



Influence of Gender and Parents Education on Achievement in Chemistry of Higher Secondary Students

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ABSTRACT

Education is a powerful tool to empower an individual on all aspects of his / her life. Chemistry plays an important role in day-to-day life. Our environment is increasingly becoming technology-based, which in turn depends mainly on the development of science. Hence the Kothari Commission has rightly recommended the study of science as a compulsory subject at all levels of education, especially upto higher secondary education. The present study is carried out with the union to find out the level and the influence of gender and parents education on achievement in chemistry of higher secondary students. A stratified random sample of 500 higher secondary students had been selected to administer the tool – Achievement Test in Chemistry developed and standardized by the Investigators. Survey method was adopted by the investigators. Descriptive and Differential Analysis were used to interpret the data meaningfully. The study indicates the average level of achievement in chemistry of higher secondary students. It also reveals the significant difference in achievement in chemistry of higher secondary students with respect to gender, father's educational status and mother's educational status. In achievement in chemistry the girls are better than the boys. The students whose parents educated upto college level have gained more mean score as compared to the students whose father's and mother's educational status as school level and uneducated.

Keywords : Education, Gender, Parents' Educational Status, Achievement in Chemistry, Higher Secondary Students.

INTRODUCTION

Educating children is the prime source of support extended in bringing out of the desirable behavioural changes in them. Just providing education to children is not of much use unless they are prepared for leading a worthy life. To make every human being to be scientific in their approach in all walks of life, science education becomes more pertinent at all levels of education, especially at the higher secondary stage of education as majority of the students stop their education either at the end of the tenth standard or higher secondary.

NEED FOR THE STUDY

The younger generation is challenged with many environmental problems like global warming, environmental pollution due to ozone depletion, spread of new diseases, etc. Hence the younger generation should be motivated to learn about the use of eco-friendly chemicals to have a healthy and happy atmosphere. Students must be encouraged to learn chemistry to more willingly face the challenges they may come across in their lives. Thus chemistry plays an important part in one's life and the planet. Therefore learning chemistry and higher level of achievement in chemistry by the higher secondary students the important and essential one. That is why the investigators felt the urgent need to find out the influence of gender and parents' education on achievement in chemistry of higher secondary students.

STATEMENT OF THE PROBLEM

The present study is entitled as "INFLUENCE OF GENDER AND PARENTS EDUCATION ON ACHIEVEMENT IN CHEMISTRY OF HIGHER SECONDARY STUDENTS".

OBJECTIVES OF THE STUDY

The investigators framed the following objectives related to the present study:

- To find out the level of achievement in chemistry of higher secondary students.
- To find out whether there is any significant difference in achievement in chemistry of higher secondary students with respect to gender.
- To find out whether there is any significant difference in achievement in chemistry of higher secondary students with respect to father's educational status.
- To find out whether there is any significant difference in achievement in chemistry of higher secondary students with respect to mother's educational status.

HYPOTHESES OF THE STUDY

- The investigators formulated the following hypotheses pertaining to the present investigation:
- The level of achievement in chemistry of higher secondary students is high.
- There is no significant difference in achievement in chemistry of higher secondary students with respect to gender.
- There is no significant difference in achievement in chemistry of higher secondary students with respect to father's educational status.
- There is no significant difference in achievement in chemistry of higher secondary students with respect to mother's educational status.

METHOD OF STUDY

In the present study, the investigators have adopted survey method.

POPULATION AND SAMPLE OF THE STUDY

Students pursuing plus one course during the academic year 2012-13 constituted the population of the study. The present investigation involves 500 (250 boys and 250 girls) higher

secondary students studying in various schools situated in Dindigul Educational District of Tamil Nadu. Stratified random sampling technique was adopted by the researchers.

TOOLS USED

The investigators of the present study used the following tools for data collection.

1. Students Profile developed by the Investigators.
2. Achievement Test in Chemistry developed and standardized by the Investigator.

STATISTICAL TECHNIQUES USED

To analyse the data, the following statistical techniques have been used by the investigators.

- 1) Descriptive Analysis
- 2) Differential Analysis

1) DESCRIPTIVE ANALYSIS

HYPOTHESIS-1 The level of achievement in chemistry of higher secondary students is high.

Table-1: Level of achievement in chemistry of higher secondary students

Level of Achievement in Chemistry	N	Percentage
Low	131	26.20
Average	242	48.40
High	127	25.40
Total	500	100.00

From Table-1, it is observed that 48.40 % of higher secondary students (N=500) involved in the study have only average level of achievement in chemistry, 26.20 % of them have low level of achievement in chemistry and the remaining 25.40 % have high level of achievement in chemistry.

2) DIFFERENTIAL ANALYSIS

HYPOTHESIS -2

Null Hypothesis: There is no significant difference in achievement in chemistry of higher secondary students with respect to gender.

