



EFFECT OF LOGICAL THINKING ON ACADEMIC ACHIEVEMENT OF SECONDARY SCHOOL STUDENTS OF CITY SIRSA

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ABSTRACT :

One of the most important cognitive ability which influences the success of learners is logical thinking ability. Among the four stages of Piaget's development stages, the concrete and abstract operational stage is very important from the point of view of education and for the development of logical thinking. Also the logical thinking is necessary to consider the problems in logical ways and to find solutions by using logics and facts. The aim of this study was to know the effects of logical thinking on academic achievement of secondary school students of city Sirsa. The major findings show no difference in logical thinking of males and females. It was also found that private school students have good academic achievement in comparison to government school students.

KEYWORDS : *Logical thinking, Academic achievement, Secondary school students.*

INTRODUCTION

Human being is the only one who is capable of thinking so he is considered as rational being. His superiority over other animals in learning and adjustment lies in his/her capacity of better thinking. In a general sense, all forms of cognitions, perceptions, imaginations, memory and conception are comprised in thinking. Sometimes the term thinking is used to mean the process of problem solving. Generally thinking occurs when we are encountered a problem which needs solution or it occurs when something goes wrong with or around us. Whenever everything goes smooth the chances of thinking are rare.

THINKING: A MULTI-DIMENSIONAL ACTIVITY

There are very few people who ever think about thinking. Those who have traditionally given descriptions of what a man does when he thinks have been the philosophers. They have chiefly relied on their own personal experiences as their data. It is only recently that psychologists have tried to find out what happens when we think and what conditions influence our performance by applying the methods of science to this human capacity. Neither in philosophy nor in psychology have the results of this abstract entity been really successful in the past. But now-a-days/ a general consensus has reached among the research workers and philosophers that thinking is much more complicated business than common-sense acquaintance with the term.

CONCEPT OF LOGICAL THINKING

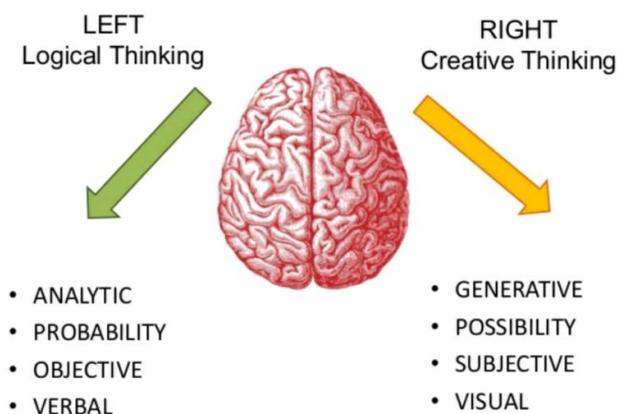
The ability of an individual to think in a disciplined manner on base of facts and evidences is known as his logical thinking skills. In a simple way, logical thinking skills mean incorporating logic into one's thinking process whenever analyzing a problem in order to find the solution.

A developing analysis is involved and necessary for logical thinking skills, for example, by analyzing all available options, using facts and figures, and making important decisions based on the pros and cons. They do not take into account the elements of feelings and emotions.

Logical thinking is the process of thinking on the basis of knowledge, what we know, and certainties, what we can prove. It is the basis on which modern technology is founded. But the weak point in logical thinking is that it relies on the conscious brain and this is the most limited and vulnerable part of our thinking.

The five features of logical thinking are shown below through diagram:

- a) Left Brain Thinking (Analyzing the data)
- b) Right Brain Thinking (Imagining a world of magical castles)
- c) Managerial Thinking (The importance of facts and figures)
- d) Logical Thinking (Making logical deductions)
- e) Smart Goals (Achieving goals)



ACADEMIC ACHIEVEMENT:

Academic achievement is one of the most important aspects of a student entire school life. It shows the overall performance of how well the student has performed or how low the student has performed. Education is an honoured right as it is associated with social and economical benefits. Academic achievement is the distinctiveness of the capability to acquire knowledge and skills efficiently and effectively. It is the overall judgment of academic or learning performance.

REVIEWS OF RELATED LITERATURE:

Passi, Passi and Mishra (2004) deal with the classification, process and development of thinking skills. While classifying the thinking skills into various categories, the paper describes the process and suggests ways to develop thinking skills among children. The article classifies thinking skills under two approaches: 1) Product approach with two categories and 2) Process approach with seven categories; and says, thinking should be taught as an independent course.

Kunjan Trivedi (2010) conducted a study on adolescents in a sample of 240 subjects, (120 male students and 120 female students) of ages 15 to 17 years from Senior Secondary schools of Jodhpur city. Passi's Tests of Creativity (PTC) was used to measure the creativity level; Educational Achievement was measured on the basis of percentages of aggregate marks obtained by the subjects in their previous examination. The results indicated that (i) the high achiever group of adolescents were more alike and

shared similar traits over riding the impact of gender, when gender differences between high achiever group on creativity was observed. (ii) There were gender differences among low achiever group on creativity. (iii) Gender was less impacting than the level of achievement.

Ibrahim and Mustafa (2010) determined the degree to which the primary curriculum complies with the aim of developing critical-thinking skills by collecting teacher opinions and it was concluded that the primary curriculum was prepared in compliance with the critical-thinking skills. It was recorded that the concerned curriculum adopted a student-centered approach in terms of the skills but the teachers did not receive sufficient in-service training to provide students with the critical-thinking skill.

