

## A STUDY OF LEARNING-THINKING STYLE OF SECONDARY SCHOOL STUDENTS IN RELATION TO THEIR ACADEMIC ACHIEVEMENT

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### ABSTRACT

The styles depend upon cerebral dominance of an individual in retaining and processing different modes of information in his own style of learning and thinking. This study attempted to find out the relationship and significance of difference between academic achievement and learning-thinking style of secondary school students. The study was delimited to class Xth students only. The purpose of present study was to see whether there is a relationship between academic achievement and learning-thinking style of secondary school students or not. Normative Survey method was applied for conduction of the study. The population for the research includes students of secondary class of different areas. Mean and Pearson's Product Moment Correlation ('r') are the statistical technique which helped in the analysis and interpretation of the result. The collected data was analysed and interpreted on the basis of hypothesis. It has been found that learning-thinking style and academic achievement of secondary school students are positively and significantly related to each other. Students having high academic achievement are better for teaching. It can be said that academic achievement is a factor which influence the learning-thinking style of secondary school students. It can also be concluded that male and female secondary school students are not different in respect to their academic achievement whereas they are different in respect to their learning-thinking style.

**Key Words:** Learning style, thinking style, secondary school, academic achievement.

### INTRODUCTION

"Styles depend upon cerebral dominance of an individual in retaining & processing different modes of information in his own style of learning and thinking ". Style indicates the hemisphericity function of the brain and students learning strategy and information processing are based on the preferences of the brain area . (Venkataraman 1990). Styles are propensities rather than abilities . They are the ways of directing the intellect which an individual finds comfortable . The style of learning thinking are as important as levels of ability and we ignore to identify the thinking styles at their earlier and appropriate stage. It is foremost important for the teachers to focus their attention on students favourite thinking styles before imparting the subject matter . If they fail to do so, the consequences may be serious , because the teachers may tend to confuse styles of students mind. Since the method of teaching adopted by teachers often reflects their personal thinking style ,the students who have the same thinking style of the teachers are only benefited and rewarded. Since any subject can be taught in any way that is compatible with any style, students will seek learning activities that are compatible with their own preferred styles, Both teachers and students tend to exploit their preferred styles .Which may or may not match.

Therefore, it is important for the teachers to know the students preferred styles, so that the teachers can capitalize the opportunities for students learning. Styles like abilities are not formed by birth . They are partly developed due to environmental condition and by way of nurturing children by their parents and teachers. Some individuals may have one preferred style at one stage and another preferred styles at another stage.

Styles are not fixed, but changeable . we need to recognize the preferred styles of students and ourselves .The efforts to understand learning and thinking styles and to learn to use them flexibly requires the identification of an individual's preferred style of learning and thinking . Research tools are readily available to identify the individuals preferred style of learning and teachers must eventually come forward to understand and identify the styles of learning and thinking in students. this direct approach with the help of research tool will help to understand and assess the styles of students for developing intelligence and creativity in the fields of their preferred styles in acadmic areas. Thus the 'Tool' is very important to assess the preferred styles of students learning and thinking.

Three different styles are learning styles, cognitive styles and thinking styles . These styles although different but have one thing in common; they are individuals' , preferred way of processing information and using abilities that they have. Styles are not abilities . Difference in the way of thinking of individuals makes the way to formation of theories of thinking styles . Thinking style is our preferred way of thinking and managing our activities. A learning style is how you receive information most efficiently (and naturally).

**AUDITORY**

Auditory learners receive information best by listening; they tend to learn best through lectures & audio-based instruction.

**VISUALVI**

**VISUAL**  
 Visual learners tend to learn better when a variety of visual aids, such as blackboards, overhead projectors and films are used during instruction. They often use imagery to learn complex subjects.

**KINESTHETIC**

**KINESTHETIC**  
 Kinesthetic learners (also known as "Tactile Learners") prefer to learn by doing. They usually learn best when they are allowed to use their hands and sense of touch to learn new information and apply new skills.

A thinking style is how you process information most efficiently (and naturally).

