Teaching-Learning problems of Geometry in Mathematics at the Secondary Level

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I. INTRODUCTION

Geometry is a very important in school curriculum and real life. It is originated from curiosity of man geometry is essential for the existence and progress of modern world for life servibal. Geometry has originated from graph and different material so without Geometry other branches of Mathematics are not developed. Therefore before imparting and transmitting geometrical knowledge, it is not cleared Mathematical other branches. So it is must necessary to understand. Generally, there are many figures give us abstract concept about things and materials in surrounding. In fact, the meaning the words collect from Geometry. On the basis of these assumptions of Geometry, we can say that Geometry is the science of figure, graph, original shape of materials etc, with which we can know about magnitude, direction and space. There are show many causes of learning problems in Geometry. Stat able causes are mentioned here. Irregular attendance in school causes learning problems in Geometry. The learners cannot acquire the concepts of Geometry if previous ideas are not related with later ideas. Learners acquire Geometrical concepts apply but they do not memorize abstract concept. Many times the student became satisfied achieving average performance about Geometry due to negligence. Hence interest on problems of Geometry decrease. The Practical and stable value of teaching of Geometry are not reflected in method and subject. The teacher presented only theoretical aspects to the front of student before the learners. The Geometry became absurd and defines to the learners. They make lesson plan on account of mean learners to solve the problems.

II. STATEMENT OF THE PROBLEMS

Research title of the study stated that Teaching-Learning problems of Geometry in Mathematics at the Secondary Level

III. OBJECTIVES OF THE STUDY

The objective of the study is –

To find out the Geometry problems of secondary school students in relation to their gender and management variation of the school in cognitive abilities wise.

IV. HYPOTHESIS

H_{01}: There does not exist any significant mean differences of Geometry problems of secondary school students in relation to their gender Variations in cognitive abilities wise.

H_{02}: There does not exist any significant mean differences of Geometry problems of secondary school students in relation to their management Variations in cognitive abilities wise.

V. RESEARCH METHOD

For the fulfillment of the objectives of present study the descriptive survey method was applied by the researcher.

Sample

Stratified random sampling is selected. Four schools, two is Govt. School and two is self financed (Private) school under W.B.B.S.E. in Kaliachack Block - 3 at Malda Distict.

Total sample - 212

gender	No. of student in Private school	No. of student in Govt. school	Total
boys	69	63	132
Girls	43	37	80
Total	112	100	212

Tools Used

Self made achievement test in Geometry.

Self standardized achievement test on Geometry by Md Habibur Rahaman, and others.

Cognitive Abilities: verbal, quantitative and visual-spatial abilities.

Statistics Used

The researcher had used mean, SD and t- test for analyzing the data and graphical presentation.

VI. ANALYSIS OF DATA AND INTERPRETATION

Table 1:
Frequency distribution of the scores in achievement test on Geometry in Verbal, Quantitative and Visual- spatial Abilities obtained by Boy's and girl's.

Score	Cognitive Abilities					
	Verbal		Quantitative		visual-spatial abilities	
	Boy's	Girl's	Boy's	Girl's	Boy's	Girl's
0	1	0	0	0	5	4
1	4	1	0	0	17	18
2	6	2	1	3	25	26
3	13	8	5	6	29	15
4	19	13	8	9	25	7
5	25	24	13	19	16	5
6	21	14	18	21	6	3
7	20	8	30	15	4	1
8	17	7	34	5	4	1
9	6	2	15	2	1	0
10	0	1	8	0	0	0

