IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 4.819
Volume 7, Issue 3, July 2021

A Study of Challenges Faced in Conducting Laboratory Sessions by ICSE School Science Teachers of Mumbai and Suburban Region

Nitisha Jha and Sneha Bawaskar
Assistant Lecturer
Nirmala Memorial Foundation College of Education, Mumbai, Maharashtra, India

Abstract: *The aim of the present study is study the challenges faced in conducting laboratory sessions by ICSE school science teachers of Mumbai and suburban region. The sample selected were 20 teachers teaching science to high school students from the schools and colleges located in the suburbs of Mumbai. The study reveals that the unavailability of the first aid kit in the laboratory puts the students at risk and thus teachers avoid laboratory visits and provide few chances of hands-on experience to students. Students do not handle the apparatus with care and teachers find it risky to conduct lab sessions. Majority of the teachers fail to create curiosity and generate interest among students through demonstrations and experiments. Majority of the teachers rarely go through in-service training to enhance their skills. The laboratories are sometimes not well equipped with the scientific apparatus and latest technology*

Keywords:. Challenges, Laboratary, ICSE, school teachers, Mumbai and Suburban region

I. INTRODUCTION

Science laboratory is an integral part of science curriculum. The subject being based on facts, theories, laws, and evidence which can be studied in detail in the predesigned activity space. Science is the studybased on evidence through theories, laws, observations, and experimentation.A Science laboratory enables the students to observe, collect evidence, prove theories,and law andconduct or simulate experiments. Thus, laboratory helps students to interact with natural phenomena with the help of data collected by using various tools, methods, and procedures.

1.1 NEED OF PRESENT STUDY

Science is a subject which is learnt and taught effectively through activity-based lessons. These activity-based lessons can generate inquiry, promote learning by doing and help develop reasoning among students. However, challenges are faced by teachers in conducting laboratory sessions. The study will highlight the cause of those problems and help in improving the conditions conducive for learning science in laboratory.

1.2 RESEARCH QUESTIONS

- Is there adequate material available in the laboratory as compared to the classsize?
- Do you get adequate time to complete the conduct or demonstration of anexperiment?
- Is the class under control while the demonstration of an experiment?
- Is enough time allocated for you to prepare for the lab sessions?
- How often do you go through any professional development or in-servicetraining for effective use of science labs?
- Hence, there was a need to conduct the Research in the above specified area.

1.3 STATEMENT OF THE PROBLEM

A study of challenges faced in conducting laboratory sessions by ICSE school science teachers of Mumbai and suburban region.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 4.819
Volume 7, Issue 3, July 2021

1.4 OBJECTIVES OF THE RESEARCH

- To study the difficulties faced by science teachers while conducting the laboratorysessions
- To understand the reason behind the students being not able to take interest in the laboratory sessions
- To analyze the laboratory conditions favorable for learning and teaching science
- To formulate the plan to increase the efficiency of teaching and learning of the subject

1.5 SCOPE OF THE STUDY

The science teachers working in the ICSE schools of the Mumbai and Mumbai suburban region were interviewed for the research. The experienced teachers and entry level science teachers were included in the study.

1.6 LIMITATIONS

- The study was limited to the science teachers form the ICSE schools from the Mumbai and suburban region only.
- The science teachers form SSC and CBSE schools were not included in the study.
- The study was conducted within the constraints of the Mumbai region.

1.7 SIGNIFICANCE OF THE STUDY

SIGNIFICANT FOR THE STUDENTS -

The study will be helpful to improve the laboratoryconditions to cater the learning the needs of science students.

SIGNIFICANT FOR THE TEACHERS -

Teachers will be able to enhance his/her teaching skills in laboratory. Better professional practices can be thought of with the help of the interpretation of the answers collected from the survey.

SIGNIFICANT FOR HEAD OF THE DEPARTMENT –

Scheduling the lab sessions according to the predesigned class timetable, availability of the lab assistants and equipment in the laboratory can be taken care of. Teachers need to be allotted with proper time for pre-preparations of the experiment. Incidents of theft of laboratory apparatus can be minimized.

SIGNIFICANT FOR THE SOCIETY –

The study will help to develop students with well-developed reasoning and logical thinking skills and thus prove to be beneficial in creating a responsible member of the society. The society will be gifted with science teachers with enhanced teaching skills.

II. RESEARCH DESIGN OF THE PRESENT STUDY

The design or the methodology of the research conducted is Descriptive Survey Method. The method adopted by the researcher includes the questionnaire developed thus, making it a descriptive survey method. It helps to learn about the inception of the issue, diagnosis of the issue and solution of the issue.

SAMPLING OF THE PRESENT STUDY:

The target population for the research was 20 teachers teaching science to high school students from the schools and colleges located in the suburbs of Mumbai.

TOOLS OF RESEARCH:

The tool used to collect data is Survey or Questionnaire.

SCORING PATTERN:

The scoring pattern used is percentage % as it gives better understanding of the responses of the targetpopulation.

III. FINDING

- Majority of the times the material is not available in the laboratory as compared to the class size.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 4.819
Volume 7, Issue 3, July 2021

- Most of the schools in Mumbai suburban region are not provided with adequate worktables to accommodate the class size.
- The laboratories are sometimes and never well-lit and ventilated which makes the conduct of chemistry experiments challenging. As chemistry experiments where various gases are evolved the laboratories need to be properly ventilated.
- The unavailability of the first aid kit in the laboratory puts the students at risk and thus teachers avoid laboratory visits and provide few chances of hands-on experience to students.
- Students do not handle the apparatus with care and teachers find it risky to conduct lab sessions.
- Majority of the teachers fail to create curiosity and generate interest among studentsthrough demonstrations and experiments.

IV. CONCLUSION

Based on the above interpretations it can be concluded that

- The unavailability of the first aid kit in the laboratory puts the students at risk and thus teachers avoid laboratory visits and provide few chances of hands-on experience to students.
- Novice teachers find it difficult to control the class discipline. However, the experienced teachers control the class effortlessly.
- The allotment of practical period in the class timetable is where the teachers face difficulty. The teachers are burdened with administration work and they barely get any time for preparation of experiments and apparatus for the lab sessions
- Students do not handle the apparatus with care and teachers find it risky to conduct lab sessions.
- Majority of the teachers fail to create curiosity and generate interest among students through demonstrations and experiments.
- Majority of the teachers rarely go through in-service training to enhance their skills. The laboratories are sometimes not well equipped with the scientific apparatus and latest technology.

REFERENCES

[1]. https://www.tutorix.com/blog/opportunities-and-challenges-for-science- education-in-india/
[2]. https://www.nature.com/news/research-management-priorities-for-science- in-india-1.17509
[3]. https://www.nap.edu/read/11311/chapter/3#14
[4]. http://www.hbcse.tifr.res.in/episteme/episteme-1/episteme-1-review-papers- file
[5]. https://link.springer.com/chapter/10.1007%2F978-94-6300-749-8_26