Samia Jabeen and Mahmood Ahmed Khan (2013) focussed on the creative thinking abilities and self-concept of high and low achievers of IX grade students. The sample for the study was high achievers (N = 300) and low achievers (N =300) selected randomly from two educational zones (Budgam and Soibugh) of district Budgam (J and K, India). For the measurement of creative thinking abilities Mehdi's (1973) verbal test of creative thinking abilities and for the measurement of self-concept Sharma's (1972) self-concept inventory was administered for the collection of data. The results of the study high light that in comparison to low achievers high achievers possess significantly high creativity potential, in comparison to low achievers, high achievers are significantly high in different areas of creativity, viz fluency, flexibility and originality and also in comparison to low achievers high achievers possess significantly high self-concept. The study has also revealed that there was a positive and significant relationship between creativity and academic achievement and self-concept and academic achievement of high and low achiever groups.

Y Nami (2014) studied the relationship between students' creativity and academic achievement. The sample size of 72 subjects was conducted to collect data from the student questionnaire and Torrens creativity were used. Field of information gleaned from questionnaires and were analyzed by using both descriptive and inferential statics. These results are captured components of creativity and achievement, and there were positive significant relationships.

RESEARCH OBJECTIVES:

- i. To study the effect of logical thinking among secondary school students.
- ii. To study the effect of academic achievement of secondary school students.
- iii. To find out the difference of logical thinking of male and female students.
- iv. To find out the difference of logical thinking of government and private school students.
- v. To find out the difference of academic achievement of male and female students.
- vi. To find out the difference of academic achievement of government and private school students.

HYPOTHESES:

- i. There is no significant difference in logical thinking of male and female secondary school students of sirsa city.
- ii. There is no significant difference in logical thinking of secondary school students of government and private schools of Sirsa city.
- iii. There is no significant difference in academic achievement of male and female secondary school students of sirsa city.
- iv. There is no significant difference in academic achievement of secondary school students of government and private schools of Sirsa city.

RESEARCH METHODOLOGY:

Descriptive survey method of research was employed for the present study.

In the present study the population comprised the students of class 9th and 10th studying in different schools of Sirsa city affiliated to Bhiwani Board of School Education, Haryana. The schools were selected by stratified random sampling technique. Further, from each selected school all the students of available intact

class were taken as sample. The data was collected from secondary schools and total number of students was 144.

The tools of research are the instruments that are used for the collection of the data. The investigator used the following tool during the study:

- i. Logical Thinking Test (LTT-KSTS) developed and standardised by Dr. Sujeet Kumar and Dr. Shikha Tiwari to measure the level of logical thinking of Science students.
- ii. Academic Achievement: The percentages of previous class were considered to find out academic achievement of secondary school students.

In this research, the statistical techniques like Mean, S. D. and 't' test were used.

Data analysis:

Hypotheses-1

Table 1

Gender	Sample	Mean	Standard deviation	t-value	Significance
Male	72	27.10	9.54	1.37	No Significance Difference at 0.05 level
Female	72	29.07	7.50		

Obtained 't' value is 1.37 which is less than table value (1.96) which is not significant at 0.05 level of significance. It means the hypothesis is accepted. It indicates that both males and females are getting equal opportunities for better education and learning so there is no difference between logical thinking of males and females.

Hypotheses-2

Table 2

School	Sample	Mean	Standard Deviation	t-value	Significance
Government School	72	21.33	5.51	15.17	Significance Difference at 0.05 level
Private School	72	34.83	5.15		

Obtained 't' value is 15.17 which is greater than the table value 1.96, that is significant at 0.05 level of significance. It means hypothesis is rejected. It indicates that private school students were facilitated well to enhance their logical thinking and learning.

Hypotheses-3

Table 3

Gender	Sample	Mean	Standard deviation	t-value	Significance
Male	72	70.82	11.49	1.78	No Significance Difference at 0.05 level
Female	72	74.15	11.33		

Calculated 't' value is 1.78 which is less than table value (1.96) which is not significant at 0.05 level of significance. It means that hypothesis is accepted. It indicates that both males and females are getting equal opportunities for better education and learning so there is no difference between academic achievement of males and females.

Hypotheses-4

Table 4

School	Sample	Mean	Standard Deviation	t-value	Significance
Government School	72	64.64	8.56	11.52	Not Significance Difference at 0.05 level
Private School	72	80.33	7.75		

Calculated 't' value is 11.52 which is greater than the table value 1.96, which is significant at 0.05 level of significance. It means that hypothesis is rejected. It indicates that private school students were facilitated well to enhance their academic achievement.

FINDINGS OF THE STUDY:

The findings of study shows no difference between logical thinking of males and females, it means that both males and females are getting equal opportunities for better education and learning. But there was a significant difference between the logical thinking of private and government school students which indicates that private school students were facilitated well to enhance their logical thinking and learning.

The findings related to academic achievement indicates no difference between academic achievement of males and females; it means that both males and females are getting equal opportunities for better education and learning. But there was a significant difference between academic achievement of private and government school students which indicates that private school students were facilitated well to enhance their academic achievement.

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