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A STUDY ON SCIENTIFIC INTEREST AND THINKING STYLES OF HIGH SCHOOL STUDENTS

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ABSTRACT

This study examined the relationship between Scientific Interest and Thinking Styles of High School Students in Thiruvallur District. This study adopted survey method of research. participants were 300 High School Students was randomly selected from different schools in Thiruvallur District .The research instruments used for data collection was Scientific interest inventory developed by Dr .S. Nirmaladevi & Jagadeesh and Thinking Style Inventory Developed by Dr. Amaladoss tested at 0.05 a 0.01 level of significance. The level of Scientific Interest of High Students is moderate in nature. The level of thinking style of High Students is moderate in nature. It is found that there exists a positive relationship between Scientific Interest and Thinking style of High school students. There exists significant impact with respect to Medium of Instruction, Location, Type of Management, Type of School, Parental Education and Annual Income. And there is no significant impact to Parental Occupation and Gender on Scientific Interest and Thinking Styles of High School Students.

Keywords: High School Students, Scientific Interest, Thinking Style, Survey, Random.

Introduction

Science has revolutionized our life style and brought about changes in thinking, attitudes outlooks etc. Science brought changes in health, communication, transport, power etc., and has contributed a lot to the culture. We owe our existence to science by doubling the average life span of human life. The industrialization of agriculture and release of nuclear energy was developed by the application of science. Science is universal and its results are also universal. According to Richard Livingston, "Science is almost like a deaf and dumb girl who comes with poisonous gas and atom bomb in one hand and aesthetics and penicillin in the other hand".

Science is included in the school curriculum, to develop properly the power of thinking, reasoning, curiosity, open-mindedness and ultimately to develop scientific attitudes which may create the future scientists of the emerging world whom we are eagerly looking for our progress.

Sientific Interest

Our age is essentially an age of transition where all things are changing, and changing so rapidly that many feel somewhat lost. There is much of bewilderment, a feeling of insecurity, and a sense of fear and anxiety, and these make for restlessness. This need not be so if we understand what it is all about, and if we retain a true sense of direction. Old forms must die to make room for better ones. Progress means change and we all need greater flexibility of mind and preparedness to face all changes, while retaining our faith in that which changes not. Adaptability is essential to meet the challenge of our era, the era of science and technology, with both wisdom and courage.

There is so much of confusion as to the role of science itself, and we hear contrary views. Some say: "Science will save us from superstition and fraud." Others declare: "Science is the greatest menace yet invented by man. It will destroy the human race." Some blame all the evils of gross and brutal materialism on science. Science is responsible, they claim, for the threat of total war, for the contamination of our planet by artificial increase of radiation, for the squandering of our earth's resources, for the destruction of wild life, etc. Others worship at the shrine of science, and firmly believe science will free us from all evils and usher in an age of social justice, democracy and well-being for all.

Thinking Style

Thinking is an incredibly complex process and the most difficult concept in psychology to define or explain. However, it has not deterred the thinkers, and many different definitions exist, some of them are given here.

"In strict psychological discussion it is well to keep the thinking for an activity which consists essentially of a connected flow of ideas which are directed towards some end or purpose"- **Valentine**

"Thinking is mental activity in its cognitive aspect or mental activity with regard to psychological objects". - **Ross**

"Thinking is a problem solving process in which we use ideas or symbols in place of overt activity". - **Glimer**

Statement of the Problem

Formally the problem can be stated as follow

A study on Scientific Interest and Thinking Styles of high school Students in Thiruvallur District.

Objectives of The Study

1. To assess the Scientific Interest of high school students.
2. To study the thinking Styles of high school students.
3. To find out the differences in Scientific Interest of high School students based on
   - Gender
   - Age
   - School management
   - School type
   - Medium of instruction
   - Parental educational qualification
   - Parental occupation
   - Parental annual income
   - Residential area

4. To find out the differences in thinking Styles of high School students based on
   - Gender
   - Age
   - School Management
   - School type
   - Medium of instruction
   - Parental educational qualification
   - Parental occupation
   - Parental annual income
   - Residential area

5. To find out the relationship between Scientific Interest and thinking Styles of high School students.

Hypotheses of The Study

1. The level of Scientific Interest of high school students is moderate.
2. The level of thinking Styles of high school students is moderate.
3. There is no significant difference in Scientific Interest of high School students with respect to
   - Gender
   - Age
   - School management
   - School type
   - Medium of instruction
   - Parental educational qualification
   - Parental occupation
   - Parental annual income
   - Residential area

4. There is no significant difference in thinking Styles of high School students with respect to
   - Gender
   - Age
   - School management
   - School type
   - Medium of instruction
   - Parental educational qualification
   - Parental occupation
   - Parental annual income
   - Residential area

5. There is no signification relationship between Scientific Interest and thinking Styles of high School students.

Research Design

Methodology

The study was conducted through survey method of research and it is most suitable for the present study.

