

A Comparative Study of Learning and Thinking Styles and Academic Achievement of Secondary School Students In Smart Schools and Govt. Schools

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Abstract The study was undertaken to study academic achievement of Secondary schools students in relation to their learning styles. The present study was conducted by employing descriptive survey method to compare learning styles and academic achievement of secondary school students in Smart Schools and Govt. Schools. A sample of 200 students of class IX was randomly selected from four government and Smart schools of Chandigarh. Styles of Learning and Thinking (SOLAT) by Venkataraman (1994) were used to collect the data. Academic Achievement was measured by taking scores of previous year. Statistical techniques are used in this study- Mean, Standard Deviation and t-Ratio. The findings of the study revealed no significant difference in learning and thinking styles of Smart schools and Govt. Schools students. The academic achievement of secondary school students in Smart schools and Govt. Schools differed partially in relation to learning and thinking styles.

Keywords: Learning Style, Academic Achievement, SOLAT, Left –Hemispheric (L), Right Hemispheric (R), Right & Left (both) Hemispheric (W).

1. INTRODUCTION

Academic achievement plays a very significant and vital role in attainment of harmonious development of child in all walks of life. Academic achievement in general refers to the degree or level of success or proficiency attained in some specific area, concerning scholastic and academic work.

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A key to getting and keeping students actively involved in learning lies in understanding learning style preferences, which can positively or negatively influence a student's performance. Most people are somewhat flexible in their use of style and they try with varying degrees to adapt themselves to the stylistic demands according to situation. This is because mind plays a flexible role in accomplishing variety of tasks. It is therefore important for the parents and the teachers to understand the nature of the student's mind and its functions in different styles of learning and cognition.

Smart schools were established to cater to the diverse needs of the students. Under the Smart school concept, learning is made more interesting and meaningful, as it involves students' mind, spirit and body holistically. Thus need emerged to find whether Smart schools are effective in motivating the students and to increase level of creativity through the self-paced, self-accessed and self directed learning strategies that will indicate significant differences in academic achievement.

2. NEED AND EMERGENCE OF THE STUDY

In recent years the push to use technology in the classroom has increased, be it because of changing global needs or due to pressure by the Govt. Moreover, technology appeals to young learners and aids their comprehension and retention of new information. Henceforth, it is beyond doubt that the learning styles which involve the use of the latest technology have to be introduced directly and indirectly in the early years or stage of learning i.e from kindergartens until the tertiary level of learning respectively.

Smart schools were established to cater to the diverse needs of the students. Under the smart school concept, learning is made more interesting and meaningful as it involves students' mind, spirit and body holistically.

Bearing in mind the way in which the unfolding of educational reform is shaped, a need emerged to find whether smart schools are effective in motivating the students and to increase level of creativity through the self-paced, self-accessed and self-directed learning strategies and bring a higher level of academic achievement or not in comparison to Govt. schools.

Moreover, it is a common observation that there is greater shift of children from general schools to smart schools by their parents. Hence it would be worthwhile to compare the learning Styles and Academic Achievement of students in Smart schools and Govt. schools.

3. REVIEW STUDIES RELATED TO LEARNING STYLES IN RELATION ACADEMIC ACHIEVEMENT

The various studies that have been conducted on the relationship between academic achievement and learning styles are as follows:

[6], made a study to discover the difference in academic achievement of students belonging to different learning style groups. Results showed that there were significant differences in the achievement in various subjects and total area of study based on certain learning styles.

[8], found a significant difference between concrete and abstract learners. The achievement scores were significant higher for students having a concrete learning style than for students having an abstract learning style.

The findings of [1], indicated, that the students taught by instruction that matched their preferred learning style, had significant gains in academic achievement.

[2], investigated the role that student-learning style plays in performance in introductory college Chemistry. He found that relationships did exist between learning styles and performance. Sensing thinking /learners made the highest grades, and sensing feeling learners made the lowest grades.

According to [4], in aligning students' learning styles with instructor teaching styles, concluded that no significant differences were noted in terms of the interaction of teaching style and learning style on student achievement.

[3], compared the learning styles of adolescents from diverse nations by age, gender, academic achievement level and nationality. The research investigated the learning style characteristics of 1,637 adolescents from five countries-Bermuda, Brunei, Hungary, Sweden and New Zealand. It analysed their similarities and differences by age, gender, academic achievement and nationality and it also explored their interactive relations among these four factors and adolescents learning style preferences. Findings revealed that 15 out of the 22 learning style elements significantly discriminated among the gifted, high/average and low achieving students.

In the light of these researches, it can be concluded that learning styles is an important factor for academic achievement. Much of the wastage in academic achievement could be arrested if the instructions and learning styles are matched evenly.

4. OBJECTIVES

1. To study and compare the learning and thinking styles of secondary school students in Smart schools and Govt. schools.
2. To study and compare the academic achievement of secondary school students in Smart schools and Govt. schools.
3. To compare learning and thinking styles of secondary school boys and girls in Smart schools.