**LINEAR**  
 (Left Brain-Dominant)

Linear thinkers prefer a very structured approach to learning. If a learning process involves progression (Step A, Step B, Step C, etc.) linear thinkers will feel more comfortable starting Step B only after Step A has been completed. Mathematics and accounting are considered linear subjects since they involve a process-oriented presentation of information.

**GLOBAL**  
 (Right Brain-Dominant)

Global thinkers (or "strategic thinkers") are more comfortable with new information if they can put it into context with the big picture. They also tend to be impatient with linear subjects and linear-oriented instruction - they prefer access to all the information (early on) so they can relate it to their overall goals.

Of course, it would be nearly impossible for a person to possess only one learning style, or be strictly a linear or a global thinker, and still be able to function adequately in our complex world. Most of us tend to incorporate a variety of styles to complete a task. For example, when determining how much to tip a waiter or waitress, you must use linear skills (to calculate the percentage for the tip), and global skills (to judge the quality of service and amount of money needed for additional purchases that day).

### Review of Related Literature

It is important to put a glance on some related studies.

**Elena L. Grigorenko, Robert J. Sternberg (1997) "Styles of Thinking, Abilities and Academic Performance"**

The cognition- and the personality-centred approaches typically imply that styles are either-or constructs (a person could be either field-independent, or field-dependent, but not both). In these approaches, styles are consistent across various tasks and situations, and can be modified very little, if at all, by training during the life span. Cognitive and personality styles are most often viewed as structures, where the focus is placed on stability over time as such, styles are "givens" in a training or educational setting (Riding & Cheema, 1991). Cognition- and personality-centred theories also usually have built-in evaluating attitudes assuming that certain styles. **F Cano-Garcia, EH Hughes (2000) conducted a study on "Learning and Thinking Styles: an analysis of their interrelationship and influence on academic achievement"** and found that students' academic achievement was related to students' thinking styles. Students that prefer to work individually (Internal), that do not enjoy creating, formulating, and planning for problem solution (Legislative in a negative sense) and those that have adherence to existing rules and procedures (Executive) were those which obtained higher academic achievement.

**Robert J. Sternberg, Li-Fang Zhang (2001) "Perspectives on Thinking, Learning and Cognitive Styles"**

Traditionally, many psychologists and educators have believed that people's successes and failures are attributable mainly to individual differences in abilities. For the past few decades, however, investigators have been studying the roles of thinking, learning, and cognitive styles in performance with both academic and nonacademic settings. Although these three kinds of styles may be viewed as overlapping historically, they have been conceptualized in different ways. **Li-Fang Zhang (2002) "Thinking Styles: their relationships with modes of thinking and academic performance"** This study aimed at investigating the nature of thinking styles as described in the theory of mental self-government. Two-hundred-and-twelve US university students responded to the Thinking Styles Inventory and the Styles of Learning and Thinking. Results from convergent statistical analysis procedures indicated that thinking styles and modes of thinking share certain common variance in the data. It was evident that the more creativity-generating and more complex thinking styles are significantly related to a holistic mode of thinking, and that the more norm-conforming and more simplistic thinking styles are significantly related to an analytic mode of thinking. These findings are discussed in terms of practical implications for educators.

**Mark Mason<sup>1</sup> (2007) "Critical Thinking and Learning"** This paper introduces some of the debates in the field of critical thinking by highlighting differences among thinkers such as Siegel, Ennis, Paul, McPeck, and Martin, and poses some questions that arise from these debates. Does rationality transcend particular cultures, or are there different kinds of thinking, different styles of reasoning? What is the relationship between critical thinking and learning? In what ways does the moral domain overlap with these largely epistemic and pedagogical issues? The paper concludes by showing how Peters, Evers, Chan and Yan, Ryan and Louie,

**Springer Netherlands (2009) "Process-oriented instruction in learning and thinking strategies"** The learning effects were higher than the effects of an preliminary version of the program implemented with students from an open university. These results support the importance of the process-oriented instructional model. The linking of a thorough diagnosis of personal learning styles to individually tailored instructional measures, turned out to be a powerful way to activate students to reflect on their learning and to develop their mental models of learning.

