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A STUDY ON REASONING ABILITY AND ACADEMIC ACHIEVEMENT OF HIGHER SECONDARY SCHOOL STUDENTS

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ABSTRACT:

This study aimed at finding out the Academic Achievement in Science and Reasoning Ability of higher secondary students. The sample comprised of 200 higher secondary students from four schools. The tools used were Test of reasoning ability for higher secondary students by Dr. Sadhana Bhatnagar and Personal data sheet. The researcher used Mean, S.D. t-test and correlation for the analysis of the scores obtained. It was found that the Reasoning ability of higher secondary students was average.

KEY WORDS: Reasoning Ability and Academic Achievement , social, political, economic and cultural transformation.

INTRODUCTION:

Education leads individuals from darkness into light and from falsehood to truth. Education is regarded as the potential instrument of bringing about social, political, economic and cultural transformation of the country. It brings about considerable changes in the individual relating to his physical, intellectual and spiritual conditions. Human being is not in any proper sense a human being until he is educated. The important activities of educational institutions include student teaching, evaluation and creating a positive attitude towards students' perception about their achievement. Education helps to develop the individual as a whole and to bring out his innate abilities. Hence it becomes the responsibility of everyone concerned with education to prevent failure and wastage and ensure proper achievement and success on the part of the students. The academic achievement of a student is ever recognized as precious sources of development and survival of them. Excellent Academic Achievement gives fulfillment to the individual concerned and achievement also becomes the means to motivate for further improvement in their studies. Thinking is perceived as the center component of human instinct, whether it is in the teachings of Socrates, Confucius, or Buddhism (Chen, 2000).Reasoning plays a signifi- cant role in one's adjustment to ones environment. It controls not only one's cognitive activities but may also influence the total behavior and personality by the proper or improper development of one's

reasoning ability. It is essentially a cognitive ability and is like thinking in many aspects. Reasoning does not occur unless there is a difficulty or unless a question has arisen for which there is no ready answer. Reasoning is only initiated by situations which cannot be met in a routine manner. One may spend hours or even days without reasoning, especially if our work is so routine that habitual modes of response enable us to meet, in a more or less automatic manner.

IIt turns out to be progressively vital to enhance thinking capacity through long lasting learning because of such difficulties and lead a significant life, and develop a rational better world (Shu, 2000). Reasoning ability is one of the main factors that increase the performance of the students. In these days of cut throat competitions in all walks of life, even a marginal difference in scores achieved by two different students leads to differences in their securing of seats in professional courses. Hence Reasoning ability plays a vital role in achievement of students.

Achievement in science, studied in relation to reasoning ability of the child studies in the past decade have confirmed that intelligence and socio economic back ground are major contributors to achievement in Science.

OBJECTIVES OF THE STUDY

1.To find out the level of reasoning ability of XI Standard students.
2.To find out the relationship between achievement in Science and reasoning ability of XI Standard students.
3.To find out whether there is any significant difference in the reasoning ability of students with respect to their Gender, locality and management of schools.

HYPOTHESES OF THE STUDY

1.Reasoning Ability of XI Standard students is high.
2.There is a significant relationship between achievement in Science and reasoning ability of XI Standard students.
3.There is a significant difference between reasoning ability of XI Standard students with respect to their Gender, locality and management of schools.

METHODOLOGY

The term "survey" suggests gathering of evidence relating to current conditions. Surely research is a method of collecting and analyzing data, obtained from larger number of sample in a specific population, collected through highly structured and detailed questionnaire or interviews. It helps to collect descriptive data which people can provide from their own expenses.

POPULATION AND SAMPLE OF THE STUDY

The sample is to be selected very, carefully and it should enable the researcher to draw meaningful conclusions and generalizations. In such a case the sample should be adequate and must be a true representative of the population. By keeping this objective in mind, the investigator has adopted the following procedures. At random four schools were chosen from Puducherry and 200 were selected as sample, according to the principles of random sampling technique.

TOOL USED FOR THE STUDY

• Test of Reasoning Ability for Higher Secondary students by Dr. Sadhana Bhatnagar.

Results and Interpretation of Data

Hypothesis 1: Reasoning Ability of XI Standard Students is high.

Table - 1

Grade	Classification	Range of Scores (Age 16-18 Years)	N	Mean	SD
A	High reasoning ability	29-33 above	23	30	0.3
B	Average reasoning ability	22-28 above	72	25.16	.93
C	Low reasoning ability	18-21	80	19.97	.91
D	Very low reasoning ability	17-33 above	25	13.88	2.11

It is clear from Table-1 that among the total 200 students high reasoning ability of students 23 average reasoning ability of students 72, low reasoning ability of students 80, very Low reasoning ability of student 25. Reasoning Ability of XI Standard Students is average.

