

# Learning style of higher secondary students in relation to their academic achievement.

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## I. INTRODUCTION

The learning style is the manner in which a learner perceives, interacts with, and responds to the learning environment. Components of learning style are the cognitive, affective and physiological elements, all of which may be strongly influenced by a person's cultural background. A preference for learning in certain ways, eg through listening and conversation, or through formal explanation and written exercises. The way a person takes in, understands, expresses and remembers information; the way a person learns best. The channels- such as vision, hearing, movement, touching, or any combination of these-through which a person best understands and retains learning; also, temperament, as in an active or passive learning style or a reflective or impulsive. A preferential mode, through which a subject likes to master learning, solve problems, thinks or simply react in a pedagogical situation.

Learning styles are simply different approaches or ways of learning. Learning style refers to students' preferences for some kinds of learning Activities over others. Characteristic approaches to learning and studying. Students who understand their own style are likely to be better learners, achieve higher grades, have more positive attitudes about their studies, feel greater self confidence and exhibit more skill in applying their knowledge in courses.

## II. OBJECTIVES

1. To find the impact of learning styles of higher secondary students on their Academic achievement.

### Hypothesis

There is no significant difference between Active and Reflective style learners in their academic achievement.

There is no significant difference between Sensitive and Intuitive style learners in their academic achievement.

There is no significant difference between Visual and Verbal style learners in their academic achievement.

There is no significant difference between Sequential and global style learners in their academic achievement.

### DESIGN OF THE STUDY

This study used the Index of Learning Styles (ILS) instrument developed by Felder and Solomon (1999) as its research tool. ILS was downloaded from the website made available online from The Index of Learning Styles Questionnaire. Barbara A. Soloman

[www.engr.ncsu.edu/learningstyles/ilsweb.html](http://www.engr.ncsu.edu/learningstyles/ilsweb.html) - Cached - Similar.

The survey consists of two sections. The first section was the demographic survey developed by the researcher. Demographic survey consists of Name of the student, Name of the school, Gender, Standard, Locality of the school. The study was conducted after obtaining permission from the school Head masters, class teachers, and subject teachers by the researcher. After getting the permission, the researcher gave detailed instruction to the participants and they were asked to go through and tick the correct response. The students were asked to score their inventory. They received the oral report of their styles of learning scores.

The Academic achievement mark was collected from respected class teacher. The reason for the data collection, description of the survey, number of questions; time to complete the survey was conveyed to the participants orally.

### Variables

**Dependent variable:** Academic achievement is taken as dependent variable.

**An independent variable:** Learning style is taken as An independent variable.

### Background variables

Gender difference, Standard, Locality of the school which affect the academic achievement of learners along with independent variable are consider ( as back ground variables) for the present study.

### Tools of research

#### Learning style

For the present study the researcher utilized The Index of Learning Styles Questionnaire. Prepared by Barbara A. Soloman and it is down loaded from website made available online from [www.engr.ncsu.edu/learningstyles/ilsweb.html](http://www.engr.ncsu.edu/learningstyles/ilsweb.html) **The Index of Learning Styles Inventory**

Web-based and pencil-and-paper versions of the ILS, is made available on the web address <<http://www.ncsu.edu/felder-public/ILSpace.html>>.

The downloaded questionnaire consists of 44 items under the following dimensions as items indicated against each.

**i.Processing** : 1, 5, 9, 13,17,21,25,29,33, 37 and 41 (11) items

All (a) : Active learners

All (b) : Reflective learners

**ii.Perception** : 2, 6,10, 14,18,22,26,30,34, 38 and 42 (11) items

All (a) : Sensitive learners

- All (b) : Intuitive learners
- iii. Input items : 3, 7, 11, 15, 19, 23, 27, 31, 35, 39 and 43 (11) items
- All (a) : Visual learners
- All (b) : Verbal learners
- iv. Understanding items : 4, 8, 12, 16, 20, 24, 28, 32, 36, 40 and 44 (11) items
- All (a) : Sequential learners
- All (b) : Global learners

**Academic achievement**

For academic achievement, Marks obtained in quarterly examination (out of 1200 and converted in to 100) is considered. of the questionnaire.

**Samples for the study**

Population for the study is all the higher secondary students studying in government, aided, unaided schools in Tirunelveli educational district. The participants for this study considered XI and XII students studying Higher secondary schools in Tirunelveli educational district. The sample consists of 300 students.

III. PROCEDURE

**Establishing validity**

Several studies have been conducted to determine the reliability and validity of the ILS. The authors Felder and Spurlin (2005) found Cronbach alpha values for Active-Reflective 0.60, Sensing-Intuitive 0.77, Visual-Verbal 0.74, Sequential-Global 0.56. **Establishment of content validity:**

Content validity gives the logical evidence that the content of the items of a test is suitable for the purpose for which the test

is designed and used. Content validity is established whether is adequate sampling of a given situations.

**Establishing reliability**

According to Felder and Spurlin (2005), the test-retest reliability of the ILS scores is varied between .7 to .9. In the present study the questionnaire was given to 50 students of Sarah Tucker Hr. Secondary School Palayamkottai on whom the pilot study was made. After discussing with Guide Test – retest method was followed by the investigator with an interval of 9 days. The responses was analyzed and the reliability was as follows.

