

Learning Style Preferences and Their Role in Shaping Academic Achievement among Higher Secondary Students

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Abstract

With an emphasis on factors including sex and the medium of instruction, this study examines the connection between learning styles and academic achievement among upper secondary students. Learning styles—which include kinesthetic, auditory, and visual methods—have an impact on how pupils learn and process information, which in turn affects academic performance. 300 pupils from reputable schools in the Theni district make up the sample, which is examined using statistical metrics. Higher secondary pupils exhibit above-average academic achievement and appropriate learning methods, according to the results. Academic achievement and learning styles are found to be significantly positively correlated ($r' = 0.1314$, $p < 0.05$). However, there is no discernible sex-based difference in academic achievement or learning methods. Distinct learning styles and perception patterns. On the other hand, both variables are highly influenced by the language of instruction; pupils who receive instruction in English have more developed learning styles and accomplish better academically than their Tamil-medium counterparts. In order to ensure equal learning chances, the study emphasizes the necessity for educators to implement multimodal teaching methodologies that accommodate a range of learning preferences. These results highlight how crucial it is to acknowledge individual learning preferences and modify instructional strategies in order to promote improved academic performance. To close the success gap, educational interventions should also concentrate on improving learning strategies, especially for pupils who learn Tamil.

Keywords: Learning Styles, Academic Achievement and Higher Secondary Students.

Introduction

The way that each youngster learns and processes information is different. Different children learn differently; some learn best by repeating information orally, others by writing it down, and still others by engaging in practical, hands-on activities. A learning style is a set of characteristics, actions, and mindsets that support an individual's successful learning in a specific setting. It describes how students take in, process, and remember knowledge during the learning process. Cognitive, emotional, social, and physiological traits that are largely constant and influence how people view, engage with, and react to their learning environment are all included in learning styles. These styles can be identified, classified, and defined in various ways. In general, they represent broad patterns that guide both teaching and learning. Learning styles influence how students acquire knowledge, how teachers deliver instruction, and how the two interact within a learning setting.

While individuals are born with certain predispositions toward particular learning styles, these natural or inherited tendencies are shaped by factors such as culture, personal experiences, maturity, and developmental stages. Learning styles are frequently referred to as "contextual" since the learner's history and existing

knowledge interact with the material being studied and the particulars of the learning environment. Every learner has unique, recurring preferences regarding how they process, organize, and remember knowledge. Language processing and acquisition are influenced by structural variations in the brain, according to research. Furthermore, it has been demonstrated that the hemispheres of the brain affect distinct perceptual pathways, which add to the diversity in learning preferences. According to some researchers, distinct patterns of perception and learning styles may arise from the absence of specific brain cells in one person.

Need for the Study

Students have diverse learning styles, which can be broadly categorized as visual, auditory, and kinesthetic. Visual learners benefit from charts, graphs, and images; auditory learners learn effectively through lectures and reading; and kinesthetic learners prefer hands-on, experiential learning. While students may favor one style, many engage with two or all three learning approaches. Recognizing these differences, it is essential for teachers to design their curriculum to incorporate activities that cater to all learning preferences, ensuring every student has the opportunity to succeed (Cuaresma, 2008).

In practice, it is uncommon for all three learning styles to be integrated into a single classroom setting. While this may appear challenging, it can be achieved through thoughtful planning and preparation. Adopting a multi-faceted approach requires teachers to reconceptualize their lessons, focusing on diverse ways students process information. Learning style inventories provide valuable insights into which areas teachers excel in and which require further development (Cuaresma, 2008).

Significant progress in education has emerged from extensive research on learning styles, acknowledging that students have unique learning profiles. Key dimensions explored include perceptual learning styles, field dependence/independence, analytic versus global learning, and reflective versus impulsive learning styles. Increasing students' awareness of their own learning preferences offers several benefits: enhanced interest and motivation, greater accountability for their learning, and a stronger sense of classroom community. These affective outcomes contribute to more effective and meaningful learning experiences (Reid, 1999).

