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A STUDY OF STUDENTS ACHIEVEMENT IN RELATION TO THEIR SEX AND SOCIO-ECONOMIC STATUS IN CHEMISTRY AT HIGH SCHOOL LEVEL

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ABSTRACT

Education is very essential for the development and betterment of any country. It is important in shaping the life of human being. The present study reveals that chemistry is a subject which plays a key role in progress of society. It develops the ability of thinking, reasoning and curiosity in the student's mind. It is helpful in the revision of curriculum and improvement of teaching strategies. The students with low and medium socio-economic class must be provided additional facilities for imparting them such kind of knowledge which would help in increasing their achievement and progress.

KEYWORDS: A Study of Students Achievement in Relation to their Sex and Socio-economic Status in Chemistry at High School Level

INTRODUCTION

In the modern world, education plays a vital role in the progress of society. Nature is ever-changing and the human behavior can be changed only through education. Education is a process of all round development of human beings. Education is part of a larger radical reconstruction of the priorities of the society. In education, each subject has special importance in shaping the life of human being. But some subjects are given special importance to the curriculum on the basis of its usefulness and impact. The subject which is important from social, cultural and economic point of view is given special preference in the curriculum. Qablan, Al-Ruz, Khasaweh, and Al-Omari (2009) speak of the need during teacher education to fight the indoctrination of teaching practices.

The teachers' awareness of the goals and active participation is crucial to the entire process of curricular integration (Mellado, Ruiz, Bermejo, & Jiménez, 2006). Borg and Gall (2003) mentioned that student testing aims to obtain a qualitative evaluation of the new teaching product being developed. Teacher education must be accordant with an STS (science, technology, and society) model both pre- and in-service (Yeti sir & Kaptan, 2008).

As educational system becomes universal, more and more people are exposed to abstract learning (of subjects like Maths, Science, Literature etc), rather than to the practical transmission of specific skills. Science is increasingly being recognized as a subject of life-long utility to students. In this world of 21st century it is the necessity to have more and more better equipped science literate populace for better economic progress and social welfare. Chemistry is also a branch of science which is given a special importance in modern curriculum. Chemistry is mainly related to study of atoms, molecules, chemical reactions, energy, etc. the chemical changes and reactions taking place in the universe are studied under the subject chemistry. Education empowers the individuals with necessary skills and competence for achieving personal and social goals, which in turn contribute to the development of nation.

Problem Statement

The ability of thinking and understanding develops in the students when they are in high school. Hence at this stage, due to lack of suitable tests, there needs an achievement test for improvement in teaching strategies, change in curriculum, etc. Hence to overcome these defects, the present research has been conducted in which objective type questions have been used for comparative study of boys and girls and their socio-economic status in chemistry at high school level.

Objectives of Research

This research is conducted to satisfy the following objectives:

- To construct achievement test related to chemistry.
- To measure the achievement of boys of high school level.
- To measure the achievement of girls of high school level.
- To investigate the socio-economic level of the students.

Hypothesis of Study

In the present study, "A Study of Students Achievement in Relation to their Sex and Socio-economic Status in Chemistry at High School Level.", I have started the work by considering the following hypothesis:

- In chemistry subject of high school, there is no significant difference between the obtained marks and mean or it means,

  $H_O = M_1=M_2=0$

  Where M_1 = mean of marks obtained by boys

  And, M_2 = mean of marks obtained by girls.

- There is no significant difference in the frequency of probable distribution on the basis of free distribution and observed distribution of achievement and socio-economic status of high school students.

RESEARCH METHODOLOGY

For this study, total 200 students were selected from following 4 schools, (50 students from each school) by random method :

- Maharaja Agrasen Intermediate College, Deoria (50 Boys)
- Government Intermediate College, Deoria (50 Boys)
- Kasturba Gandhi Government Intermediate College, Deoria (50 Girls)
- Indira Gandhi Intermediate College, Deoria (50 Girls)

A questionnaire of Chemistry was developed from the text book of chemistry of high school level to test the knowledge of the subject and some general questions were prepared to study the socio-economic status of the students. The students were asked to give free and frank answers without any hestitation. The gathered data were analysed and

interpreted using suitable statistical techniques.