Table -2: Mean, SD and t-value in achievement in chemistry of higher secondary students with respect to gender.

Gender	Mean	SD	t-value	Significant at 0.05 level
Boys	55.63	20.02	2.125	Significant
Girls	59.62	21.90		

From the above table-2, it is noted that there exists significant difference in achievement in chemistry of higher secondary students with respect to gender at 0.05 level. In achievement in chemistry the higher secondary girls have gained more mean score (M=59.62) when compared to the boys (M=55.63).

HYPOTHESIS -3

Null Hypothesis: There is no significant difference in achievement in chemistry of higher secondary students with respect to father's educational status.

Table-3: Mean, SD and F-ratio in achievement in chemistry of higher secondary students with respect to father's educational status.

Father's Educational Status	Mean	SD	F-ratio	Significant at 0.05 level
Uneducated	48.62 ^a	15.46	78.431	Significant
School level Educated	51.94 ^a	18.47		
College level Educated	74.04 ^b	19.65		

Note: 1. Different alphabet among father's educational status denotes significant at 5% level using Duncan Multiple Range Test (DMRT).

From Table-3, it is observed that there exists significant difference in achievement in chemistry of higher secondary students with respect to father's educational status at 0.05 level. Based on Duncan Multiple Range Test (DMRT), the students whose fathers' educational status as uneducated and school level educated significantly differs with the students whose fathers' educational status as college level educated at 5 % level. But there is no significant difference between the students whose fathers' educational status as uneducated and school level educated. In this aspect, the students whose fathers' educational status as college level educated have gained more mean score (M=74.04) when compared to the students whose fathers' educational status as school level educated (M=51.94) and uneducated (M=48.62).

HYPOTHESIS -4

Null Hypothesis: There is no significant difference in achievement in chemistry of higher secondary students with respect to mother's educational status.

Table-4: Mean, SD and F-ratio in achievement in chemistry of higher secondary students with respect to mother's educational status.

Mother's Educational Status	Mean	SD	F-ratio	Significant at 0.05 level
Uneducated	50.32 ^a	17.62	15.711	Significant
School level Educated	58.13 ^b	21.43		
College level Educated	68.50 ^c	19.90		

Note: 1. Different alphabet among mother's educational status denotes significant at 5% level using Duncan Multiple Range Test (DMRT).

From the Table-4, it is noted that there exists significant difference in achievement in chemistry of higher secondary students with respect to mother's educational status at 0.05 level. Based on Duncan Multiple Range Test (DMRT), the students whose mothers' educational status as uneducated, school level educated and college level educated significantly differ with each other at 5 % level. Among these group of students, whose mothers' educational status as college level educated have gained more mean score (M=68.50) when compared to the students whose mothers' educational status as school level educated (M=58.13) and uneducated (M=50.32).

DISCUSSION

The findings of the present study indicates the gender difference in achievement in chemistry, in which the girls have shown better achievement in chemistry when compared to the boys, which concurs with the studies of Rajendran, S. (2012); Hemalatha, G. & Venkataraman, D. (2011); Murugan (2010); James, A. & Marice, P.V. (2007); and Shiva Kumar, P. (2006). However it does not corroborate with the findings of Kalaivani, S. & Babu, R. (2011); and Jeba & Annaraja (2008). Further significant difference is noted among the higher secondary students in achievement in chemistry with respect to parents educational status, which is also conform the findings of Hemalatha, G. & Venkataraman, D. (2011); and ShivaKumar, P. (2006).

RECOMMENDATIONS

The higher secondary students' academic performance in chemistry indicates average level. Therefore the students need more encouragement from the school authorities and parents to develop interest in learning science. Programmes like organising science exhibitions and fairs, project works, quiz competitions, field visits pertaining to science is essential, etc. Infrastructure facilities especially the science lab facilities should be created in all higher secondary schools more particularly in the government and government aided higher secondary schools to enable the students develop interest in learning science, a better understanding on the science concepts and principles through learning by doing approach.

CONCLUSION

The higher secondary students involved in the present study are categorized into high, average and low achievers in chemistry subject at the plus one level based on their overall score on the achievement test in chemistry. Majority of them are seemed to be average achievers in chemistry. This might be due to the existing practice of not considering the academic achievement of plus one class for their future career other than promoting them to the next class that is plus two. Further less academic pressure from the school authorities upon the plus one student is being understood by majority of the

students, this perhaps makes them to be somewhat relaxed. The higher secondary girls have excelled the boys in achievement in chemistry. This might be due to the attitudinal change of the society towards the girls to treat them at par with the boys in all aspects, especially in education. The educational status of the parents of higher secondary students, especially their father's educational status reflects educational related all possible support to their wards particularly the higher the educational status the higher the educational achievement of students.

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