Terms and Definitions

Learning styles--A collection of "cognitive, affective, and physiological factors that affect how learners perceive, interact with, and respond to the learning environment"

Academic Achievement: refers to marks obtained in the all subjects by the students in the half yearly examination

Higher Secondary Students: refers to the students enrolled in the +1 in any recognized schools.

Dependent variables: Learning Style and Academic Achievement

Independent Variables: Sex and Medium of Instruction

Objectives of the Study

1. To identify the learning styles among higher secondary students.

2. To measure the level of academic achievement among higher secondary students.
3. To examine the relationship between learning styles and academic achievement.
4. To determine the significant influence of independent variables, such as sex and medium of instruction, on the dependent variable *learning styles*.
5. To determine the significant influence of independent variables, such as sex and medium of instruction, on the dependent variable *academic achievement*.

Hypotheses of the Study

1. Higher secondary students demonstrate an adequate level of learning styles.
2. Higher secondary students exhibit an above-average level of academic achievement.
3. There is a significant positive relationship between learning styles and academic achievement.
4. There is a significant difference in learning styles among higher secondary students based on sex.
5. There is a significant difference in learning styles among higher secondary students based on the medium of instruction.
6. There is a significant difference in academic achievement among higher secondary students based on sex.
7. There is a significant difference in academic achievement among higher secondary students based on the medium of instruction.

Hypotheses Verification

Hypothesis 1: Higher secondary students demonstrate an adequate level of learning styles.

The empirical average score of learning styles among higher secondary students is found to be **95.88**, whereas the theoretical average is **80**. Since the calculated value exceeds the theoretical value, it indicates that higher secondary students possess an adequate level of learning styles. **Hence the hypothesis is accepted.**

Hypothesis 2: Higher secondary students exhibit an above-average level of academic achievement.

The empirical average score of Academic Achievement of Higher Secondary Students is found to be 68, while the theoretical average is 50 only. This shows that the Academic Achievement of Higher Secondary Students is above the average level. In other words, Academic Achievement of Higher Secondary Students is found to be high. **Hence the hypothesis is accepted.**

Hypothesis 3: There is a significant positive relationship between learning styles and academic achievement

Table 1: Correlation of Learning Styles and Academic Achievement of Higher Secondary Students

| Variables | Correlation coefficient (r) |
|-----------|-----------------------------|
| | Total, N=300 |

| | |
|--|--------|
| Learning Styles And Academic Achievement | 0.1314 |
|--|--------|

*denotes Significant at 0.05 level

The above table no.4.01 shows that the calculated value 'r', 0.1314 is greater than the critical value i.e. 0.0577 and positive. Hence the Learning Styles has significant positive relationship with Academic Achievement. Hence the hypothesis is accepted.

Hypothesis 4: There is a significant difference in learning styles among higher secondary students based on sex.

Table 2: Statistical Measures and Results of test of Significance for difference between the means of learning Styles: Sex– Wise

| Variable | Sub- Variables | N | Mean | SD | 't' - Value | Significance at 0.05 level |
|----------|----------------|-----|--------|--------|-------------|----------------------------|
| Sex | Male | 160 | 95.950 | 17.751 | 0.028 | Not Significant |
| | Female | 140 | 95.807 | 62.102 | | |

The obtained 't' value 0.028 is less than the table value 1.96 at 0.05 level of significance. This shows that there is no significant difference in Learning Styles between male and female students. Hence the hypothesis is rejected.