Data Analysis and Interpretation

In order to analyse and interpret the data, the statistical techniques used for the present study are mean, standard deviation and chi-square test. The obtained data are presented in tabular form and its analysis is done as per the objectives of the study. The students achievement can be better understood with the help of relevant tables given in the subsequent sections of the study.

Table 1: Class Interval Path of the Students on the Basis of Their Achievement

S. No.	Class Interval	Number of Boys	Number of Girls	Total Number of Students
1.	47-50	03	02	05
2.	43-46	07	06	13
3.	30-42	10	09	19
4.	35-38	16	17	33
5.	31-34	27	32	59
6.	27-30	20	15	35
7.	23-26	09	10	19
8.	19-22	06	07	13
9.	15-18	02	02	04
Total		**100**	**100**	**200**

Table 2: Class Interval of Students on the Basis of Their Socio-Economic Status

S. No.	Class Interval	Number of Boys	Number of Girls	Total Number of Students
1.	35-39	8	9	17
2.	30-34	12	8	20
3.	25-29	12	11	23
4.	30-24	14	18	32
5.	15-19	17	20	37
6.	10-14	24	23	47
7.	05-09	13	11	24
Total		**100**	**100**	**200**

Table 3: Results of Evaluation on the Basis of Socio-Economic Status

Socio-Economic Status	Number of Selected Students		Total
	Boys	Girls	
High Socio-Economic Level	20	17	37
Medium Socio-Economic Level	43	49	92
Low Socio-Economic Level	37	34	71
Total	**100**	**100**	**200**

Table 4: Mean and Standard Deviation on the Basis of Achievement

	Boys Group	Girls Group	Total Students Group
Number (N)	100	100	200
Mean(M)	s	32.38	32.54
Standard Deviation (S.D.)	07	6.98	6.92
Critical Ratio (C.R.)	-	-	3.28

Table 5: Mean and Standard Deviation on the Basis of Socio-Economic Status

	High Socio-Economic Level			Medium Socio-Economic Level			Low Socio-Economic Level		
	Boys	**Girls**	**Total**	**Boys**	**Girls**	**Total**	**Boys**	**Girls**	**Total**
Number (N)	20	17	37	43	49	92	37	34	71
Mean (M)	43.1	42.86	44.13	33.98	33.88	32.85	25.79	24.97	26.69
Standard Deviation (S.D.)	2.88	2.48	2.8	1.92	2.04	1.88	3.96	3.73	3.72

