

A STUDY OF THE SAFETY PRACTICES OF HIGHER SECONDARY STUDENTS IN THE CHEMISTRY LABORATORY FROM SELECTED SCHOOLS IN CHENNAI

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INTRODUCTION

Science has been taught in schools and colleges for hundreds of years. Those sciences which are best learnt by doing experiments need the provision of laboratories in educational institutions. There has been adequate increase in equipment and facilities in the laboratories of our schools in recent years. When young learners use these facilities during the practical hours, adequate safety measures should be in place to [prevent any accidents. Children have innate curiosity while handling things in the laboratory and when they do their experiments, accidents do occur. Careful planning to provide safety and making available first aid kits are very important if the laboratories in our schools can boast of being safe places for doing experiments. The success of any practical done by the student depends how safely it is finished, The school authorities and the teachers as well as the students need to have proper knowledge of safety practices. A study of the safety practices in our higher secondary schools is therefore undertaken.

OBJECTIVES OF THE STUDY

- ❖ To find out the significant difference if any between Government and Corporation School XI standard students with respect to Chemistry laboratory safety practices.
- ❖ To find out the significant difference if any between boys and girls of XI standard with respect to Chemistry laboratory safety practices.
- ❖ To find out the significant difference if any between Tamil and English medium XI standard students with respect to Chemistry laboratory safety practices.

HYPOTHESES

- ❖ There is no significant difference between Government and Corporation school XI standard students with respect to Chemistry laboratory safety practices.
- ❖ There is no significant difference between boys and girls of XI standard with respect to their Chemistry laboratory safety practices.
- ❖ There is no significant difference between Tamil and English medium students with respect to Chemistry laboratory safety practices.

SAMPLE

100 students were selected at random from Class XI of the Higher Secondary Schools in Chennai. They were classified by the variables based on gender, type of school and medium of instruction.

TOOL

The tool was based on "School Chemistry Laboratory Safety Guide". The tool was reformed by the investigator. The tool contained 30 questions. Students had to respond to each item by a ? mark in one of the two columns provided after each statement. They were to respond to all the items and not to leave any item unanswered. The items were of two intrinsic categories – positive and negative. To find out the reliability of the tool, the split-half method was adopted. The coefficient of correlation between the odd and even items of the questionnaire gives the reliability coefficient. Thus reliability established for tool was 0.79 at 0.01 level. A research tool is highly valid if it measures effectively the property it is supposed to measure. The validity of tool was determined as 0.81 at 0.01 level.

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SCORING

Each item in the Chemistry Laboratory Safety Practices questionnaire was assigned one mark. One mark is given if the student puts a tick mark against 'yes' for each of the positive questions. No mark is given if a tick is put against 'no' for a positive question. One mark is given if the student puts a tick against 'no' for each of the negative questions. No mark is given if a tick is put against 'yes' for a negative question. The score may vary from 0 to 30.

METHOD OF DATA ANALYSIS

After collecting data from 100 XI standard science students from selected Higher Secondary Schools the data was quantified as per the scoring procedure and analysed using statistical computations. Interpretation and the results are discussed below.

Descriptive Analysis

To compare the performance mean values were calculated. The essential descriptive statistics were secured as inputs for further inferential analysis.

Differential analysis

It provides inferences involving determination of statistical significance of difference between groups with reference to selected variables. t values were calculated to test the significant difference between mean scores.

Hypothesis - 1

There is no significant difference between Government and Corporation school XI standard students with respect to Chemistry laboratory safety practices.

Table 1

DIFFERENCE BETWEEN GOVERNMENT AND CORPORATION SCHOOL XI STANDARD STUDENTS WITH RESPECT TO CHEMISTRY LABORATORY SAFETY PRACTICES

Sample	N	Mean	S.D	t-value	Level of significance
Corporation	50	20.61	4.7988	0.9758	NS
Government	50	22.06	5.0544		

Not significant at 0.01 level.

It is evident from the above table that the Corporation school students do not differ significantly from the

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Government school students. Both have very low mean values. They both have less awareness of safety practices which is a serious matter of concern. Hence hypothesis 1 has been accepted.

Hypothesis - 2

There is no significant difference between boys and girls of XI standard with respect to their Chemistry laboratory safety practices

Table 2

DIFFERENCE BETWEEN BOYS AND GIRLS OF XI STANDARD WITH RESPECT TO THEIR CHEMISTRY LABORATORY SAFETY PRACTICES

Sample	N	Mean	S.D	t-value	Level of significance
Boys	50	22.94	4.5339	2.342	S*
Girls	50	21.35	5.0544		

* significant at 0.05 level.

It is evident from the above table that the boys significantly differ from the girls students.

Therefore, hypothesis 2 which states that there is no significant difference between boys and girls school students with respect to their Chemistry laboratory safety practices has to be rejected.

It is also inferred that both boys and girls have very low knowledge of safety practices. They are not guided properly.

Hypothesis - 3

There is no significant difference between Tamil and English medium students with respect to Chemistry laboratory safety practices.

Table 3

DIFFERENCE BETWEEN TAMIL AND ENGLISH MEDIUM STUDENTS WITH RESPECT TO CHEMISTRY LABORATORY SAFETY PRACTICES

Sample	N	Mean	S.D	t-value	Level of significance
Tamil medium students	50	22.94	4.534	1.3785	NS
English medium students	50	22.03	4.799		

Not significant at 0.01 level.

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