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4. To compare learning and thinking styles of secondary school boys and girls in Govt. schools.
5. To compare academic achievement of secondary school boys and girls in Smart schools.
6. To compare academic achievement of secondary school boys and girls in Govt. schools.
7. To study the academic achievement of secondary school students in Smart schools and Govt. schools in relation to learning and thinking styles.

5. HYPOTHESES

1. There will be no significant difference in learning and thinking styles of secondary schools students in Smart schools and Govt. schools.
2. There will be no significant difference in academic achievement of secondary school students in Smart schools and Govt. schools.
3. There will be no significant difference in learning and thinking styles of secondary school boys and girls in Smart schools.
4. There will be no significant difference in learning and thinking styles of secondary school boys and girls in Govt. schools.
5. There will be no significant difference in academic achievement of secondary school boys and girls in Smart schools.
6. There will be no significant difference in academic achievement of secondary school boys and girls in Govt. Schools.
7. There will be no significant difference in academic achievement of secondary school students in Smart schools and Govt. schools in relation to learning and thinking styles.

6. SAMPLE OF THE STUDY

A Sample of 200 students from IX class for the present study was drawn from two Smart Schools and 100 from two Govt. Schools. Equal number of boys and girls were included in the study.

7. DESIGN OF THE STUDY

In the present study, descriptive survey method was employed to compare learning styles and academic achievement of secondary school students in Smart schools and Govt. schools.

Table 1: Mean, Std. Deviation, t-ratio of Learning and Thinking Styles of students in Smart and Govt. Schools.

Learning and thinking Style	N	Type of school	Mean	SD	t-value	df	LS
Right Hemispheric (R)	100	Govt. School	26.48	5.30	1.48	198	NS
	100	Smart School	25.33	5.70			
Left Hemispheric(L)	100	Govt. School	17.66	5.06	.256	198	NS
	100	Smart School	17.85	5.42			
Right & Left (both) Hemispheric(W)	86	Govt. School	6.03	4.70	1.07	170	NS
	86	Smart School	6.85	5.27			

Table 2: Mean, Std. Deviation, t-ratio of academic achievement of students in Smart and Govt. schools.

Variable	N	Type of School	Mean	Std. Deviation	t-ratio	D f
Academic Achievement	100	Smart	77.18	15.42	6.61**	198
	100	Govt.	63.87	12.88		

Note: (**) depicts 0.01 level of significance.

8. TOOL USED

Styles of Learning and Thinking (SOLAT) by Venkataraman (1994). Academic Achievement was measured by taking scores of previous year.i.e. class VIII

9. RESULTS AND DISCUSSIONS

Hypothesis 1: There will be no significant difference in learning and thinking styles of secondary schools students in Smart schools and Govt. schools.

Insignificant t- value was found between Govt. and Smart schools students with regard to their learning and thinking styles. This clearly indicates that

Table 3: Mean, Std. Deviation, t-ratio of learning and thinking Styles of Boys and Girls in Smart Schools.

Learning Style	N	Group	Mean	SD	t-value	df
Right Hemispheric	50	Boys	26.14	5.49	1.43	98
	50	Girls	24.52	5.85		
Left Hemispheric	50	Boys	18.26	5.48	.755	98
	50	Girls	17.44	5.38		
Right and Left(both) Hemispheric	42	Boys	5.67	4.88	2.07*	84
	44	Girls	7.98	5.42		

Note: (*) depicts 0.05 level of significance.

there is no significant difference in learning and thinking styles of secondary schools students in Smart schools and Govt. schools. It is apparent that children learn and think in the same way irrespective of type of school i.e. Smart school and Govt. school. **Then, the first null hypothesis was accepted.**

Hypothesis 2: There will be no significant difference in academic achievement of secondary school students in Smart schools and Govt. schools.

Significant t- value was found between Govt. and Smart schools students with regard to their academic achievement. This may be due to reason that Smart schools employ technology in classrooms and emphasize on active learning. **Thus, the second null hypothesis was rejected.**

Hypothesis 3: To compare learning and thinking styles of secondary school boys and girls in Smart schools.

The learning and thinking styles of boys and girls in Smart schools differed significant only in case of both right and left(W) hemispheric learning and thinking styles as depicted by t-value($t=2.07$). But insignificant t- value was found in left hemispheric and in right hemispheric between boys and girls of Smart schools students. This may be due to reason that only few students prefer both right and left (W) learning and thinking styles and in general right and left hemispheric learning and thinking styles is preferred. ” **Thus, the third null hypothesis was partially accepted.**

Hypothesis 4: To compare learning and thinking styles of secondary school boys and girls in Govt. schools.

Table 4: Mean, Std. Deviation, t-ratio of Learning and Thinking Styles of Boys and Girls in Govt. Schools.

Learning Style	Group	N	Mean	SD	t-value	df
Right Hemispheric	Boys	50	26.24	5.53	.451	98
	Girls	50	26.72	5.11		
Left Hemispheric	Boys	50	16.90	5.51	1.512	98
	Girls	50	18.42	4.49		
Right and Left(both) Hemispheric	Boys	42	7.48	5.60	2.89**	84
	Girls	44	4.66	3.16		

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Note :(**) depicts 0.01 level of significance.