Hypothesis 2: There is a significant relationship between achievement in Science and reasoning ability of XI Standard students.

Table - 2

S. No.	Variable	N	γ	Level of Significant
1	Achievement in Science	200	.378	0.01
2	Reasoning Ability			

From the table-2, the obtained correlation value of .378 is found to be higher than the table value of 0.128 for 0.01 level of significance. It indicates that there is a positive significant relationship between achievement in Science and reasoning ability. It reveals that those who have a higher level of reasoning ability have higher achievement in Science. Therefore, the research hypothesis is accepted. There is a significant relationship between achievement in Science and reasoning ability of XI Standard students.

Hypothesis 3: There is a significant difference between reasoning ability of XI Standard students on the basis of gender.

Table - 3

Sub Sample	No.	Mean	SD	t-Value	Level of Significance
Boys	103	21.32	4.41	0.33	Not Significant
Girls	97	21.16	4.90		

It may therefore be inferred that boys and girls do not differ significantly among the students in their reasoning ability scores. Therefore research hypothesis is rejected. There is no significant difference between reasoning ability of XI Standard students on the basis of gender.

Hypothesis 4: There is a significant difference between reasoning ability of XI Standard students on the basis of locality.

Table - 4

Sub Sample	No.	Mean	SD	t-Value	Level of Significance
Rural	92	22.47	4.75	1.65	Not significant
Urban	108	21.65	4.47		

It may therefore be inferred that rural and urban school students do not differ significantly in the reasoning ability. Therefore the research hypothesis is rejected. Reasoning Ability of urban school students is high.

Hypothesis 5: There is a significant difference between reasoning ability of XI Standard students on the basis of management of schools.

Table - 5

Sub Sample	No.	Mean	SD	t-Value	Level of Significance
Government	95	24.45	4.44	3.12	0.01
Private	105	21.83	4.69		

It may therefore be inferred that and government and private school students differ significantly in their reasoning ability scores. Therefore the hypothesis is accepted. Reasoning Ability of government school students is high.

MAJOR FINDINGS OF THE STUDY

- The reasoning ability of XI standard student is average.
- There is a significant relationship between achievement in Science and reasoning ability of XI Standard students. The high achievers scored a greater mean score in reasoning ability. Therefore the level of achievement in Science is considered to be an influential factor of reasoning ability.
- The boys and girls do not differ significantly in their reasoning ability
- Locality of the students do not differ significantly in their reasoning ability
- The students of the government and private schools differ significantly in their reasoning ability.

RECOMMENDATIONS

1.All the educational efforts made throughout the world redirected towards enhancement of achievement in Science, reasoning ability. There is especially important in a developing country like India. There are general opinions that the standards of education are falling down. The society seems to have lost confidence in the work accomplished by teachers. Social prestige attached to teaching profession, which was once considered to be a noble profession is slowly disappearing. So the teachers have to develop a more favorable attitude towards their work and perform their work with a missionary zeal.

2.The best way to make the dreams of Indian citizens to come true is to awaken the interests of students and to impart education in line with their interests. Students should be made to be fully aware of the need to be involved highly in studies. They must be made to be attentive in the class and be encouraged to develop better reasoning ability. The learning materials presented to the students should be made more meaningful, interesting, attractive and useful.

3.Home climate, school environment and education of parents are important factors which enhance

the achievement in Science. In school, the classroom activities should be made more challenging. Educators can think in line with level of students on learning and reasoning abilities and emotional maturities for better instruction in class rooms.

4.Ministry of educations both at the centre and State and educational administrators at various levels should take necessary steps to provide adequate facilities like ideal classrooms, appropriate teaching aids, good library, fully equipped laboratory, better play fields, adequate financial assistance, etc., to enhance the level of achievement in Science, reasoning ability, and emotional maturity of students.

SUGGESTIONS FOR FURTHER RESEARCH

1.The relationship between the various dimensions of achievement in Science, reasoning ability may be investigated

2.More in-depth study of reasoning ability may be undertaken.

3.Personality variables may be combined along with the demographic variables in studying achievement in Science, stress, personality development and intelligence.

4.A similar study may be conducted using students of other districts of Tamil Nadu.

5.A similar study may be undertaken using students of different levels of education

6.A comparative study of achievement in Science, reasoning ability of adolescents and different disciplines may be conducted.

CONCLUSION

The study aimed to know the higher secondary school students academic achievement in relation to Reasoning Ability. The researcher framed objectives and hypotheses on the basis of the above context. The research was carried out in 200 samples based randomly. The relevant data was collected from the school record. After collecting the data they were analyzed using statistical tools such as t-test and correlation. The result concluded that students who have high reasoning ability will have high achievement in Science. Hence when the students are motivated to ask question it shows they are reasoning it out and it's the duty of the teachers and parents to nurture them to achieve in future.

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