDIED STUDENTS AT GUMA HABRA BLOCK II

FOR BOYS STUDENTS						FOR GIRLS STUDENTS					
Higher income group		Middle income group		Lower income group		Higher income group		Middle income group		Lower income group	
Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
11	5.5	79	39.5	110	55	10	5	72	36	118	59

Table 2 shows socio-economic status of the studied students at Guma Habra Block II. Students are in lower income group exhibits high ratio 55% in boys and 59% in girls. Low ratio is observing in the higher income group 5.5% and 5% among the boys and girls respectively. Middle income group depicts 39.5% and 36% in both the cases boys and girls.

The table denotes on the basis of 200 boys and 200 girls studied students. It has been observed that 5.25% students are belonging in higher income group in total 400 students. 37.75% students are in middle income group and 57% students occupy the space in lower income group.

Hence students are representing high ratio in socio-economic status at Guma, Habra II Block i.e., lower income group while higher income group shows its lower ratio and middle-income group maintaining equilibrium in the socio-economic portfolio.



The table proves that the socio-economic parameters have direct impact in the academic achievement of the studied students especially in mathematical achievement. It has also been observed that the girls' students are quite faster in their mathematical achievement, though the lower income group catches the eye shot relating to socio-economic status impact.

Table 3SOCIO-ECONOMIC CONDITION AND ACADEMIC ACHIEVEMENTS OF THE STUDENTS GUMA HABRA II BLOCK

Category	Boys									Girls														
	Higher income group				Middle income group				Lower Income group				Higher Income group				Middle Income group				Lower Income group			
Economic group	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Academic score																								
Reasoning Ability	4	3	3	1	15	27	31	6	2	18	27	63	3	3	2	2	14	16	35	7	4	28	18	8
Problem solving ability	3	3	4	1	13	32	29	5	2	20	30	58	2	4	3	1	15	15	36	6	5	29	16	68
Mathematical ability	3	4	3	1	17	31	24	7	1	26	33	50	2	3	4	1	17	13	34	8	4	35	10	69

Table 3 points out academic score with the socio-economic status. The academic score mentioned here in the formation of A B C D. It is an eye-opening situation has been observed that the scoring points A of higher income group is high in the boys than the girls in every parameter. Middle income group is showing same ratio in mathematical achievement in both the students' categories. While lower income group points out high ratio in the category of D, which denotes below 40% scoring value. Category B and C maintaining equilibrium in all the categories of the student's achievement and scoring value is also as same as among the boys and girls.

Thereby, it has been observed that socio-economic condition and academic achievement is directly related with each other. One can't be obliterated from the other. Students' academic achievement especially mathematical ability directly related with the students' socio-economic conditions.

