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A Study on Science Interest of the Higher Secondary Students Studying in Ariyalur District

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ABSTRACT

The present study focuses on "A Study on Science Interest of the Higher Secondary Students studying in Ariyalur District". The investigator used the random sampling technique for this study. The findings of this study are: (i) There is no significant difference in mean scores of Science interest with respect to Gender, (ii) There is no significant difference in mean scores of Science interest with respect to Religion, (iii) Tamil medium students have high Science interest than English medium students, (iv) There is no significant difference in mean scores of Science interest with respect to School Management, and (v) There is no significant difference in mean scores of Science interest with respect to Family type.

Key Words: Science, Interest, Science Interest, Higher Secondary Students.

INTRODUCTION

Development of interest in science is another important goal of science education. Research findings show that when people are interested in something, they become more attentive and alert (Krapp, Hidi, & Renninger, 1992). In order to have a clear understanding of students' interests in science, it is better to know in advance about their interests and their nature. Interest is referred to as a key factor and driving force that helps us pay attention and stay engaged in our activities. This is the core strength that guides the entire teaching-learning process. Interest as a driving force not only helps children gain certain learning experiences, but also influences attitudes, talents and other personality traits.

Keeping students engaged and interested in the classroom is a key factor in successful teaching and learning. To educators, the approach seems obvious: get students involved and they are more likely to engage in the classroom activities. In the end, teaching them becomes much easier. The fundamental question is how to foster this level of student interest and engagement in teaching content, especially for science, mathematics, and technology.

The development of student's interest in science has long been accepted as an objective for science teaching by science educators and teachers. The term "interest in science" has been employed to denote a range meaning that extends from positive feeling towards science to complete absorption in scientific inquiry (Krathwohl et al., 1960)

According to Haussler & Hoffmann, (2000) students' interest in science involves three dimensions: a) interest in a particular context in studying science; b) interest in a particular content linked with that context; and c) interest in a particular activity a student is engaged in, in conjunction with that content. Therefore, the context in which science is studied is a powerful predictor of students' interest. Contexts that stimulate interest involve science as a) a means to promote practical competence; b) a socio-economic enterprise; c) a vehicle to enhance emotional experience; d) an intellectually challenging endeavour; and e) a vehicle to qualify for professional life.

STUDIES RELATED TO INTEREST IN SCIENCE

Bodzin, Alec; Hammond, Thomas; Fu, Qiong; Farina, William (2020) discusses on Development of Instruments to Assess Students' Spatial Learning Attitudes (SLA) and Interest in Science, Technology and Geospatial Technology (STEM-GEO). Two new instruments were created to assess secondary students' (ages 14-18) spatial learning attitudes and their interest in science and technology, related careers ideas and perceptions about geospatial technologies. These instruments were designed to evaluate the outcomes of a geospatial learning curriculum project. During a two-year period, we explored the use of these instruments during the prototype testing and pilot testing of a series of socio- environmental science investigations. The instruments were implemented with 664 ninth grade urban students from a population traditionally underrepresented in STEM-related fields. Both classical and Rasch analyzes were conducted each year to optimize the instruments. The resulting 24-item Student Interest in Science, Technology and Geospatial Technology (STEM-GEO) measure and 9-item Spatial Learning Attitudes (SLA) measure had high internal consistency reliabilities (Cronbach's Alpha) as well as acceptable Rasch reliabilities. Content validity and construct validity evidence were also summarized and discussed. International Journal of Educational Methodology, v6 n1 p67-81 2020.

Jia, Chaochao; Yang, Tao; Qian, Yu; Wu, Xinye (2020) discusses on The Gender Differences in Science Achievement, Interest, Habit, and Creativity. In this study, we explored the gender differences in science achievement, interest, creativity, and so on, using a national representative sample from the National Assessment of Education Quality (NAEQ). NAEQ assessed the Grade-4 (n = 112,314) and Grade-8 (n = 74,808) students' scientific literacy of Mainland China in 2017. The findings indicated that there was no gender difference of science academic achievement in both Grade 4 and Grade 8 in China. However, scientific interests varied in different grades and disciplines. Girls had a higher interest in science in Grade 4 and higher interest in biology in Grade 8. The 8th-grade boys had much higher creativity than girls ($p < 0.001$, Cohen's $d = 0.301$), and outperformed girls in multiple-choice items. Our study also highlighted that boys were likely to outperform in the higher score ranges, as well as lower score ranges. Finally, we also found that the boys had significantly greater variability in science achievement and interest (variance ratio [VR]>1.1), while the girls had slightly greater variability in creativity ($0.9 < VR < 1.0$). Our results provide a reliable Chinese evidence for international studies on gender differences. However, further research is demanded to study the reasons behind gender differences deeply.