Karl Pearson’s product moment coefficient correlation was used to find out the reliability

**Sampling technique**

Sample design employed is Probability based sampling in which each unit of the population has equal chance of being selected. Sampling method employed is simple random selection. Samples are randomly selected for the present study. The investigator has taken nearly, 43% of boys’ schools, 43% of girls’ schools, and 14% of co-education schools as the sample for the present study.

**Statistics followed**

Significant difference between two means to find the difference between two means and product moment correlation to find the relation ship between two variables.

IV. RESULTS AND DISCUSSION

There is no significant difference between Active and Reflective style learners of higher secondary school students in their academic achievement.

**Table 1.1**

**Difference in Active and Reflective style learners of higher secondary school students in their academic achievement.**

Dimensions	N	Mean	SD	df	Calculated ‘t’-value	Table value at 5% level	Remark
Active	159	67.39	12.54	298	4.22	1.97	S
Reflective	141	61.18	12.84				
Sensive	177	67.895	12.35	298	5.74	1.97	S
Intuitive	123	59.53	12.45				
Visual	181	67.21	12.62	298	4.64	1.97	S
Verbal	119	60.29	12.61				

Sequential	158	68.93	12.17	298	6.71	1.97	S
Global	142	59.49	12.18				

**Correlation between learning style of higher secondary school students and their academic achievement.**

Dimension	N	df	Calculated $\gamma$ value	Table value at 5% level	Remark
Active	159	157	0.47	.159	S
Reflective	141	139	0.14	.174	NS
Sensive	177	183	0.09	.138	NS
Intuitive	123	121	0.08	.195	NS
Visual	181	179	0.46	.138	S
Verbal	119	117	0.33	.195	S
Global	142	140	0.099	.159	NS
Sequential	158	156	0.53	.159	S

1.From the above findings it is clearly inferred that the mean value of academic achievement of active learners is greater than the mean value of academic achievement of reflective learners. Active learners have stronger learning outcomes than

Reflective style. This may be due to their process of learning, that is learning by experimenting actively (through engagement in physical activity or discussion).They absorb information by

doing something with the information and discussing, applying or explaining the information to others.

2. Reflective learners lack behind active learners in academic achievement. Because reflective learners learn by thinking about a concept. They prefer to think first about the information and like to work alone. So they may take more time to study a concept than active learners. "Let's think it through first" is unique to the reflective learners (Felder) who may not use a trial and error approach which is helpful for better learning.

3. The mean value of academic achievement of sensory (sights, sounds, physical sensations) learners is greater than the mean value of academic achievement of Intuitive learners. Because they may like to study facts and solve problems by using known methods. They like practical work, and are good to memorize things. They tend to like learning facts and often like solving problems by well-established methods and dislike complications and surprises. This may be the reason why they achieve better than intuitive learners.

They get lower grades in lecture courses, especially science courses. They ask the instructor for specific examples of concepts and procedures. They used to find out how the concepts apply in practice (Felder and Solomon, 1993). But in our system of education, the curriculum and teaching-learning process does not support reflective learners. This may be the reason why the Sensitive learning style did not make any effect on their achievement.

4. The mean value of academic achievement of Visual learners is greater than the mean value of academic achievement of verbal learners. Because visual learners tend to be effectively perceived visual (pictures, diagrams, flow charts, and demonstrations) instructions. This may be possible by innovative technology through e-learning, CDs, computers. Visual learners try to find diagrams, sketches, schematics, photographs, flow charts, or any other visual representation of course material that is predominantly verbal. They ask their instructor, consult reference books, and see if any videotapes or CD-ROM displays of the course material are available.

5. In most of our schools, students mainly listen to lectures and read material written on chalkboards and in textbooks and handouts. They gain understanding of material by hearing teachers and classmates' explanations. In the absence of oral explanations, the students may become bored and inattentive in class, do poorly on tests, get discouraged about the courses, the curriculum, and themselves, and in some cases change to other curricula or drop out of school.

6. The mean value of academic achievement of sequential learners is greater than the mean value of academic achievement of global learner. They learn in a logical progression and small incremental steps. Generally they have more learning success because the majority of books and teaching strategies used by school teachers are sequential. "They learn in steps, with each step following logically from the previous one" (About.com. Learning Style). They acquire understanding of material in small, connected chunks. "They are able to solve individual problems although the overall concept eludes them. They may fill in gaps by consulting the teachers or references. They may relate new topics to things they already know. They have good analysts

skilled at solving convergent (single-answer) problems" (Charles Smith, 2006).

7. Global learners tend to learn in large jumps, absorbing material almost randomly without seeing connections, and then suddenly "getting it." They need to grasp the big picture before they have any chance to understand the details of the subject. But if there is no picture it may be difficult for them to study" (Smith). They may feel stupid when they are struggling to master material with which most of their contemporaries seem to have little trouble. Some eventually become discouraged with education and drop out (Felder, 2005). "Global learners who lack good sequential thinking abilities, on the other hand, may have serious difficulties until they have the big picture. Even after they have it, they may be fuzzy about the details of the subject. School is often a difficult experience for global learners. Since they do not learn in a steady or predictable manner they tend to feel out-of-step with their fellow students and incapable of meeting the expectations of their teachers." (Felder & Solomon, 1993).

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