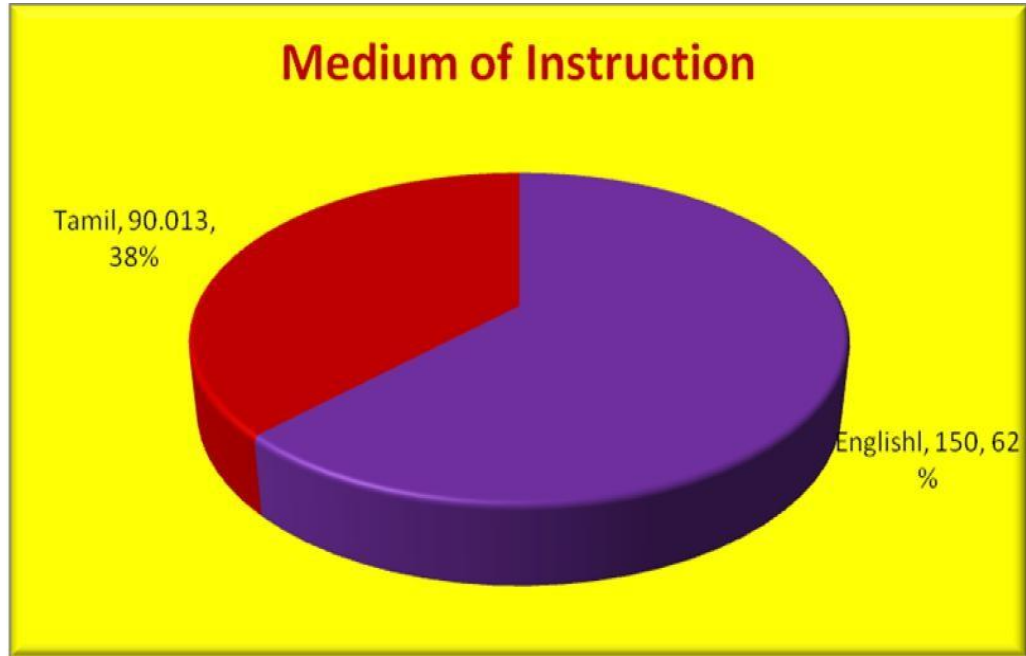
Hypothesis 5: There is a significant difference in learning styles among higher secondary students based on the medium of instruction.

Table 3: Statistical Measures and Results of test of Significance for difference between the means of learning Styles: Medium of Instruction – Wise

| Variable | Sub- Variables | N | Mean | SD | 't' - Value | Significance at 0.05 level |
|-----------------------|----------------|-----|---------|--------|-------------|----------------------------|
| Medium of Instruction | Tamil | 150 | 90.013 | 15.753 | 2.313 | Significant |
| | English | 150 | 101.753 | 60.138 | | |

The obtained 't' value 2.313 is greater than the table value 1.96 at 0.05 level of significance. This shows that there is a significant difference in Learning Styles between Tamil and English Medium students. Further, it is noted that English Medium students have more adequate Learning Styles than Tamil Medium students. Hence the hypothesis is accepted.

Figure 1: Means of Learning Styles: Medium of Instruction–Wise



Hypothesis 6: There is a significant difference in academic achievement among higher secondary students based on sex.

Table 4: Statistical Measures and Results of test of Significance for difference between the means of Academic Achievement: Sex – Wise

| Variable | Sub-Variables | N | Mean | SD | ‘t’ - Value | Significance at 0.05 level |
|----------|---------------|-----|--------|--------|-------------|----------------------------|
| Sex | Male | 160 | 68.044 | 14.370 | 0.456 | Not Significant |
| | Female | 140 | 68.807 | 14.607 | | |

The obtained ‘t’ value 0.456 is less than the table value 1.96 at 0.05 level of significance. This shows that there is no significant difference in Academic Achievement between male and female students. Hence the hypothesis is rejected.