NEED AND SIGNIFICANCE OF THE STUDY

Excellence in Education is the need of the hour. The number of students produced at different levels is gradually increasing to meet the demands of education. The whole process of education is shaped and molded by the human personality called teacher, who plays a pivotal role in any system of education. Teachers produce the future architects of the nation. Particularly higher secondary school teachers should carefully mold the future students with all development components by their effective teaching. Now a days creating interest in learning among students is vital.

Science education is crucial for the understanding of our environment and it is an essential tool for technological development in any society. Scientific attitude, science process skills are central to the development of the affective skills and play a major role in science education and in the lives of the pupils pursuing science education influencing their achievement. Thus adolescent students need proper guidance and great care should be taken at this stage in developing qualities like scientific attitude, positive attitude towards learning of science and science process skills. It is definitely going to help these children to understand the importance of Science and the significance of learning Science. Under such circumstances, it becomes important to investigate the learning of science by children, who are the potent citizens of tomorrow. However this important aspect of science teaching has not been studied properly by the research workers especially in the state of Bihar. Hence the investigator of the present study focused on these important aspects of science teaching.

STATEMENT OF THE PROBLEM

Considering the pivotal role of reading in the educational scenario the investigator intends to take up the current study entitled “A study on Science interest of the higher secondary students studying in Ariyalur District”**.**

OPERATIONAL DEFINITIONS OF THE TERMS

SCIENCE INTEREST

Science interest reflects the cognitive potential of a student for achievement in the science field. The stronger the interest in science that a student has the greater the commitment and effort to succeed.

- Science interest refers to the duties of a teacher to mould the students into effective manner and to make them good in science.

OBJECTIVES OF THE STUDY

1. To study the Science interest of the students.
2. To study whether there is any significant difference in Science interest of higher secondary students belonging to different groups based on

(i). Gender

(ii). Religion

(iii). Medium of Instruction

(iv). School Management

(v). Family Type

HYPOTHESES OF THE STUDY

1. There is no significant difference in mean scores of Science interest with respect to Gender.
2. There is no significant difference in mean scores of Science interest with respect to Religion.

3. There is no significant difference in mean scores of Science interest with respect to Medium of Instruction.
4. There is no significant difference in mean scores of Science interest with respect to School Management.
5. There is no significant difference in mean scores of Science interest with respect to Family type.

METHOD OF THE STUDY

In the present study normative survey method is employed. The normative method is used to describe and interpret, what exist at present. It is concerned with the condition of relationships that exit, practices that prevail, beliefs, points of view or attitudes that are held, processes that are ongoing and effects that are being felt.

Normative method is useful when a researcher want to collect data on phenomena that cannot be directly observed. The present study focused on survey collected through a Profile. Moreover the study is based on the cross sectional survey, intended to gather information on a population at a single point of time.

TOOL USED IN THE STUDY

The tool is an instrument, which is used to collect data from the sample. The Science interest scale was developed and standardised by Dr.M.Saundaiyan Selvaraj and M.Mohanraj (2001). This profile has been modified in terms of language and content wherever necessary. This profile has been translated into Tamil. This instrument is used to study the Science interest of the higher secondary students.

DESCRIPTION OF THE TOOL

The front sheet was designed to collect data about the personal related details of the students like Gender, Religion, Medium of instruction, School management, and Family type. Science interest consists of 40 statements. The students were requested to give responses based on their preferences against three options namely strongly agree, agree, Uncertain, disagree and strongly disagree. Science interest consists of five-point scale with the responses to the categories strongly agree, agree, Uncertain, disagree and strongly disagree. Scored from 1 to 5

COLLECTION OF DATA

The investigator contacted the Head Master and Principal of the selected schools and permission was obtained. The investigator requested higher secondary students to fill the tool. The time taken by the students for filling in the profile was around 40 minutes. The sample of this study was 200 students from select higher secondary schools in Ariyalur District.

SCORING OF TOOL

After obtaining the responses, they were scored. In the Science interest statements, strongly disagree was awarded as 1 point, disagree was awarded as 2 point, uncertain was awarded as 3 point, agree was awarded as 4 point and strongly agree was awarded as 5 point. The maximum score possible was 200 and the minimum score was 40.

RELIABILITY OF THE TOOL

"Science interest Scale (Dr.M.Saundaiyan Selvaraj and M.Mohanraj (2001))" Reliability was estimated by using the Test-Retest Method as 0.89.