Sample

A stratified random sampling technique was adopted for the selection of sample 300 High school Students were taken for the study.

Table - 1

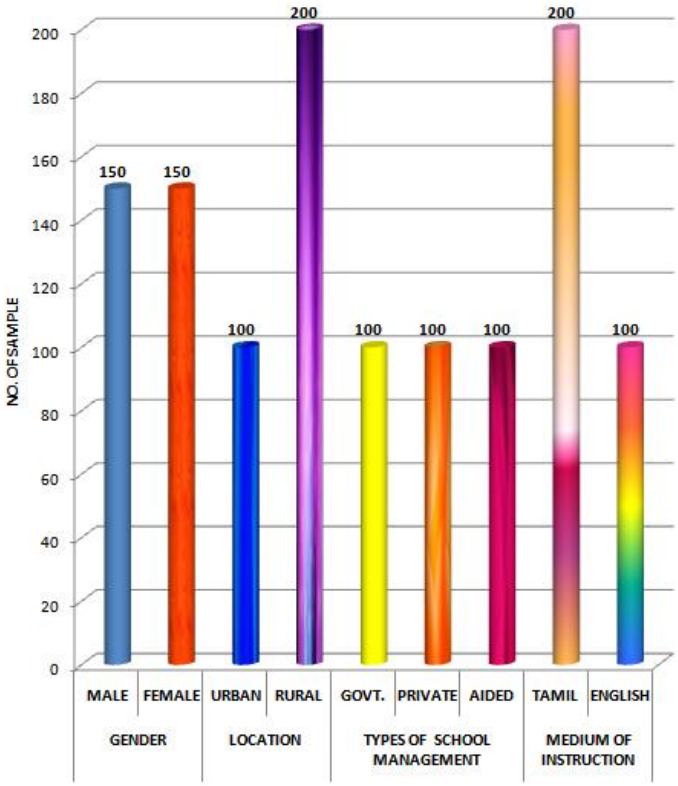
Showing the school wise distribution of the sample

VARIABLE		*SAMPLE*	*TOTAL*
GENDER	*MALE*	*150*	*300*
	FEMALE	*150*	
LOCATION	*RURAL*	*220*	*300*
	URBAN	*80*	
MANAGEMENT	*GOVT*	*100*	*300*
	PRIVATE	*100*	
	AIDED	*100*	

MEDIUM	*TAMIL*	*200*	*300*
	ENGLISH	*100*	

Figure -1

Graph showing distribution of sample using gender, location, management and medium as the variable



Research tools

To verify the hypothesis formulate in the study, the following tool have been use.

1. Scientific Interest inventory constructed and validated by **Dr. S.Nirmala devi and Jagadeesh,**

2. Thinking styles inventory developed by **Dr. Amala doss**

Statistical Techniques

Suitable descriptive and inferential statistical techniques were used in the interpretation of the data to draw out a more meaningful picture of results from the collected data. In the present study the following statistical measures were used.

- Mean.
- Standard Deviation.
- t-test
- f-test
- Correlation coefficient.