### OBJECTIVES

Objectives of the study are given below:

- To study the relationship between academic achievement and learning-thinking style of secondary school students.

- To study the relationship between academic achievement and learning-thinking style of male secondary school students.
- To study the relationship between academic achievement and learning-thinking style of female secondary school students.
- To find out the significance of difference between academic achievement of male and female secondary school students.
- To find out the significance of difference between learning-thinking style of male and female secondary school students.

#### HYPOTHESES

1. There is no significant relationship between academic achievement and learning thinking style of secondary school students.
2. There is no significant relationship between academic achievement and learning thinking style of male secondary school students.
3. There is no significant relationship between academic achievement and learning thinking style of female secondary school students.
4. There is no significant relationship between academic achievement of male and female secondary school students.  
There is no significant relationship between learning thinking style of male and female secondary school students.

#### DESIGN OF THE STUDY

For the present study normative survey method was applied to find out the academic achievement and learning-thinking style of secondary school students. The sample of the study is consisted of 140 students- 70 boys and 70 girls of 10th class.

#### POPULATION

Table 1: Sample of selected schools

S.No	Name of the schools	Total students in the schools in 10 class	Students included in the sample
1	P.D.M B'Garh	120	46
2	G.S.K.V B'Garh	200	46
3	Bal Bharti B'Garh	100	48

#### Tools

Investigators made achievement test and D.Venkataraman's Style of Learning and Thinking were used for collecting data. Pearson's Product Moment Correlation is used for analyzing and interpreting the data.

#### ANALYSIS AND INTERPRETATIONS

- **To study the relationship between academic achievement and learning-thinking style of secondary school students.**

The hypothesis framed to achieve the above stated objective is that there exists no significant correlation between academic achievement and learning-thinking style of secondary school students.

Table 2: Correlation between Academic Achievement (X) and Learning-Thinking Style (Y) of Secondary School Students.

Variable	(X)	(Y)	Level of Significance
(X)	1.00	0.692	Positively Significant
(Y)	0.692	1.00	

It is observed from the table II that the computed value of co-efficient of correlation between academic achievement and learning-thinking style of secondary school students is 0.69 which is positive in nature that indicates a positive correlation. Hence, the null hypothesis of no significant correlation between academic achievement and learning-thinking style of secondary school students is rejected. Now, it can be interpreted that academic achievement and learning-thinking style are correlated with each other.

- **To study the correlation between academic achievement and learning-thinking style of male secondary school students.**

In pursuance of the objective stated above the co-efficient of correlation is computed by using Pearson's product moment correlation. The correlation between academic achievement and learning-thinking style of male secondary school students is presented vide table 2.

Table 3: Correlation between Academic Achievement (X) and Learning-Thinking Style of Male students (Y1)

Variable	(X)	(Y1)	Level of Significance
(X)	1.00	0.734	Positively Significant
(Y1)	0.734	1.00	

It is observed from the table III that the computed value of co-efficient of correlation between academic achievement and learning-thinking style is 0.734 which is positive in nature that indicates a positive correlation. Hence, the null hypothesis of no significant correlation between academic achievement and learning-thinking style of male students is rejected. Now, it can be interpreted that academic achievement and learning-thinking style of male students are correlated with each other.

- **To study the correlation between academic achievement and learning-thinking style of female secondary school students.**

In pursuance of the objective stated above the co-efficient of correlation is computed by using Pearson's product moment correlation. The correlation between academic achievement and learning-thinking style of female secondary school students is presented vide table 3.

Table 4: Correlation between Academic Achievement (X) and Learning-thinking style of Female Learning-Thinking Style (Y2)

Variable	(X)	(Y2)	Level of Significance
(X)	1.00	0.816	Positively Significant
(Y2)	0.816	1.00	

It is observed from the table IV that the computed value of co-efficient of correlation between academic achievement and learning-thinking style is 0.816 which is positive in nature that indicates a positive correlation. Hence, the null hypothesis of no significant correlation between academic achievement and learning-thinking

style of female secondary school students is rejected. Now, it can be interpreted that academic achievement and learning-thinking style of female secondary school students are highly correlated with each other.