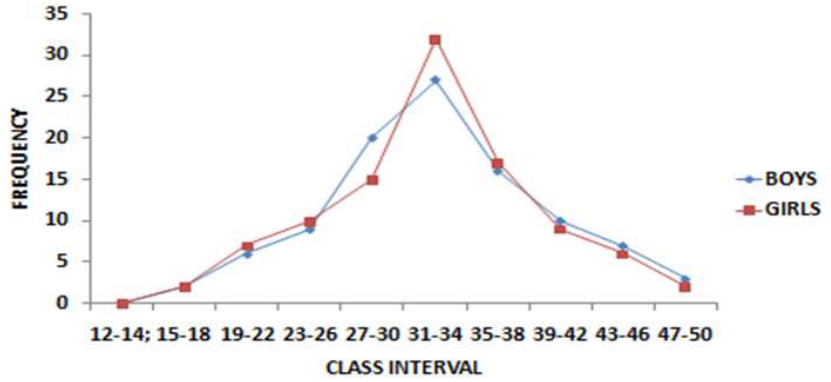

Figure 1: Frequency Polygon to Represent the Achievement Scores in Chemistry

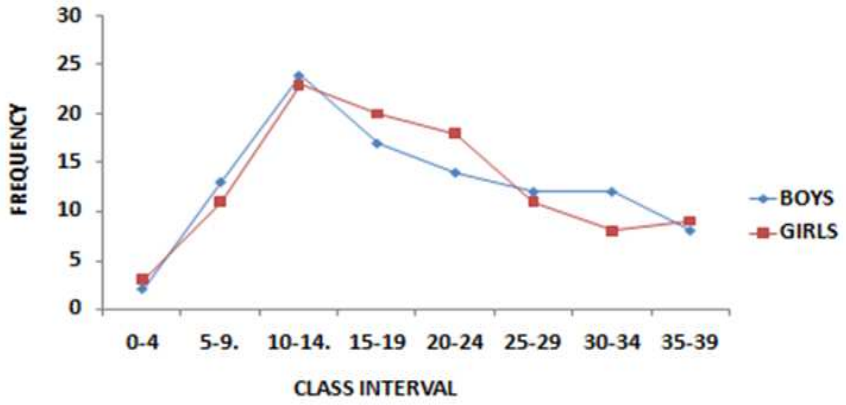

Figure 2: Frequency Polygon to Represent the Scores of Socio-Economic Status

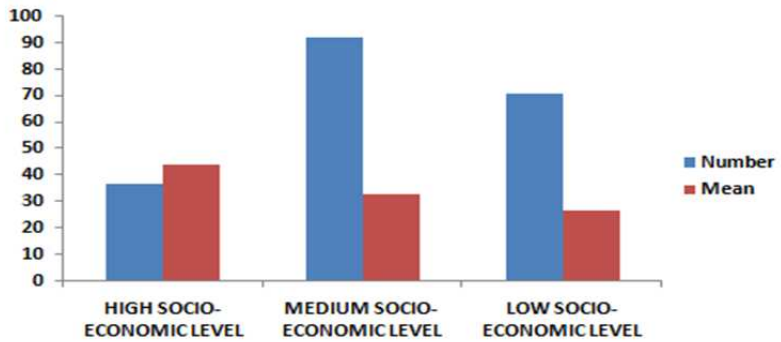

Figure 3: Histogram to Represent the Mean Values of Achievement Score and Socio-Economic Status

The mean and standard deviation of scores of students achievement are summarized in table 4. The mean of scores of boys is 32.7 and standard deviation is 7 which reveals that the individual difference is of nominal level. After this test it was observed that the scores of boys are in the range of 28-38. The students who have good knowledge have given the right answer to the questions and it is necessary to develop more interest in chemistry for some students who have obtained less marks. The mean of scores of girls is 32.38 and standard deviation is 6.98 which reveals that the individual difference is of nominal level.

The mean and standard deviation of scores of students on the basis of socio-ecoomic level are summarized in table 5. The mean values of scores of boys of high, medium and low socio-economic level are 43.1, 33.98, and 25.79 and their standard deviation is 2.88, 1.92, and 3.96 respectively. The mean values of scores of girls of high, medium and low socio-economic level are 42.86, 32.88, and 24.97 and their standard deviation is 2.48, 2.04, and 3.73 respectively. It means that achievement and socio-economic level of students are inter-related. The students with high socio-economic level have high achievement score and students of low socio-economic level have less achievement score.

A 3×3 contingency table was prepared on the basis of high, medium and low achievement and their socio-economic level and chi square test was done. The value obtained was 2.97 which is less at 0.05 and 0.01 level of significance of the table value at 4 degrees of freedom. This shows that there is no significant difference in independent and calculated frequency distribution. This accepts the null hypothesis.

CONCLUSIONS

Within the limitations of the study and procedures, following conclusions were drawn :

- The study reveals that the results obtained from administration of the test is highly reliable.
- From the validity of the test, its format, study material of blueprint and results, it is clear that the test is valid.
- Critical ratio reveals that there is significant difference in the mean scores of obtained marks of boys and girls.
- The scores of socio-economic status are oriented toward the normal curve.
- Chi-square test revels that students achievement and their socio-economic status are independent.

Hence, a spirit of healthy competition can be encouraged among the students where the students with good achievement can be an inspiration. This study is helpful in the revision of curriculum and teaching strategies. It can make the students aware of chemistry which can play a key role in providing education for the progress of society. From the socio-economic point of view, it is very helpful in selection of students belonging to low class and medium class and providing them additional educational facility in the school. This research is very helpful in selection of brilliant students in chemistry for their admission in higher classes.

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