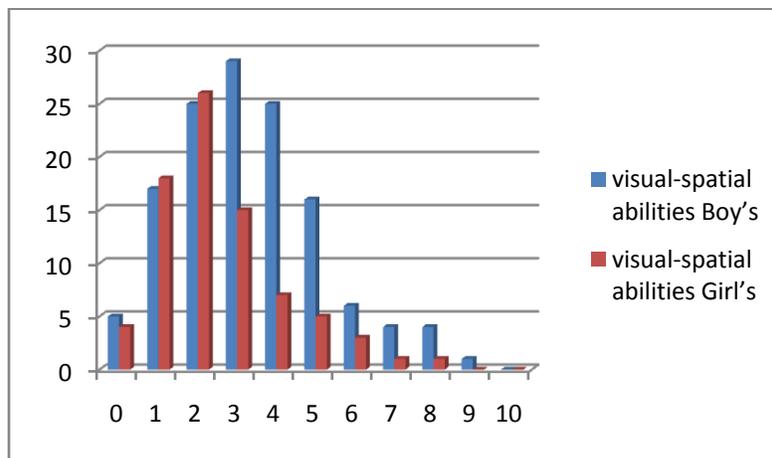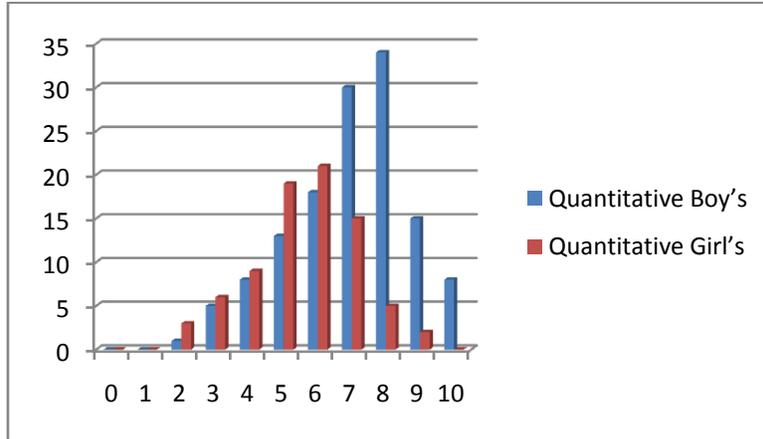*Bar graphs for each ability*
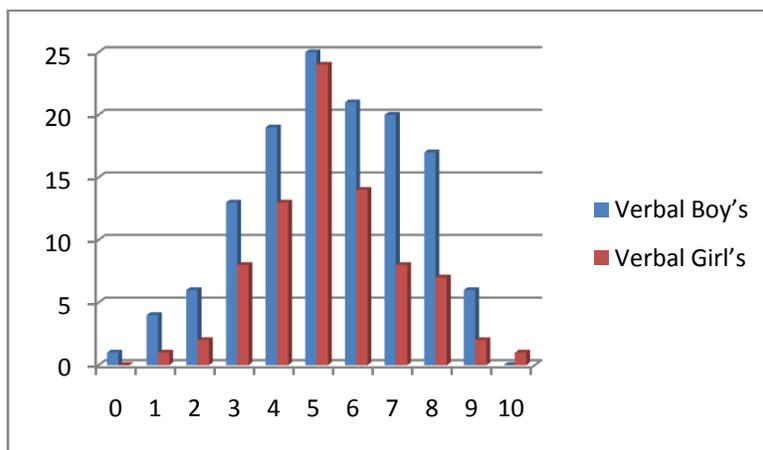
Table 2:
The test significance of difference between the means in learning problems on Geometry in Verbal, Quantitative and Visual Spatial Abilities of secondary school students due to gender Variations.

Variations	Cognitive Abilities	Sub-sample	N	Mean	S.D.	Mean differences	S_{ED}	t- test	Remarks
Gender	Verbal	Boys	132	5.39	2.04	0.08	0.197	0.406	Significant both at 0.05 level and 0.01 level
		Girls	80	5.31	1.72				
	Quantitative	Boys	132	6.96	1.73	1.41	2.33	0.605	Significant both at 0.05 level and 0.01 level
		Girls	80	5.55	1.557				
	Visual Spatial	Boys	132	3.326	0.69	0.82	0.19	4.316	Not Significant both at 0.05 level and 0.01 level
		Girls	80	2.513	1.62				

$H_{01.1}$ is accepted.

There does not exist any significant mean differences of Geometrical Problems of verbal abilities of the secondary school students due to their gender Variations.

$H_{01.2}$ is accepted.

There does not exist any mean difference of Geometrical problems of Quantitative abilities of the secondary school students due to their gender Variations.

$H_{01.3}$ is rejected.

There does exist any significant mean differences of Geometrical problems of Visual-Spatial abilities of the secondary school students due to their gender Variations.

Table 3:
Frequency distribution of the scores in achievement test on Geometry in Verbal, Quantitative and Visual- spatial Abilities obtained by Govt. and Private school.

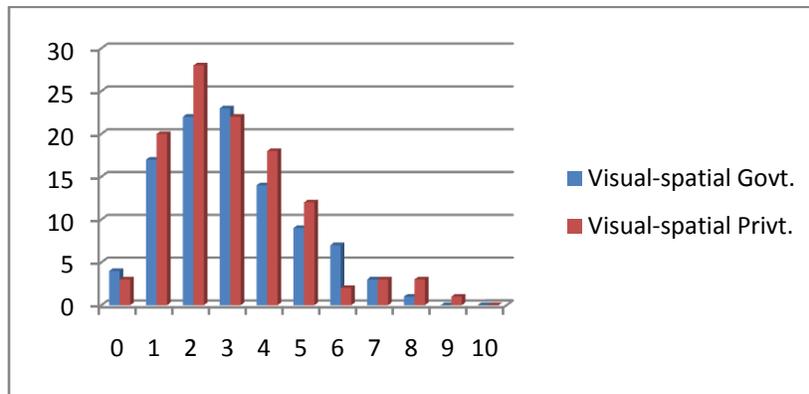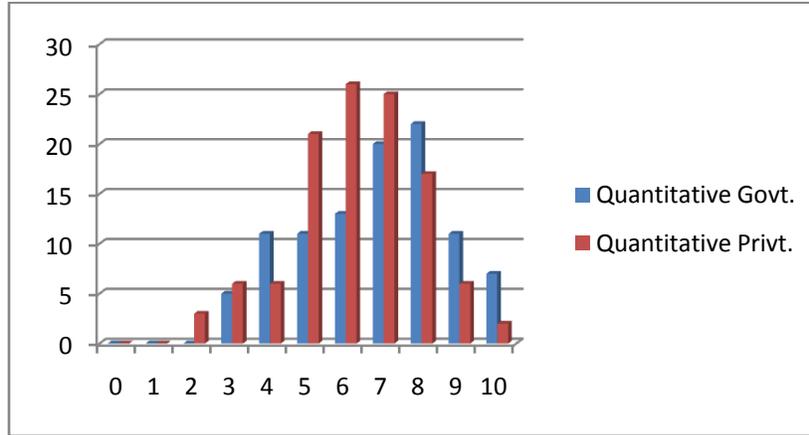| Score	Cognitive Abilities					
	Verbal		Quantitative		Visual-spatial	
	Govt.	Private	Govt.	Private	Govt.	Private
0	1	0	0	0	4	3
1	5	2	0	0	17	20
2	4	4	0	3	22	28
3	10	11	5	6	23	22
4	19	14	11	6	14	18
5	25	24	11	21	9	12
6	14	20	13	26	7	2
7	10	17	20	25	3	3
8	8	15	22	17	1	3
9	3	5	11	6	0	1
10	1	0	7	2	0	0