Table 5: Mean, Std. Deviation, t-ratio of Academic Achievement of Boys and Girls in Smart Schools.

Variable	Gender	N	Mean	Std. Deviation	t-ratio	df	LS
Academic Achievement	Boys	50	74.58	14.87	1.70	98	NS
	Girls	50	79.78	15.68			

Note: LS-level of significance, df- degree of freedom

The learning and thinking styles of boys and girls in Govt. schools also differ in case of both right and left(W) hemispheric learning and thinking styles, t-value(t=2.89).The reason may be that only few students prefer both right and left (W) learning and thinking styles and in general right and left hemispheric learning and thinking styles is preferred. **Thus, the fourth null hypothesis was partially accepted.**

Hypothesis 5: To compare academic achievement of secondary school boys and girls in Smart schools.

The academic achievement of secondary school boys and girls in Smart school does not differ significantly, (t=1.70).This means equal emphasis is laid on the education of both boys and girls in Smart schools which is an

Table 6: Mean, Std. Deviation, t-ratio of academic achievement of boys and girls in Govt. schools.

Variable	Group	N	Mean	Std. Deviation	t-ratio	df
Academic Achievement	Boys	50	61.04	11.96	2.240*	98
	Girls	50	66.70	13.27		

Note: (*) depicts 0.05 level of significance

Table 7: Mean, Std., t-ratio of Academic Achievement of Secondary school students in Smart Schools and Govt. schools in relation to Learning and Thinking Styles.

Learning Style	Academic Achievement	N	Mean	SD	t-value	df
Right Hemispheric	High	54	69.14	17.13	1.04	106
	Low	54	72.20	13.29		
Left Hemispheric	High	54	68.02	13.62	2.018*	106
	Low	54	73.54	14.77		
Right and Left (both) Hemispheric	High	46	73.32	13.39	1.310	90
	Low	46	69.16	16.94		

Note: (*) depict 0.05 level of significance.

encouraging finding and reflects on changing perception of the society. **Thus, the fifth null hypothesis was accepted.**

Hypothesis 6: To compare academic achievement of secondary school boys and girls in Govt. schools.

Academic achievement of boys and girls in Govt. schools differed significantly only at 0.05 level of significance as reported by the t-value (t=2.240) and with girls showing better academic achievement than boys. **Thus, the sixth null hypothesis was rejected.**

Hypothesis 7: There will be no significant difference in academic achievement of secondary school students in Smart schools and Govt. schools in relation to learning and thinking styles.

The academic achievement of secondary school students with high and low learning and thinking styles differed significantly in case of left

hemispheric (L) learning and thinking styles only as left hemisphere specializes in sequential, logical, verbal, analytical, symbolic convergent production and logic functioning and digital operations which are key to academic achievement. **Thus, the seventh null hypothesis was partially accepted.**

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10. EDUCATIONAL IMPLICATIONS OF THE STUDY

1. Boys and girls should be given equal opportunities and facilities for the study.
2. Teachers have a major role in motivating the child for using more and more upcoming technologies so as to be capable of facing the challenges in the society.
3. Parents should allow their children to be tech- savvy and broaden their mental horizon to accommodate the new learning and thinking styles as compared to traditional ones.
4. Various technologies should be adopted in Govt. schools to enhance their academic achievement and thus, Govt. schools should be made technology oriented.
5. The significant impact of different learning styles on academic achievement shows that the method or approach by which the student learns can have effect on their academic achievement.
6. The academic achievement is also affected by the gender of the students with different learning and thinking styles. The males and females can hence be told about the styles which suit them the best to score better.

11. SUGGESTIONS FOR FURTHER RESEARCH WORK

1. The present study has been conducted on secondary school students; it can be replicated on other grade levels.
2. The sample for the present study was 200 students due to time constraints.
3. It would be useful if the study is conducted on larger sample.
4. Two Govt. and two Smart Schools were taken for data collection in the present study, in future a large sample should be considered for data collection.
5. The study has been conducted on urban population only. It would be fruitful to replicate study on rural population as well.
6. The present study has been conducted on secondary school students of Chandigarh only; it may be carried out in other states as well.

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7. Only one variable i.e Academic achievement was studied in relation to learning and thinking styles in the present study. If a similar kind of the study is carried out in future, more variables could be studied in relation to learning and thinking styles such as intelligence, teaching modalities. etc.

CONCLUSION

To conclude it is essential to identify the styles of learning and thinking of children in order to facilitate the process of learning and teaching. Since the focus is on child-centred pedagogy giving primacy to the child's experiences, voices, thoughts and participation in learning. The teaching techniques in the schools can be undertaken in consonance with the students' style of learning and thinking. Further it would enable the teacher to organize the teaching and learning procedures in such a way that they tone up and activate the hemisphere functions of the brain in students.

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