



EDUREFORM: A new path way to Enhance Teaching

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I. INTRODUCTION

Good Science education is true to the child, true to life and true to Science. "Science is a way of thinking much more than it is a body of knowledge." - Carl Sagan. The field of Science education expects the development of understanding for students .Science motivates everyone to think positively and creatively. The child should be engaged in learning principles of Science through familiar experiences, learn to design simple technological units and modules (e.g. designing and making a working model of a Volcano Eruption ,windmill etc.) and continuing to learn more on environmental issues and health awareness activities and surveys. Scientific concepts are to be arrived at mainly from activities and experiments. Group activity, discussions with peers and teachers, surveys, organization of data and their display through exhibitions, etc. in schools and neighborhood are to be an important component of pedagogy. Hence it is required to use advanced ideas in the teaching of Science subject at school level.

EDUREFORM project cofounded by Erasmus+ and European Union aims To Mitigate the Impact of Fourth Industrial Revolution on Indian Society: Education Reform for Future and In-Service School Teachers. At present four Indian Universities Chitkara University, Chandigarh, M.S. University, Baroda, Savitribai Phule Pune University, Pune and Shivaji University, Kolhapur are working along with European partners on the EDUREFORM project .One of the pedagogical tools developed by Edureform is CASE STUDY. Along with traditional teaching methods Science teachers should use the innovative methods such as use of **Case Studies** based on contents of the textbooks.

II. REVIEW OF LITERATURE

Researcher took review of related literature to know the details of the topic.

Patrick G. Dew and Edward M. Menamara (1996) stated in their book, "Case studies in environmental ethics", the importance of case studies. They have followed the pattern such as case study, discussion and questions based on it

Stensmo C. (1999) compared the case methodology in Teacher Education to 'traditional' academic teaching. A field experiment presented the paper at the 8th European conference for research on learning and instruction.

Fryetal (1999) describe case studies as complex examples which give an insight into the context of a problem as well as explain main points..

Lest and Lovitis (2000) It is important that how case studies facilitate understanding and engagement for different student populations.

Frank D, Adams, Frank A. Adams (2001) stated that case study method is an appropriate pedagogical technique for teacher education programs. It is an active learning process for students and teachers.

From various reviews conducted researcher concludes that the real world of classroom requires use of problem solving, analysis and decision making abilities which is provided by the use of case studies in teaching.

Case study writing is an important task. There are basic five stages in writing case studies such as-

1. Pick your topic- Best scenario, wide topic.
2. Research- Collect information related to topic.
3. Develop your case study- Put together all information.
4. The body- Arrange and develop case study.
5. Introduction and conclusion- Beginning and end of a case study should be interesting to make students read it.



From the review taken we can conclude that Case study pedagogy stimulates students about real world and bridge the gap between Theory and practice “A Case Study is an intensive holistic description and analysis of a single instance, Phenomena and social unit.”

Thus, case study can be defined in terms of the case itself (the unit of study), the case study design (the process), and the case study (the product), (Antony and Jack, 2009, Walshe 2011).

III. METHODOLOGY

This paper studies the effect of Case Studies on the student's achievement in Science subject at upper primary level. Researcher had developed Case Studies based on the contents of the textbook which are real facts and implemented those while teaching Science subject. Main objective of this study is to observe the effect of Case Studies on Science achievement at upper primary level students. Researcher used the experimental method with the sample of 85 VII standard students of Semi English Medium Schools from Kolhapur city in Maharashtra state. This paper focuses on the achievement of students in Science subject. When Case Studies were used in Science teaching students have shown improvement in their achievement.

This paper helps Science teachers to think innovatively and help to improve and update conceptual knowledge of students starting from school level. The use of Case Studies in Science teaching helps students deepen and solidify their understanding of scientific facts, concepts and principles. The best case study or case had four distractive features such as clear learning objectives, concise and informative scenario, straight forward questions and stress on information reading available to the student.

A general framework for how to use case studies in teaching

There are many variations in how case studies can be used, following steps give a general framework of using case studies in teaching.

- A teacher / instructor should give enough time to students to read and think about the case. If the case is long it can be assigned as homework with a set of questions for students.
- A teacher/instructor should introduce the case briefly and provide some guidelines for how to approach it. Clear idea should be given to students about how they should think about the case. If it is necessary to focus or to disregard on certain information it should be explained to students.

- A teacher / instructor should monitor the students to see that everyone is involved.
- If students ask doubts, these should be cleared by the teacher.
- Proper guidance should be given to the students so that they can solve given questions.
- At the last, question and answers should be discussed to confirm learning through the case study.

If a Case Study on Pathogens is written then teacher can follow a note as given below:

Teaching Notes

➤ **Abstract**

The present Case Study tells about Pathogens and their effects. Pathogens are released in the air when a person having an infection of the respiratory tract sneezes or coughs. A healthy person may get infected with such pathogens on breathing in the contaminated air and contract disease like common cold, cough, diphtheria, pneumonia etc. We can prevent diseases by keeping our surroundings clean. If we follow the rules of hygiene we can maintain our health properly and can build healthy nation. If we want to be healthy we should be aware of pathogens which spread diseases.

➤ **Facts with the Case study are :**

Microorganisms are present all around us. In a humid atmosphere, fungi and some other microorganisms grow.

➤ **Objectives of the Case study**

1. To describe the effects of pathogens .
2. To understand the ways of prevention of pathogens.
3. To know the importance of cleanliness and hygiene.

➤ Teacher can use various available resources to explain the Case Study .Role of a teacher is a facilitator who can solve the difficulties of students related to Case Study.

Resources

KidsHealth / For Kids / What Are Germs?
(Healthtap.com)

<https://www.youtube.com/watch?v=7D0elsuZC3w>

<https://www.youtube.com/watch?v=Noxd54eXy18>

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<https://en.wikipedia.org/wiki/Pathogen>

Findings of this research are as follows:

1. Use of Case Studies in Science Teaching promotes the interactive teaching learning process.



2. The use of Case Studies in Science teaching connects students with real world contexts and relates them with the environment.

3. The Case Studies when used in teaching can facilitate deeper conceptual learning that reinforces understanding of content knowledge.

In the present research paper a case study is presented along with its procedure and result of implementation in the classroom. Students' response to the case study method suggests that this method increases the ease of learning and develops a curiosity about Science subject. The use of Case Studies as per required is a special addition to the traditional methods of lecture, text book reading for the teaching of Science at school level.

Keywords: Case study, interactive teaching, conceptual learning, achievement

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