Table-4 Pie Diagram of Socio-economic Identification

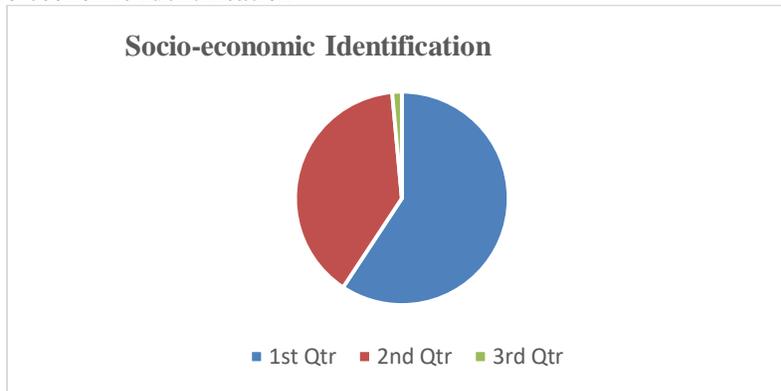
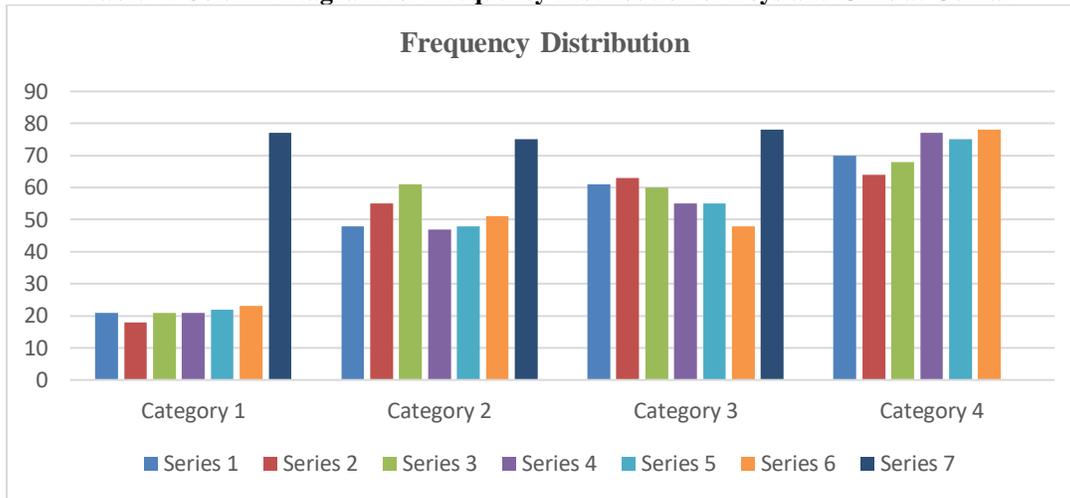


Table 4 the pie diagram exhibits the socio-economic conditions at a glance. Istqtr points out 59% of the scale point the high ratio of lower income group. The 2ndqtr exhibits 39% of the total ratio i.e., middle income group and only 1% shows the istqtr means high income group.

Hence most of the students are from lower income group and their academic achievement also effect by their economic condition, they are below average level in academic achievement. Middle income group scores 39% in the pie, they are in average level and only 1% students are from higher income group and they score high in their achievement.



Table -5 Column Diagram for Frequency Distribution of Boys and Girls at Guma.



The column diagram shows in 4 categories ABCD the scoring forms. Series 1 -7 points out the high to low ration of the studied students. Series 7 is showing high frequency in all categories including boys and girls, in academic achievement they score below average means below 40%. Series 1-6 denotes fluctuation in frequency distribution in the different categories. Score point also points out high to medium and average level of academic achievement. Hence column represents its applicable feature in frequency distribution level of academic achievement of the studied students of Guma Habra Block II.

Conclusion

Traversing from the above narrations the study has emphasized on the students’ academic achievement mainly the mathematical achievement influenced by the socio-economic parameters and socio-economic parameters have direct impact in mathematical achievement vice versa at Guma Habra Block II students in secondary stage of education.

The study was based on 400 students of which 200 boys and 200 girls at secondary stage of education. Socio-economic condition influenced by the student’s academic achievement. The all parameters like reasoning ability, problem solving ability including mathematical ability is characterized by the economic conditions.

The students who are belonging to the higher economic group scored high ratio in academic achievement while lower economic pupil may differ from countability but they score below average which is below 40% of scoring strategy. Middle economic students score medium and average level of academic achievement which counts 41-59 & 60 – 79 percent of marks in all parameters.It has also found out that girls are good in mathematical achievement than the boys irrespective of parameters. Socio-economic condition does not affect in mathematical achievement among them especially in the girls’ students and boys also depicts medium scoring value.

Thereby, mathematics is an effective and essential learning tools for curriculum development amongst the students in secondary stage of education. Exploration through behavioural uplifting, creativity, cognitive development, reasoning ability enhancements, problem solving skills and scoring in mathematics ensure educational achievement. While impact of socio-economic conditions and different parameters orientation enhance mathematical achievement to propagate future aspirations.

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