- **Significance of difference between the Academic achievement of male and female secondary school students.**

In order to test the hypothesis formulated is that there exists no significant difference between the academic achievement of male and female secondary school students, critical ration is adopted. A comparative analysis of mean scores of academic achievement of male and female secondary school students is also done which is given vide table 4.

Table 5: Significance of difference between Academic achievement of Male and Female Secondary school students

Groups	Mean	S.D.	N	Critical Value (C.V)	Level of Significance
Male	1.55	0.55	70	4.08	0.01
Female	2.61	1.66			

Table Value at 0.05 level: 1.96  
 at 0.01 level: 2.58

The above table shows that calculated critical ration is more than the table value at 0.01 level of significance. It means that there exists a significant difference between academic achievement of male and female secondary school students. Hence the earlier formulated null hypothesis is rejected.

- **Significance of difference between the Learning-thinking style of male and female secondary school students.**

In order to test the hypothesis formulated is that there exists no significant difference between the learning-thinking style of male and female secondary school students, critical ration is calculated. A comparative analysis of mean scores of learning-thinking style of male and female secondary school students is also done which is given vide table 5.

Table 6: Significance of difference between Learning-thinking style of Male and Female Secondary school students

Groups	Mean	S.D.	N	Critical Value (C.V)	Level of Significance
Male	14.86	2.62	70	3.83	Significant at 0.01 level of significance
Female	13.48	2.03			

Table Value at 0.05 level: 1.96  
 at 0.01 level: 2.58

The above table shows that calculated critical ration is higher than the table value at 0.01 level of significance. It means that there exists significant difference between learning-thinking style of male and female secondary school students. Hence the earlier formulated null hypothesis is rejected. It can be concluded that gender is a factor which influences learning-thinking style of secondary school students

## FINDINGS

- It has been found out that there exists significant relationship between academic achievement and learning-thinking style of secondary school students.
- It has been found out that there exists significant relationship between academic achievement and learning-thinking style of male secondary school students.
- It has been found out that there exists significant relationship between academic achievement and learning-thinking style of female secondary school students.
- It has been found out that there exists significant difference in the academic achievement of male and female secondary school students.
- It has been found out that there exists significant difference in the learning-thinking style of male and female secondary school students.

## CONCLUSION

In accordance with the analysis done and interpretations made it can be concluded that learning-thinking style and academic achievement of secondary school students are positively and significantly related to each other. Students having high academic achievement are better for teaching. It can be said that academic achievement is a factor which influence the learning-thinking style of secondary school students. It can also be concluded that male and female secondary school students are not different in respect to their academic achievement whereas they are different in respect to their learning-thinking style.

## EDUCATIONAL IMPLICATIONS

No research can be said to be complete in itself especially in behavioral science. The present study has adequately dealt with academic achievement and learning-thinking style. The findings of the study are likely to be of importance to educational secondary school students, teacher educators and policy makers who are concerned with the sphere of education. One of the implications of the present conclusion for teacher educators and policy makers is that their curricula, syllabi, text book, method of teaching etc. all should be modeled in such a fashion that they can utilize their energies in the right direction. It is therefore most important for student teacher to develop the academic achievement to become a perfect teacher.

Achievement is the level of learning and attainment in a particular area of the subject in terms of knowledge, understanding, skills and applications. The main focus of educative process is to improve the performance or learning of the students. The learning outcomes of the students are measured with the help of their achievement or performance. Performance assessment is the process of measuring the terminal behaviors of the students at the end of instruction. It is the job of the teacher to measure whether the students have acquired the component concepts, as on achievement, before proceeding with the instruction which arranges these concepts in proper relationship for the learning of the principles. The achievement is the end product of the instruction usually verbal performance.

#### BIODATA AND CONTACT ADDRESSES OF AUTHORS



I have authored 12 books and various papers for reputed journals. I have presented papers in various seminars/conferences/work shops. I am expert counselor of Gyan Yani channel(all India radio).

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