HIGHER SECONDARY STUDENTS' ACHIEVEMENT IN PHYSICS IN RELATION TO THEIR HOME ENVIRONMENT

***P. J. Eswari & **Dr. T. Manickavasagan**
*Ph.D. Research Scholar, Department of Education, Annamalai University
** Associate Professor, Department of Education, Annamalai University

Abstract

This study was conducted with the aim of finding out the level of Achievement in Physics and their Home Environment of higher secondary students in Puducherry region. It is an attempt to see the relationship between Achievement and Home Environment. For this study the investigator has included the Gender, Locality and Type of School as biographical variables for analysis. From the systematic analysis the investigator has arrived in results that the Achievement in Physics is average and Home Environment of the entire sample is moderately favorable. Further a significant difference is found between the boys and girls of higher secondary school with respect to their Home Environment. A positive relationship is also found between the Achievement in Physics and their Home environment with respect to Gender, Locality and Type of management. Based on the results obtained through this study the suitable recommendations also were made by the investigator to improve the Achievement and their Home Environment.

Key Words: Achievement in Physics, Home Environment and Higher Secondary Students

Introduction

Education is the maximum powerful device which helped human being within the development of cultural history to a terrific quantity. It assists human being to take the issues which they face in real lifestyles situation, without it man cannot go forward. It helps the individual for complete living. Education enables the person to alter with the society and the environment. Different academic philosophers have careworn on the significance of education. The historic saints or Vedic scholars had harassed on the salvation or exaltation of human personality. Education makes the man as a good civilized person in ever changing environment. There are a larger number of factors that includes in the development of personality in the individuals like home, school, social, cultural and economical environments. Among which the home environment with various climates are considered to be very essential for the students to achieve anything in their life. Mostly the students will be adjusted with the various phases of climate in the school if they have proper home environment. Hence the present investigation deals with the relationship between Achievement in Physics and Home Environment of Higher secondary Students.

Achievement in Physics

Achievement is a general term for the successful attainment of some goal requiring a certain effort, the degree of level of success in some specified area or in general. It is the

knowledge acquired and skills developed in school subjects generally indicated by marks obtained in test and examinations. Encyclopedia dictionary of education defines as, "Successful accomplishment or performance in particular subjects, area, or courses usually by reasons of skill, hard work, and interest. Hence, the achievement of students in respect to knowledge, understanding, application, skill related to chemistry subject is said to be achievement in chemistry.

Home environment

Home environment refers to aspects of people's domestic lives that contribute to their living conditions. It also refers to objects, conditions and pressures that influences the child physically, intellectually and emotionally refers to the influences, conditions and forces prevailing with the place where the children are being with their family, which can have an effect on their nature, behavior, growth, development and maturity. The home is in fact the primary environment of child and only from here, the child can derives his raw materials for nourishment and development. It is the responsible of the home to help the child to receive the assistance whenever he needs.

Need and Significance of the Study

Students are the backbone of the educational process Education is a process and acts also as an instrument to bring out the innate behavior of the individual. The need for universal scientific literacy has been felt in India as much as in any other corner of the globe. Science is one of the great expressions of humanity. The modern civilization is a Scientific Civilization. This is an age where the modern society is completely drawn into the scientific environment; and Science has become an integral part of our life and living. Now, we cannot think of a world without science. The wonderful achievements of science have glorified the modern world.

Further the higher secondary stage, forms the vital link between the high school and the collegiate levels of education, in the present system of education in Tamilnadu. At this stage students are mature enough to possess well-formed scientific Attitude and Interests. So far as knowledge of the Investigator goes, no systematic study has so far been conducted to study the scientific Attitude and Interests in the Higher Secondary Biology students in relation to their Learning Environment. Hence, the present investigation is undertaken with a view to find out the relationship between the Learning Environment and scientific attitude and Interests of the Higher Secondary Biology students

Objectives of the Study

1. To find out the level of Achievement in Physics of Higher Secondary Students.
2. To find out the level of Home Environment of Higher Secondary Students.
3. To find out if there exist any significant difference between the sub-samples of the higher secondary students under various categories with respect to their Achievement in Physics.
4. To find out if there exist any significant difference between the sub-samples of the higher secondary students under various categories with respect to their Home Environment.
5. To find out if there exist any significant relationship between achievement in Physics and Home Environment of Higher Secondary Students.
6. To find out is there any relationship between achievement in Physics and Home Environment of Higher Secondary Students.

Hypotheses of the Study

1. The Higher Secondary Students' Achievement in Physics is high.
2. The Home Environment of Higher Secondary Students is high.
3. There is a significant difference between the sub-samples of Higher Secondary Students under various categories with respect to their Achievement in Physics.
4. There is a significant difference between the sub-samples of Higher Secondary Students under various categories with respect to their Home Environment.
5. There is a significant relationship found out between the Achievement in Physics and Home Environment of Higher Secondary Students.
6. There is a positive relationship between Achievement in Physics and Home Environment of Higher Secondary Students.

Tool used

1. Home Environment Scale- Standardized by Aaliya Akhtar& Dr. Shail Bala Saxena (2013).
2. For Achievement Scores, Students' Physics Half Yearly Examination marks have been taken from the School Record

Sample of the Study

This study was conducted with 600 Higher Secondary Students of Puducherry Region. The sample was selected by using simple random sampling technique.

Method of Study

For this investigation the researcher adopted Normative Survey Method. It involves describing, recording, analyzing and interpreting the data which are all directed towards a better understanding of the Achievement in Chemistry and Home Environment of Higher Secondary Students.

Statistical Techniques Used in the Study

1. Descriptive Analysis
2. Differential Analysis
3. Correlation Analysis

Data Analysis

Table-1: The Mean and Standard Deviation of Achievement in Physics Scores of Higher Secondary Students.

Sample	N	Mean	SD
Entire sample	600	63.08	14.878

From Table-1, The Achievement in Physics of the entire sample of Higher Secondary Students is Average.

Table-2: The Mean and Standard Deviation of Home Environment scores of Higher Secondary Students.

Sample	N	Mean	SD
Entire sample	600	131.93	21.053

From Table-2, the Home Environment of the entire sample of Higher Secondary Students is Moderately Favorable.

Table-3: Significant difference between the Mean Achievement in Physics Scores of Higher Secondary Students with respect to their Gender

Variable	Gender				t-Value	Significance at 0.05 level
	Male (350)		Female (250)			
	Mean	S D	Mean	S D		
Achievement in Physics	61.71	15.224	64.84	15.144	2.491	Significant

From Table-3, there is a significant difference between the Achievement in Physics scores of higher secondary students based on Gender.

Table-4 Significant difference between the Mean Achievement in Physics Scores of Higher Secondary Students with respect to their Locality

Variable	Locality				t-Value	Significance at 0.05 level
	Rural (300)		Urban (300)			
	Mean	S D	Mean	S D		
Achievement in Physics	60.77	13.826	65.25	16.281	3.633	Significant

From Table-4, it is concluded that the Rural and Urban students differ, It is concluded significantly. Hence the hypothesis framed earlier is rejected.

Table-5 Significant difference between the Mean Achievement in Physics Scores of Higher Secondary Students with respect to their Type of Management

Variable	Type of Management				t-Value	Significance at 0.05 level
	Government (300)		Private (300)			
	Mean	S D	Mean	S D		

Achievement in Physics	57.79	15.461	68.23	13.134	8.919	Significant

From Table-5, it is concluded that the there is significant difference between the Government and Private Higher Secondary Students with respect to their Achievement in Physics.

Hence the hypothesis framed earlier is rejected.

Table-6: Significance of difference between the mean Home Environment Scores of Higher Secondary Students with respect to their Gender.

Variable	Gender				t-Value	Significance at 0.05 level
	Male (350)		Female (250)			
	Mean	S D	Mean	S D		
Home Environment	130.76	22.295	134.36	19.414	2.103	Significant

From Table-6, it is concluded that the Male and Female Students differ significantly in their Home Environment. Hence the hypothesis framed earlier is accepted.

Table-7: Significance difference between Rural and Urban Students with respect to their Home Environment.

Variable	Locality				t-Value	Significance at 0.05 level
	Rural (300)		Urban (300)			
	Mean	S D	Mean	S D		
Home Environment	132.15	21.598	132.36	20.830	0.119	Not Significant

From Table-7, it is concluded that the Rural and Urban students do not differ significantly in their Home Environment. Hence the hypothesis framed earlier is accepted.

Table-8: Significance of difference between the mean Home Environment Scores of Higher Secondary Students with respect to their Type of Management.

Variable	Type of Management		t-Value	Significance at 0.05 level
	Government (300)	Private (300)		

	Mean	S D	Mean	S D		
Home Environment	129.93	20.762	134.58	21.412	2.698	Significant

From Table-8, it is concluded that there is a significant difference between the Rural and Urban Higher Secondary Students with respect to their Home Environment. Hence the hypothesis framed earlier is rejected

Table-9: Correlation between the Achievement in Physics and Home Environment of Higher Secondary Students

S. No	Sample	Sub sample	Number	Df	Table value at 0.05	'r' Value ASI	Significant / Not Significant
	Entire sample		**600**	**598**	**0.088**	**0.175**	Significant
1	Gender	Male	350	348	0.088	0.167	Significant
		Female	250	248	0.088	0.181	Significant
2	Locality	Rural	300	298	0.139	0.199	Significant
		Urban	300	298	0.139	0.164	Significant
3	Type of Management	Government	300	298	0.139	0.216	Significant
		Private	300	298	0.088	0.180	Significant

The above table shows that there is a significant positive relationship between Achievement in Physics and Home Environment of higher secondary students with respect to Gender, Locality and Type of management. Hence the hypothesis framed earlier is accepted.

Findings of the Study

1. The Achievement in Physics of entire sample of Higher Secondary Students is average.
2. The Home Environment of entire sample of Higher Secondary Students is Moderately Favorable.
3. There is significant difference between the Male and Female Higher Secondary Students with respect to their Achievement in Physics.
4. There is significant difference between the Rural and Urban Higher Secondary Students with respect to their Achievement in Physics.
5. There is significant difference between the Government and Private Higher Secondary Students with respect to their Achievement in Physics.
6. There is significant difference between the Male and Female of Higher Secondary Students with respect to their Home Environment.
7. There is no significant difference between the Rural and Urban of Higher Secondary Students with respect to their Home Environment.
8. There is significant difference between the Government and Private Higher Secondary Students with respect to their Home Environment.

9. There is a significant positive relationship between the Achievement in Physics and Home Environment of Higher Secondary Students.

Recommendations

The present study gives a clear-cut view about the present position of XI standard students Achievement in Physics and their Home Environment. Based on the important findings stated earlier the following recommendations are suggested.

1. Innovative Teaching Learning strategies should be incorporated. For example Brain Storming, Group Discussion, Flipped Learning, Experiential Learning etc.
2. Adopting problem -solving approaches in teaching of physics and incorporating technologies in teaching learning process.
3. Physics education should be correlated with the daily life activities.
4. Parents and relatives should always encourage their children to excel in science education.

Conclusion

The present study made on higher secondary student's Achievement in Chemistry in relation to their reasoning ability The findings of the study reveal the present position of higher secondary school student's Achievement in physics is average and their Home Environment is moderately favorable. The study reveals that there is a significant relationship between achievement scores in Physics and their Home Environment with respect to their Gender, Locality and Type of Management. The future teachers must keep in mind that their valuable time and work creates harmonious nation to provide suitable packages for the achievement of school students.

References

1. Agarwal J.C. Educational Research, New Delhi, Ariya Book Depot, (1966)

2. Agarwal.Y.P.(1990),"Statistical methods" Convepts, Application and Computation"(2nd ed.), New Delhi, Sterling Publishers Private Ltd.

3.Aggarwal (2005), Philosophical and Sociological Perspectives on Education -J.C. Vikas Marg, Shakarpur, Delhi-110092 (India).

4.Arul, T., and Pazhanivelu, G., (2018), Study on achievement of higher secondary school biology students, Journal of Educational & Psychological Research, Vol.18 (2).

5.Goel, (2004**),** The effect of home environment on educational aspirations, Journal of Educational Research and Extension, Vol. 2(4), pp.139-143.

6.McClelland, J. A.G. (1985). Misconceptions in mechanics and how to avoid them. Physics Education, 20, 159-162.