Major findings

1. The level of Scientific Interest of High Students is moderate in nature
2. The level of Thinking style of High Students is moderate in nature
3. It is found that there exists significance difference between the Male and Female High school students on their Scientific Interest mean scores.
4. It is found that there exists no significance difference between the Male and Female High school students on their Thinking Style mean scores.
5. It is found that there exists significance difference between the Tamil medium and English medium high school students on their Scientific Interest mean scores.
6. It is found that there exists significance difference between the Tamil medium and English medium high school students on their Thinking style mean scores.
7. It is found that there exists significance difference between the Rural and Urban area High school students on their Scientific Interest mean scores.
8. It is found that there exists significance difference between the Rural and Urban area High school students on their Thinking Style mean scores.
9. It is found that there exists significant difference in the Scientific Interest of high school students with respect to Government, Government Aided and Private based on their Scientific Interest.
10. It is found that there exists significant difference in the Thinking Style of high school students with respect to Government, Government Aided and Private based on their Thinking Style.
11. It is found that there exists significant difference in the Scientific Interest of high school students with respect to Boys, Girls and Co-Education based on their Scientific Interest.
12. It is found that there exists significant difference in the Thinking Style of high school students with respect to Boys vs. Girls school students and Girls vs. Co-Education school students based on their Thinking style.
13. It is found that there exists significant difference in the Scientific Interest of high school students with respect to Illiterate, School Education and Degree parental Education based on their Scientific Interest.
14. It is found that there exists significant difference in the Thinking Style of high school students with respect to Illiterate, School Education and Degree parental Education based on their Scientific Interest.
15. It is found that there exists significant difference

in the Scientific Interest of high school students with respect to Self Employ vs. Private Employ and Private Employ vs. Government Employ parental Occupation based on their Scientific Interest.

16. It is found that there exists no significant difference between the high school students Thinking Style based on their Parental Occupation.
17. It is found that there exists significance difference between the Below Rs.100000 and Above Rs.100000 Parental annual income of High school students on their Scientific Interest mean scores.
18. It is found that there exists significance difference between the Below Rs.100000 and Above Rs.100000 Parental annual income of High school students on their Thinking style mean scores.
19. It is found that there exists a positive relationship between Scientific Interest and Thinking style of High school students.

Table - 2

Showing the Frequency and Percentage for the Scientific Interest of High school Students.

Variable	*No. of Samples*	*Range*	*Category*	*Frequency*	*%*
Scientific Interest	*300*	*Below 33*	*Low*	*54*	*18%*
		33-56	*Moderate*	*201*	*67%*
		Above 56	*High*	*45*	*15%*

Figure-2

Graph showing the frequency for the scientific interest of high school students

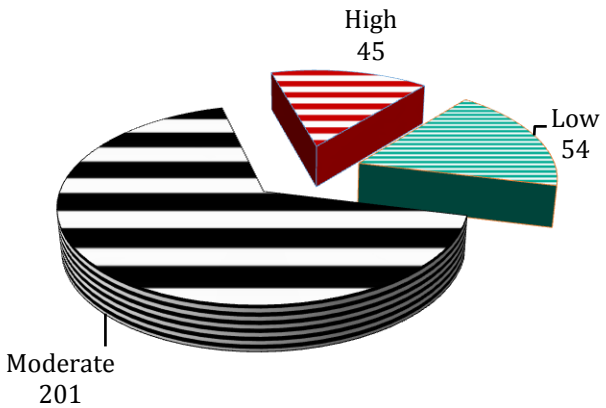


Table – 3

Showing the Frequency and Percentage for the Thinking Style of High school Students.

Variable	*No. of Samples*	*Range*	*Category*	*Frequency*	*%*
Thinking Style	*300*	*Below 79*	*Low*	*69*	*23.00 %*
		79-144	*Moderate*	*176*	*58.66 %*
		Above 144	*High*	*55*	*18.33 %*

Figure-3

Graph showing the frequency for the thinking style of high school students

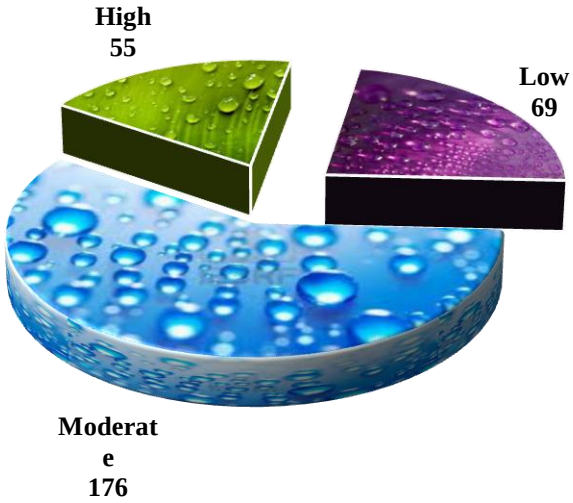


Table- 4

Table shows the significant difference between the high school students Scientific Interest based on their gender using mean scores.