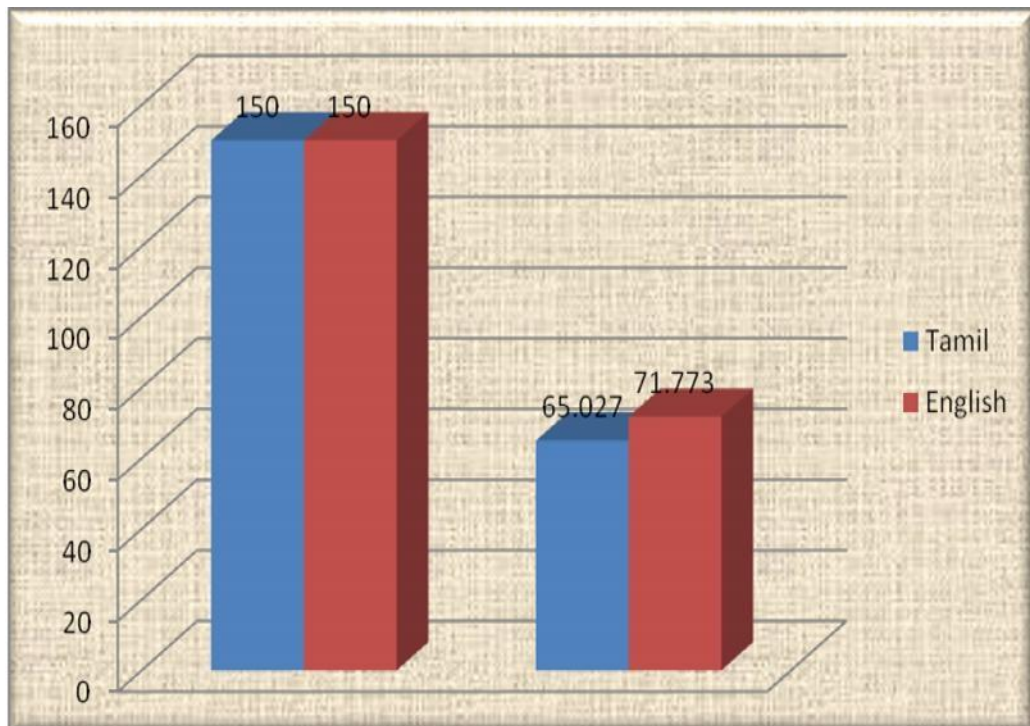
Hypothesis 7: There is a significant difference in academic achievement among higher secondary students based on the medium of instruction.

Table 5: Statistical Measures and Results of test of Significance for difference between the means of Academic Achievement: Medium of Instruction – Wise

| Variable | Sub-Variables | N | Mean | SD | 't' - Value | Significance at 0.05 level |
|------------------------------|---------------|-----|--------|--------|-------------|----------------------------|
| Medium of Instruction | Tamil | 150 | 65.027 | 14.790 | 4.148 | Significant |
| | English | 150 | 71.773 | 13.432 | | |

The obtained 't' value 4.148 is greater than the table value 1.96 at 0.05 level of significance. This shows that there is a significant difference in Academic Achievement between Tamil and English Medium students. Further, it is noted that English Medium students have higher level of academic achievement than Tamil Medium students. Hence the hypothesis is accepted.

Figure 2: Means of academic achievement: Medium of instruction– Wise



Findings

The major conclusions emerged out of the present study are presented below. Learning styles among the higher secondary students are found to be adequate. Academic Achievement among the higher secondary

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students is found to be high. Further, it is observed that Learning styles of the higher secondary students have significant positive relationship with Academic Achievement. Students studying in English medium schools, urban schools have adequate Learning styles. Students studying in unaided schools have adequate Learning styles. Students studying in English medium schools, Students studying in unaided schools have high level of Academic Achievement. In general, there is no significant difference in the Learning styles among the higher secondary students irrespective of sex, school kind, watching educational TV programmes, study habit, tuition undergoing, family income, participation extra-curricular activities and participation sports and games studied in the present investigation.

Educational Implications

It is quite interesting to observe that the present investigation has revealed that the students studying in the English medium schools have adequate Learning styles. It can further be derived that the students studying in the unaided schools have adequate Learning Styles and high level of Academic Achievement. experts to enhance the adequate Learning styles and improve the Academic Achievement among the Higher Secondary Students.

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