



## Learning styles and Achievement in Physics of Higher secondary students

### KEYWORDS

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**ABSTRACT** *The present study is on Learning Styles and Achievement in Physics of Higher Secondary Students. The main objective of this study was to find out the relationship between learning style and achievement in physics of higher secondary students. Learning style inventory and achievement test developed by the investigator was adopted for the data collection. The data was collected from 250 higher secondary students by adopting simple random sampling technique. This study proved that there exists a significant positive relationship between learning style and achievement in physics. This study will be a lime light for the teacher to understand that the students learning style plays a vital role in their achievement. Therefore, a due concentration has to be provided to develop good learning style of students to improve their academic achievement.*

### Introduction

Learning is a key process in human behavior. Learning is a complex, interrelated system of accessing information, getting it into the brain, and processing the information to solve problem or support activities. Learning styles are personal way in which individual process information's and the courts of learning new concepts and principles. Learning styles differ from individual to individual. For the same individual they differ from the subject to subject. As per the definitions offered by Rosenberg, "Learning refers to an individual's characteristic pattern of behavior when confronted with a problem". In simple language, a learning approach to learning a task is his learning style. It is his predisposition of behavior in learning situations. The learning style of individual may facilitates learning of certain subjects and deliberates learning of certain other subjects. Knowing the learning style of individuals could help the teacher to identify remedies to improve achievement as per their learning style. Rosenberg(1978) classified learning styles based on the learner behavior in a learning situation. A study of learning style could help the investigator to find out the influence of prominent learning styles on the learning of the individuals.

### NEED FOR THE STUDY

Learners are the core of the teaching learning process. Each learner is unique and their learning style also. Every teacher wants to be successful in the classroom. To be successful, every teacher has to "know the learner". The teacher should know the learner with reference to his entry behaviour, level of motivation, interest in the subject, attitude, aptitude and some information about his family environment. These mentioned factors influence the learner remarkably and jointly they create a pattern of learning functions in the brain, which is eventually responsible for the learning of the learner. This pattern is widely known as learning style, which is a key factor for the learner to learn anything and every-thing. This personalized learning pattern differs from individual to individual and even introspect in particular learner.

The learning style has its own impact in the academic achievement of a learner. The present study aims to study the relationship between learning style and achievement in Physics of Higher Secondary students.

### Title of the Problem

The present study is stated as "LEARNING STYLE AND ACHIEVEMENT IN PHYSICS OF HIGHER SECONDARY STUDENTS

### Objectives of the Study

- To develop and assess learning styles of students in higher secondary schools.
- To find out significant relationship between learning style and achievement of students in physics.
- To compare the identified learning styles with one another.
- To know the learning style's influence in the achievement of physics.
- To know the significant difference if any in the achievement due to variation in their personal variable with respect to each identified learning styles.

### Hypotheses of the study

There is a positive relationship between learning style and achievement of students in physics.

There is no significant difference between the different identified learning styles of higher secondary students with one another.

There is no significant difference in the achievement in physics due to variation in their personal variable. (Like rural, urban, girls, boys, girls,group of study, etc.) with respect to each identified learning styles.

### Methodology

The present study was a descriptive survey which was intended to measure the learning style and achievement in physics of higher secondary students. The data was collected from 250 XI standard physics students in karur district by adopting simple random sampling method.

### Tools of the study

Learning Style Inventory (LSI) and Achievement Test constructed by the investigator were adopted for data collection.

### Results and discussion

The investigator collected the relevant data and subjected it to statistical analysis. Table1 shows the correla-

tion analysis of learning style and achievement in physics for the total sample and sub sample based on gender and group of study.

**Correlation analysis**

Variable	Sub-variable	N	Coefficient of Correlation ( )
Learning style	Whole sample	250	0.83
	Boys	131	0.81
	Girls	119	0.84
Vs	Maths group students	100	0.74
Achievement in Physics	Computer Science group students	90	0.77
	Pure Science group students	60	0.77

The above table presents the rank correlation 'p' value : 0.83 which evinced a high positive correlation between the learning style and achievement of higher secondary students in physics. Thus the stated hypothesis "there is a significant relationship between learning style and achievement of students in physics" is accepted. It is inferred that the achievement of students depend on their learning style.