VARIABLE	*GENDER*	*N*	*MEAN*	*SD*	*t-value*	*L.S*
Scientific Interest	*Male*	*150*	*47.23*	*9.054*	*3.882*	*0.01*

	Female	*150*	*42.21*	*12.995*		

Figure-4

Graph showing difference between the high school students scientific interest based on their gender using mean scores

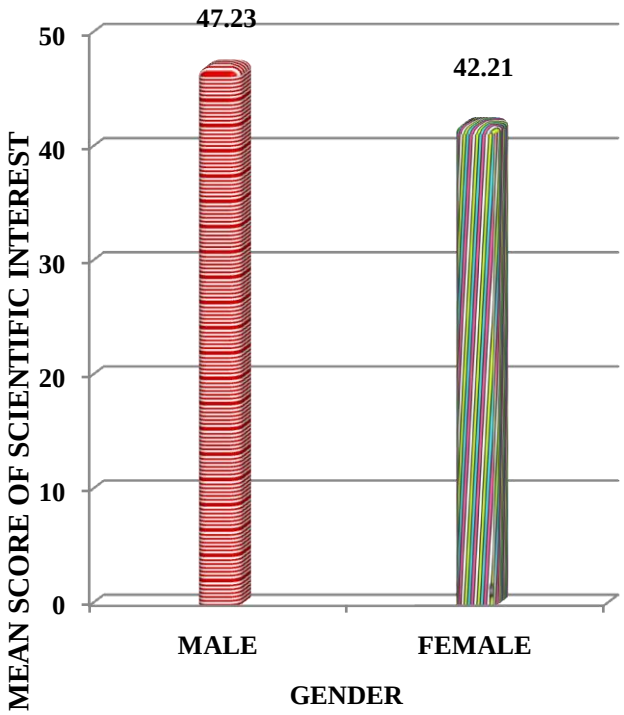


Table -5

Table shows the significant difference between the high school students Thinking Style based on their gender using mean scores.

VARIABLE	*GENDER*	*N*	*MEAN*	*SD*	*t-value*	*L.S*
Thinking Style	*Male*	*150*	*114.61*	*26.510*	*1.381*	*NS*
	Female	*150*	*109.45*	*37.294*		

Table-6

Showing the relationship between the Scientific Interest and Thinking style.

Variable	*Number*	*Correlation*
Scientific Interest Vs Thinking style	*300*	*0.620*

Educational Implications

From the analysis we may infer that Thinking style and scientific interest are positively correlated with each other among High school students. And also the result reveals moderate level exists among High school students both in Thinking style and scientific interest.

Mean score of Scientific interest of male High school students is far better than the female students. It prevails due to less anxiety level among male students than the female students made them to do better in science. Same also seen in Thinking style with no significant.

Mean score of Scientific interest of English medium High school students is far better than the Tamil medium students. Since most of the English medium students comes from private school, they have more infrastructure and lab facilities then the Tamil medium students. Adopt strategies for developing thinking skills among higher education students.

1. To ensure that the students are motivated to develop various learning styles in a desirable direction. dynamic teaching methods have to be adopted by the teachers.
2. Strategies for developing various thinking skills should be included in the school curriculum.
3. Innovative modern teaching strategies should be incorporated to develop thinking skills.
4. Teachers should build confidence among their students to think logically about any problem they come across.

Conclusion

The teachers especially science teachers should create a situation in classroom that will allow and improve questioning attitude, critical thinking, reasoning power, and discussions among the students in a constructive manner. The real life situations can be explained with the scientific facts and backgrounds. Teacher can give opportunities in the form of exhibitions, more exposure to scientific facts, avoiding superstitious believes. The facilities and opportunities provided by the institution also can used to improve the knowledge level that ultimately improve scientific attitude to significant level.

Parents also can do their role by encouraging the questioning attitudes of children and by answering them in satisfactory manner. The life situations and the complex

situations can be explained in detail. The cause and effect relationship should be made clear to the students that will ultimately improve their scientific interest to significant level. A thinking style preference leads to a learning style preference and in turn determines a student's dominant cognitive mode in which he/she communicates and receives information. The purpose of the present study was to study the relationship among the variable like Thinking Style and scientific interest.

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