



## A STUDY ON ACADEMIC ACHIEVEMENT OF HIGHER SECONDARY STUDENTS WITH RESPECT TO THEIR PROBLEM SOLVING ABILITY AND SCIENTIFIC ATTITUDE

**Amarnath Reddy**

Assistant Professor and Principal , Global College of Education, Bidar.

### 1. INTRODUCTION:

Teaching of science at school stage helps in development of scientific literacy. It also helps in the formation of scientific attitude which is essential to dispel social evils and helps in development of open mindedness, decision taking ability. Training in scientific method thus improves the quality of thinking.



### 2. OBJECTIVES OF THE STUDY

- To study the scientific attitude of higher secondary-students in relation to sex and three levels of achievements.
- To study the relationship among academic achievement scientific attitude and problem solving ability of higher secondary students.

### 3. HYPOTHESES:

- There is no difference in scientific attitude of higher secondary students, sex and achievement wise.
- There is no statistical difference in problem solving ability of higher secondary students, sex and achievement wise.
- There is no relationship among academic achievement, problem solving ability and scientific attitude of higher secondary students.

### 4. METHOD OF THE STUDY:

**4.1. Method:** Descriptive survey method was followed and Null Hypothesis was framed.

**Sample:** The sample consisted of 240 students of XI class of Government aided Kannada medium school Governed by P.U. Board, Bangalore,

### 4.2. Sample selection techniques:

Sample selected by multistage random sampling technique.

### 4.3 Tools Used:

The tools used were: 1) Scientific Attitude Scale by P.A. Grewal; 2) Problem Solving Ability test by L.N. Dubey. The marks of X Class Board Examination were treated as academic achievement score of students.

### 5. Analysis and Interpretation:

The scores of problem solving ability and scientific attitude were analysed with reference to sex (Male & Female) and three level of achievement (HA, AA, LA). The Higher Secondary students were divided into three categories of achievement on the basis of Q1 and Q3. To analyse the data Mean, SD & test and product moment and multiple correlation were used.

**6. STUDY OF PROBLEM SOLVING ABILITY SCORE:**

**Table-1: Mean, standard deviation and t-value of mean Problem Solving Ability Score of male and female students**

Variable	N	Mean	S.D.	t- value	Significance
Boys	120	46	4.12	6.333	Sing at 0.01 and 0.05 level
Girls	120	65	5.13		

Higher secondary students have shown average problem solving ability as indicated by Mean and insignificant 't' value indicated no difference in problem solving ability of boys and girls. Thus null hypothesis is accepted. It can be said either science curriculum or the way of imparting that subject and may be both are not up to the mark and needs reevaluation.

**Table-2: Mean, standard deviation and t-value of mean Problem Solving Ability Score high, average and low level of academic achievement**

Variable	Level of Academic Achievement	N	Mean	S.D.	t- value	Significance
Boys	High (a)	40	46	4.12	4.23(a&b)	Sing. at 0.01 and 0.05 level
	Average (b)	30	65	5.13	3.78(b&c)	
	Low (c)	50	53	3.42	4.78(a&c)	
Girls	High (a)	35	48	3.48	6.50(a&b)	Sing. at 0.01 and 0.05 level
	Average (b)	45	68	4.23	4.01 (b&c)	
	Low (c)	40	59	5.46	5.11(a&c)	

To know the effect of achievement on problem solving ability of students the PSAT Score were treated at three level of achievement and Mean, SD and 't' value was calculated. The calculated 't' value of male and female students of the three groups on the basis of achievement is found significant at .01 Hence all null hypothesis is rejected. It was revealed that high achievers had high PSA in comparison to average and low achievers. Hence, it can be said that the present curriculum, for high school is developing some attribute of systematic learning, thinking and reasoning which are helpful in developing the problem solving ability to some extent but not upto the mark as high achievers did possess high value of problem solving ability, but were of average level, so it might be possible that students cram the subject matter and achieve high in examination.

**7. STUDY OF SCIENTIFIC ATTITUDE OF HIGHER SECONDARY STUDENTS:**

**Table-3: Mean, standard deviation and t-value of mean Scientific Attitude Score of male and female students**

Variable	N	Mean	S.D.	t- value	Significance
Boys	120	75	5.12	7.232	Sing at 0.01 and 0.05 level
Girls	120	66	7.22		

Scientific attitude of Higher secondary students was studied sex wise and achievement wise (three level High, Average and Low) and the Mean, SD and 't' values were calculated. It was found that the group had average scientific attitude and mean and insignificant 't' values confirmed statistically no difference in the scientific attitude of boys and girls and thus null hypothesis was rejected.

**Table-4: Mean, standard deviation and t-value of mean Scientific Attitude Score high, average and low level of academic achievement**

Variable	Level of Academic Achievement	N	Mean	S.D.	t- value	Significance
Boys	High (a)	40	74	4.33	5.44(a&b)	Sing. at 0.01 and 0.05 level
	Average (b)	30	63	5.48	1.28 (b&c)	
	Low (c)	50	57	6.41	2.11(a&c)	
Girls	High (a)	35	88	6.12	4.12 (a&b)	Sing. at 0.01 and 0.05 level
	Average (b)	45	72	7.23	6.33 (b&c)	
	Low (c)	40	68	4.33	7.11(a&c)	

The calculated 't' values of male and female students on the basis of three groups of achievement inferred the difference among HA and LA only. HA and AA did not differ in their scientific attitude as confirmed by insignificant 't' values. Hence, it can be said that high achievers have high scientific attitude in comparison of low achievers; but in reality that is of only average level, which is due to unscientific way of teaching this subject. On the basis of value of coefficient of correlation, it can be inferred that all the three variable achievement and problem solving ability, achievement and scientific attitude, scientific attitude and problem solving ability all are significantly correlated as all the values are significant at 0.01 level, but relationship is low in boys and not in girls.

**8. CONCLUSION:**

The present school science curriculum is able to develop only average level of scientific attitude and problem solving ability among higher secondary students and a positive relationship exists among Achievement, problem solving ability and scientific attitude. Hence, the improvement in academic achievement and for the eradication of superstition, high level of scientific attitude and problem solving ability has to be developed among students and for that science education must be improved.

**REFERENCE:**

1. Abdul Salam Jameel and Mohammad Abdul Raheem (2009), "The level of commitment and its relation to Students' Achievement as perceived by English Language teachers in Public Schools in Tulkarm District", <http://scholar.najah.edu/journals>.
2. Bhatnagar, R.P., and Vidya Agarwal (2006), Educational Administration Supervision, Planning and Financing, R. Lal Book Depot, Meerut, Pages 42-78.
3. Bickel, W.E. (1999), "The effective schools literature: Implications for research and practice", Handbook of School Psychology, 3rd edition, American Psychological Association, New York.
4. Brook Over, W., Beady, C. Flood, P. and Schweitzer, J., (1979), "School Social Systems and Student

Achievement: Schools can make a difference”, Praeger, New York.

5. Carter Good, V. (1972), Essentials of educational research, Appleton Century, Crofts, New York.

6. Jack and Norman (1993), How to Design and evaluate research in education, McGraw Hill, New York.



**Amarnath Reddy**

Assistant Professor and Principal , Global College of Education, Bidar.