STATISTICAL TECHNIQUES USED FOR DATA ANALYSIS

In the present study following statistical techniques were used.

1. Descriptive Analysis (Mean, Standard Deviation)
2. Differential Analysis (t-value, F-ratio)

DELIMITATIONS OF THE STUDY

- The samples are selected from Ariyalur District only
- Only higher secondary school students selected as samples.
- Medium is restricted to only Tamil and English medium.

HYPOTHESIS WISE ANALYSIS

Further the data was subjected to appropriate statistical analysis for testing the Hypothesis.

H1 - There is no significant difference in mean scores of Science interest with respect to Gender

Variables	**Male (1)**		**Female (2)**		**t- Value**	**Level of Significance**
	Mean	**S.D**	**Mean**	**S.D.**		
Science interest	153.82	20.546	153.76	18.772	0.025	Not Significant

The tabulated value of t was 1.96 at 0.05 level and 2.58 at 0.01 level.

The calculated value of t in Science interest was 0.025. It was lesser than the tabulated value. Hence the null hypothesis was accepted with respect to Gender.

Thus, There is no significant difference in mean scores of Science interest with respect to Gender.

H2 - There is no significant difference in mean scores of Science interest with respect to Religion

Variables	**Christian (1)**		**Hindu (2)**		**Muslim (3)**		**F-Ratio**	**Level of Significance**	**Differed Significantly**
	Mean	**S.D**	**Mean**	**S.D.**	**Mean**	**S.D.**			
Science interest	156.32	19.124	152.24	20.232	158.43	16.719	1.065	Not Significant	None

The tabulated value of F was 2.99 at 0.05 level and 4.60 at 0.01 level.

The calculated value of F in Science interest was 1.065. It was lesser than the tabulated value. Hence the null hypothesis was accepted with respect to Religion.

Thus, There is no significant difference in mean scores of Science interest with respect to Religion.

H3 - There is no significant difference in mean scores of Science interest with respect to Medium of Instruction

Variables	**Tamil (1)**		**English (2)**		**t- Value**	**Level of Significance**
	Mean	**S.D**	**Mean**	**S.D.**		
Science interest	158.20	19.095	145.44	18.016	5.371	0.01

The tabulated value of t was 1.96 at 0.05 level and 2.58 at 0.01 level.

The calculated value of t in Science interest was 5.371. It was greater than the tabulated value. Hence the null hypothesis was rejected with respect to Medium of Instruction.

Thus, There is significant difference in mean scores of Science interest with respect to Medium of Instruction

H4 - There is no significant difference in mean scores of Science interest with respect to School Management.

Variables	**Government (1)**		**Aided (2)**		**Private (3)**		**F-Ratio**	**Level of Significance**	**Groups Differed Significantly**
	Mean	**S.D**	**Mean**	**S.D.**	**Mean**	**S.D.**			
Science interest	155.58	15.553	160.82	21.852	145.44	18.016	0.732	Not Significant	None

The tabulated value of F was 2.99 at 0.05 level and 4.60 at 0.01 level.

The calculated value of F in Science interest was 0.732. It was lesser than the tabulated value. Hence the null hypothesis was accepted with respect to School Management.

Thus, There is no significant difference in mean scores of Science interest with respect to School Management

H5 - There is no significant difference in mean scores of Science interest with respect to Family type.

Variables	**Nuclear (1)**		**Joint (2)**		**t- Value**	**Level of Significance**
	Mean	**S.D**	**Mean**	**S.D.**		
Science interest	154.35	18.510	153.24	20.774	0.467	0.01

The tabulated value of t was 1.96 at 0.05 level and 2.58 at 0.01 level.

The calculated value of t in Science interest was 0.467. It was lesser than the tabulated value. Hence the null hypothesis was accepted with respect to Family type.

Thus, There is no significant difference in mean scores of Science interest with respect to Family type.

MAJOR FINDINGS OF THE STUDY

1. There is no significant difference in mean scores of Science interest with respect to Gender
2. There is no significant difference in mean scores of Science interest with respect to Religion
3. Tamil medium students have high Science interest than English medium students
4. There is no significant difference in mean scores of Science interest with respect to School Management
5. There is no significant difference in mean scores of Science interest with respect to Family type

SUGGESTIONS FOR FURTHER RESEARCH

1. The present study has focused on higher secondary school students. A similar study could be conducted with Teacher training colleges and College Students.
2. Science interest can be studied in relation to some other variables like school type, Home environment, School environment, Self-esteem etc.,

CONCLUSION

This study will helpful for the development of the students, teachers, and future researchers. The researcher of this study explains the involvement of the science and its interest excellently.

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