Bar graphs for each ability
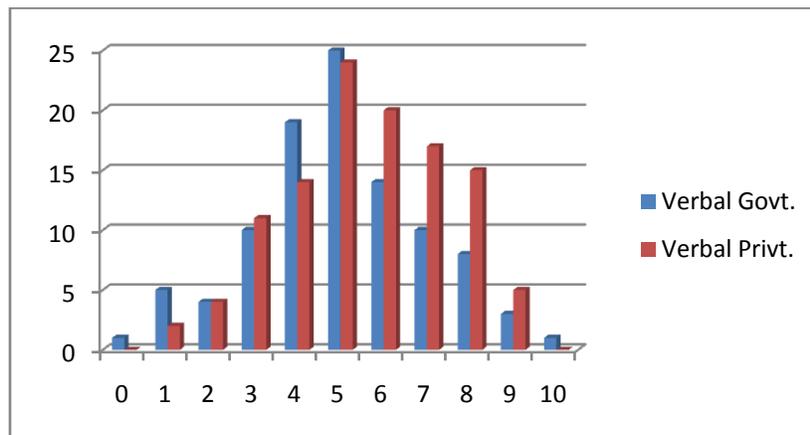
Table 4:
The test significance of difference between the means in learning problems on Geometry in Verbal, Quantitative and Visual- spatial abilities of secondary school students due to school management Variations.

Variations	Component	Sub-sample	N	Mean	S.D.	Mean differences	S_{ED}	t- test	Remarks
School management	Verbal	Govt.	100	4.99	1.997	0.57	0.26	2.19	Significant at 0.05 level & not significant at 0.01 level
		Private	112	5.59	1.88				
	Quantitative	Govt.	100	6.77	1.897	0.572	0.865	0.66	Significant both at 0.05 level and 0.01 level
		Private	112	6.196	1.697				
	Visual-Spatial	Govt.	100	3.02	1.766	0.016	0.24	0.0667	Highly Significant both at 0.05 level and 0.01
		Private	112	3.036	1.838				

$H_{02.1}$ is accepted at 0.05 level & rejected at 0.01 level.

There does not exist any significant mean differences at0.05 level & does exist any significant mean differences at 0.01 level of Geometrical problems of secondary school students of Govt. & Private school due to verbal abilities Variations.

$H_{02.2}$ is accepted.

There does not exist any significant mean differences of Geometrical problems of secondary school students of Govt. & Private school due to Quantitative abilities Variations.

$H_{02.3}$ is accepted.

There does not exist any significant mean differences of Geometrical problems of secondary school students of Govt. & Private school due to Visual-Spatial abilities Variations.

VII. FINDINGS

On the basis of calculated value of 't'-ratio, from the Table –2 and Table – 4, and the table value of 't'-ratio at 271 degree of freedoms both at 0.05 level and 0.01 level of significant or considering at only 0.05 level of significant or only 0.01 level of significant and according to significant or not significant of 't'-ratio value, the all null hypotheses were rejected or accepted.

Researcher have examined gender difference between male & female and management difference between Govt. & private School is relation to Geometrical problem in Mathematics.

Geometrical problems of secondary school in relation to school management are base of Geometry is not perfectly clear at school level. Lack of tools to make teaching of Geometry interesting. Normal time period in schools and colleges to teach Geometry is not sufficient. Not interesting due to lack of application in school. Therefore, hence the result is obtained through analysis and interpretations of the study is that male i.e., boys are superior than female i.e., girls and similarly findings represent that private school is better or superior than Govt. school.

VIII. CONCLUSION

The conclusions may be defined as some valid statements that are well drawn and justified from the result. A research report may be contain a number of conclusions drawn, depending upon the number of hypotheses on the topic problems of Geometry.

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