



A STUDY ON ACHIEVEMENT IN CHEMISTRY OF THE HIGHER SECONDARY STUDENTS

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ABSTRACT

A teacher is an instrument to provide the academic setting for the learner in the classroom. This study deals with the student achievement in chemistry at higher secondary level. The major objective of the study is to find out the level of student achievement in chemistry at higher secondary level. This study employs the normative survey method. The sample comprises of 907 higher secondary students selected from different schools in Cuddalore District. The background variables are gender, medium of instruction, location of school and family type. For the present investigation the tool used was Achievement Test in Chemistry developed by the investigator. The statistical techniques used were mean, standard deviation, and t-test. The major findings of the study reveal average level.

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INTRODUCTION

Science education occupies a prime place in curriculum from the school to the university level in our country. Continuous advances in scientific and technological research have led to the growth and greater application of science in the day-to-day life of a common man. Hence, science becomes a significant subject in education, right from the elementary education level to the higher education level. Science education is supposed to perform mainly two tasks. The prime objective, in individualistic perspective, is the cultivation of a scientific temper, which includes a spirit of enquiry, a disposition to reason logically and dispassionately, a habit of judging beliefs and opinions on available evidences, readiness to reject unfounded theories and principles, the courage to admit facts, however, unsettling or disagreeable they might be, and finally, recognizing the limit of reasoning power itself. Science education also gives the individuals a firm grasps of the concept and processes of science and impart them the ability to the scientific method of problem-solving and the techniques of observation and experimentation in handling the complex problems in life. Secondly, from the social aspect, the major objective of science education is to equip this individuals to participate in the creation of society free from poverty, hunger, disease and evils such as violence, exploitation and oppression.

Concept and Meaning of Chemistry

The term chemistry can be traced backwards in time and space.

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Through Middle English, French, Greek, and Arabic branches, we reach roots it shares with the term 'alchemy', which is the name for an ancient art of unknown origin that sought to transmute base metals like lead into Gold and Silver. 'Alchemy' was a forerunner of the modern science of Chemistry, which deals with the composition, structure, properties, and reactions of matter, especially at the atomic and molecular levels.

Need For Chemistry Education

Chemistry is considered as an important subject in the school curriculum as many professional and applied courses, directly or indirectly uses the knowledge of Chemistry. Moreover, the present age is the era of science and more number of peoples are being employed in scientific pursuits which require knowledge of Chemistry. Chemistry education is also necessary because of its immense value in the students' individual life as well as in society. In the Indian education context, at the Secondary stage of education, Chemistry is taught as a subject in its own right or as part of a broader science course identified by a variety of titles, integrated science, general science and modular science, etc. The discipline may also feature as a component of courses in physical or biological sciences. The most significant aspect of modern science is the impact it has had in solving a variety of problems of practical and technological importance as well as those related to the pressing problems of mankind. A large number of these problems require a proper understanding and application of chemical principles and processes on the part of the learners.

Achievement in Chemistry

Academic achievement is the important end-product of

academic endeavours at all levels of education. The academic achievement of higher secondary students includes their achievement in all subjects such as Languages, Science, Mathematics, Social Studies, etc. Research studies on academic achievement indicate the influence of students socio-personal factors, family and parental characteristics, nature and type of school or educational institution, cognitive aspects, affective factors, learning style, personality characteristics, etc. In the present study, Achievement in Chemistry is being described as the learning outcome of higher secondary students, in Chemistry as a part of academic achievement.

Table 1 The Mean And The Standard Deviation of The Achievement In Chemistry Scores of The Entire Samples And Its Sub-Samples

S.No	Samples	Sub-samples	N	Mean	SD	't' Value	Significant at 0.05. Level
1	Entire sample		907	31.06	8.703	-	-
2	Gender	Male	468	31.37	8.380	1.420	Not Significant
		Female	439	30.56	8.667		
3	Medium of Instruction	Tamil	401	31.35	8.472	1.178	Not Significant
		English	506	30.68	8.563		
4	Location of school	Rural	412	31.57	9.498	2.242	Significant
		Urban	495	30.12	9.987		
5	Family type	Joint	515	31.44	9.541	1.988	Significant
		Nuclear	392	32.71	9.563		

Objectives of the Study

It has been decided to formulate the following objectives:

1. To find out the level of Achievement in Chemistry among higher secondary school students.
2. To find out whether there is any significant difference in Achievement in chemistry of higher secondary students with respect to the following sub samples.
 - a. Gender [Male / Female]
 - b. Medium of Instruction [Tamil / English]
 - c. Locality of school [Rural / Urban]
 - d. Family Type [Joint / Nuclear]

Hypotheses of the Study

On the basis of the objectives the following null hypotheses are framed:

1. The level of Achievement in Chemistry among higher secondary school students is low.
2. There is no significant difference in Achievement in chemistry of higher secondary students with respect to the following sub samples.
 - a. Gender [Male / Female]
 - b. Medium of Instruction [Tamil / English]
 - c. Locality of school [Rural / Urban]
 - d. Family Type [Joint / Nuclear]

METHODOLOGY

The investigator adopted the normative survey method of research to study the achievement in chemistry at higher secondary level. A sample of 907 students was randomly selected from different higher secondary schools of Cuddalore District. The investigator developed the tool for Achievement in Chemistry and validated them. The analysis of the data was carried out using statistical techniques mean, standard deviation, and t-test.

Findings of the Study

Descriptive analysis of Achievement in Chemistry

The total higher secondary Chemistry students have average Achievement in Chemistry.

Descriptive analysis of Achievement in Chemistry Sub-Samples

- The male students are having higher level of Achievement in chemistry than female students.

- The students studying in Tamil Medium have higher Achievement in Chemistry than those in English medium.
- The students studying in rural schools have higher Achievement in Chemistry than their counterparts in urban schools.
- The students who comes from Nuclear families are having higher Achievement in Chemistry than their counterparts.

Differential Analysis of Achievement in Chemistry

- There is no significant difference between male and female higher secondary students in respect of their Achievement in Chemistry.
- There is no significant difference between Tamil Medium and English Medium Higher secondary students in respect of their Achievement in Chemistry.
- There is significant difference between Rural and Urban Higher secondary students in respect of their Achievement in Chemistry.
- There is significant difference in Achievement in Chemistry scores between students from Joint and Nuclear family.

CONCLUSIONS

The findings shows majority of the higher secondary students shows average level of achievement in chemistry. The t-test shows that there is significant difference in the student achievement in chemistry at higher secondary level with respect to location of the school and family type and no significant difference in the student achievement in chemistry at higher secondary level with respect to Gender and medium of instruction.

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