Boys and girls also exhibit high positive correlation in their learning style and achievement as the rank correlation 'p' value 0.81 and 0.84 respectively. Similarly there is a significant positive relationship between learning style and achievement in physics of higher secondary students with regard to their branch of study (Maths - 0.74, Computer science - 0.77, and Pure Science 0.76 respectively). Over all it is inferred that there is a significant positive correlation between learning style and achievement in physics of higher secondary students. The result implies that the learning style of students should be properly developed among higher secondary students for better achievement

**Differential analysis**

In this part the differential analysis was employed to find out the difference between various patterns of learning styles of higher secondary students.

**TABLE 2**

The obtained't' value 12.35 is greater than the 't' critical value at 0.01 level. It is concluded that the creative learning style and acceptance anxious learning style significantly vary in their achievement in physics. The obtained 't' value 18.13 is greater than the 't' critical value at 0.01 level. It is concluded that the creative learning style and rigid-inhibited learning style significantly vary in their achievement in physics. The obtained 't' value 23.82 is greater than the 't' critical value at 0.01 level. It is concluded that the creative learning style and indisciplined learning style significantly vary in their achievement in physics. The obtained't' value 7.28 is greater than the 't' critical value at 0.01 level. It is concluded that the acceptance anxious learning style and rigid-inhibited learning style significantly vary in their achievement in physics. The obtained 't' value 13.95 is greater than the 't' critical value at 0.01 level. It is concluded that the acceptance anxious learning style and indisciplined learning style significantly vary in their achievement in physics.

plined learning style significantly vary in their achievement in physics. The obtained 't' value 6.58 is greater than the 't' critical value at 0.01 level.

Learning style	N	Mean	SD	t-value
Creative	80	41.80	4.2	12.35**
Acceptance Anxious	65	34.29	3.12	
Creative	80	41.80	4.2	18.13**
Rigid- inhibited	65	29.95	3.66	
Creative	80	41.80	4.2	23.82**
In disciplined	40	25.53	3.14	
Acceptance anxious	65	34.29	3.12	7.28**
Rigid inhibited	65	29.94	3.67	
Acceptance anxious	65	34.29	3.12	13.95**
In disciplined	40	25.53	3.14	
Rigid inhibited	65	29.95	3.67	6.58**
In disciplined	40	25.53	3.14	

**Note : \*\* significant 0.01 level**

It is concluded that the rigid-inhibited learning style and indisciplined learning style significantly vary in their achievement in physics. From the differential analysis it is inferred that Creative learning style influences more in the achievement of students when compare to other learning styles. It shows that this kind of learning style has good and desirable behaviour for good outcome in the educational process.

**Table 3: Table 3 shows the data and result of the t test for the N, mean, SD, t-value of different learning styles and the achievement in physics with respect to gender.**

	variables	N	Mean	SD	t-value
Achievement of Creative Learning style	Boys	44	40.64	3.87	3.32**
	Girls	36	43.44	3.67	
Achievement of Rigid-inhibited learning style	Boys	30	30.17	3.76	0.33@
	Girls	35	29.87	3.34	
Achievement of Acceptance anxious Learning style	Boys	35	34.84	3.36	0.51@
	Girls	30	34.43	3.08	
Achievement of Indisciplined Learning style	Boys	28	25.50	3.08	0.64@
	Girls	18	24.94	2.39	

**Note : \*\* significant 0.01 level @ Not significant**

The obtained 't' value 3.32 is greater than the 't' critical value at 0.01 level. Thus the stated hypothesis "there is no significant difference between the learning styles and achievement in Physics with respect to Gender" is rejected. It is concluded that boys and girls of creative learning style significantly vary in their achievement of physics. When the mean scores were taken into consideration it is evident that the girls are higher than boys in the creative learning style.

Whereas, the obtained t-value of Rigid – Inhibited learning style, Acceptance anxious learning style and Indisciplined Learning Styles 0.33, 0.51 and 0.64 respectively are less than that of t- critical value at 0.01 level. Thus the above stated hypotheses were accepted. Thus it is conclude that the students with Rigid – Inhibited learning style, Acceptance anxious learning style and Indisciplined Learning Styles do not vary in their achievement of physics with respect to their gender.

### Educational implications of the study

The findings of the study have the following educational implications. This study proved that there exists a significant positive relationship between learning style and achievement in physics. This study will be a lime light for the teacher to understand that the type of learning style of students plays a vital role in achievement. Thus it is important to understand the students' learning style and to practice best learning styles among our students. This study also helps the teacher to identify and remediate the Rigid – Inhibited learning style and Indisciplined Learning Style students. Once the learning styles of the students are identified, the teacher will adopt the suitable teaching method as per the group. Thus, this study strongly evinced the importance of learning styles in the teaching – learning process.

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