

Adequacy of prevalent Model in the School Science Education in India: Myth and Fact

Abstract

Science education of a country plays vital role in its progress. The aims are basic for model of education followed in the schools. The syllabus indicate that it is based on disciplines of science and focus more on content. This study investigates the model prevailing in school science education study myth and facts existing in school science education in India and see its adequacy. The method used is a descriptive study based on the survey method. The tool used here was a questionnaire on the existing syllabus, content, activities and interest in the school science syllabus. The sample of 215 students of 6 to 8 was taken. It is observed that there is a need to move towards new model of school science education in which science is linked with the students experiences and the students have to be given opportunities to do things and learn.

Keywords: Adequacy, Model, School, Science and Education

Introduction

The model of school science education followed presently was formulated during the time of independence to make our nation at par with the advanced countries. The narrower aim of science education was to prepare such individuals who could lead the nation to the path of scientific and technological progress. The textbooks and syllabus indicate that it is dominated by the disciplinary demand of different branches of science and their focus on covering more content in earlier classes. The procedure still adopted are initiated by the English was bulk education which proves incompetent at this stage. The basic education infrastructure already exists in India there is need to create an atmosphere that enables the student to think, to learn and contribute through modification of existing model. The present study is an effort to demarcate myth from facts regarding the existing education model

Objectives of the Study

1. To study the existing model of science education at secondary level.
2. To inquire students attitude towards existing pattern of science teaching at school level

Research Methodology

The method adopted in the study is a descriptive study based on the survey method. The data is collected from the primary and secondary sources. The tool used in the study was a questionnaire on the existing syllabus, content, activities and interest in the school science syllabus. The sample of study comprises of 215 students from standard 6 to 8 from six schools of Lucknow city.

Results & Discussion

The scene of education involves many components which are inherent part of the system thus to analyse the school science education both primary and secondary sources are used as data. According to the objectives primary and secondary data is taken

Objective 1: To study the existing model of science education in India

The science education in India begins from upper primary and extends up to three years, and next two years of secondary, further two years for senior secondary. The three major boards giving school education are: CBSE, ICSE & STATE board.

Upper Primary Stage (3 years)

(a) Three Languages — the mother tongue/the regional language, modern Indian language and English, (b) Mathematics, (c) Science and Technology, (d) Social Sciences, (e) Work Education, (f) Art Education (fine arts: Visual and Performing), (g) Health and Physical Education (including



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games and sports, yoga, NCC and scouting and guide. 12% of the total schooling time is allotted for science subject in the school.

Topics Covered from Class 6 to 8

Class VI

Food-Where does it Come From, Components of Food, Fibre to Fabric, Sorting Materials into Groups, Separation of Substances, Changes around Us, Getting To Know Plants, Body Movements, The Living Organisms and Their Surroundings, Motion and Measurement of Distances, