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## **Relationship Between Critical Thinking Skill and Achievement in Physics among Higher Secondary School Students in Thrissur District**

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### **Abstract**

This study reveals that the Relationship between Critical Thinking Skill and Achievement in Physics among Higher Secondary School Students. Sample of this study consists of 600 higher secondary school students in Thrissur district. The result of the study found out that there is a positive relationship between Critical Thinking Skill and Achievement in Physics among Higher Secondary School Students in Thrissur District.

### **Introduction**

In today's classroom, critical thinking is an essential and significant subject. Teaching kids to think critically is something that interests all instructors. It is commonly acknowledged that critical thinking, or the capacity for purposeful, self-regulating judgement, is a necessary talent for the information age. The majority of educators concur that one of the best objectives of formal education is teaching students how to think critically. This involves considering significant issues in academic fields like science, math, and history as well as the social, political, and ethical transformations that occur in day-to-day living in a multifaceted and progressively more complicated world.

The study of the smallest subatomic particles to the biggest galaxies in the universe, physics, the science of matter and energy, explores concepts of space, time, matter, energy, and radiation. It forms the foundation of the physical sciences. Physics has a huge impact on modern society in many different ways. Recent advances in areas like laser optics, miniature electronics, nuclear energy, and medical instruments are just a few examples.

In astronomy, the concepts of physics are used to the study of planets, stars, galaxies, and other celestial objects that are visible through telescopes. All material systems have some of the characteristics covered in physics classes, such as energy conservation. In physics, these characteristics are frequently referred to as laws. Within the natural sciences category, which also includes chemistry and biology, physics is a fundamental discipline.

### **Need and Significance of the Study**

Physics is a global endeavour. This is essential to the advancement of humanity in the future. All nations should support physics education and research because it is a fascinating intellectual journey that inspires youth and broadens our understanding of the natural world. The fundamental knowledge produced by physics is essential for the next technological breakthroughs that will power the world's economies. Physics is a necessary subject in the curriculum for all of these reasons. every system and that of a sophisticated civilization. However, we now know better and are conscious of the fact that ghosts or anything similar do not exist .It is a phobia that has become ingrained in people's thoughts. We currently reside in the era.

### **Objectives of the Study**

The following objectives are used for the study

1. To find out significant difference in the mean scores of critical thinking skill for the sub sample classified on the basis of gender.
2. To find out the significant difference in the mean scores of achievements in physics for the sub sample classified on the basis of gender.
3. To find out the relationship between Critical Thinking Skill and Achievement in Physics among higher secondary school students for the total sample and the sub samples.

### **Hypotheses of the Study**

1. There is no significant difference in the mean scores of Critical Thinking Skill for the subsample classified on the basis of gender.
2. There is no significant difference in the mean scores of Achievement in Physics for the subsample classified on the basis of gender.
3. There is no significant relationship between Critical Thinking Skill and Achievement in Physics for the total sample and the subsamples.

### **Methodology**

#### **Method**

The present study was intended to measure the Critical Thinking Skill and Achievement in physics among higher secondary school students. Normative survey method was adopted as the appropriated mean for gathering the data essential for the study.

**Population**

Population of the present study is the higher secondary school students in Thrissur district.

**Sample**

The present investigation was conducted on a sample of 300 students of higher secondary school students drawn from the Thrissur district of Kerala state .Due representation will be given to gender.

**Variables of the Study**

The circumstances or traits that the researcher modifies, regulates, or observes are known as variables. There are many different kinds of variables, and independent and dependent variables are two crucial kinds.

**Independent Variables**

Gender of the students, Critical Thinking Skill.

**Dependent Variables**

In the present study dependent variable is Achievement Score in Physics.

**Tools employed for the Collection of data**

The tools used in this study for the collection of data are given below.

- General data sheet
- Critical thinking skill scale designed by Anila B Nair and Sabitha T (2014)
- Achievement Score in physics

### Statistical Analysis of Data

#### Analysis based on first objective

#### Comparison of critical thinking skill on the basis on gender

**Table 1**

*Difference between the Mean Scores of Critical Thinking Skill of Male and Female Students*

Variable	Sample	N	Mean	S.D	t	Level of
Critical thinking skill	Boys	123	131.27	17.692	0.38	significance P<0.05
	Girls	177	130.53	14.598		

From the table, the arithmetic mean of critical thinking skill of boys and girls are found to be 131.27 and 130.53 and their standard deviations are 17.692 and 14.598 respectively. The calculated t value is 0.38 which is less than the table value 1.96 at 0.05 level of significance. so there is no significant difference in critical thinking skill between boys and girls. So, the null hypothesis that, “there is no significant difference in critical thinking skill for the sub sample classified on the basis of gender” is accepted.

#### Analysis based on second objective

#### Comparison on achievement score in physics of higher secondary school students

**Table 2**

*Details on Achievement Score in Physics on the Basis of Gender*

Variable	Sample	N	Mean	S.D	t	Level of
Achievement score in physics	Boys	123	41.52	17.960	4.1	p>2.58
	Girls	177	49.98	16.170		



From the table, the arithmetic mean of an achievement score in physics of boys and girls are 41.52 and 49.98 respectively. The standard deviations are 17.96 and 16.170 respectively. The calculated t value is 4.1 is greater than the table value 2.58 at 0.01 level of significance. So, there is significant difference exist in achievement score in physics between boys and girls at 0.01 level of significance. Therefore, the null hypothesis “there is no significant difference in achievement in physics for the subsample classified on the basis of gender “is rejected.

**Analysis based on third objective**

The investigator used statistical technique of Karl Pearson’s product moment coefficient of correlation to find out the relationship. Given below are the results of correlation analysis used in the study to find out the relationship between critical thinking skill and achievement in physics for the total sample and sub sample.

**Table 3**

*Details on Relationship between Critical Thinking Skill and Achievement in Physics on the Total Sample*

Variable	N	‘r’ value	able value	Level of significance
Critical thinking Skill and achievement in physics	300	0.166	0.148	0.01

From the table, the coefficient of correlation between the Variable critical thinking skill and achievement in physics is found to be 0.166. The calculated ‘r’ value 0.166 is greater than the table value 0.148 at 0.01 level of significance. Thus, there is a significant negligible

relationship between critical thinking skill and achievement in physics.

### Conclusion

The result revealed that there is a positive correlation existed between Critical Thinking Skill and Achievement in Physics among higher secondary school students.

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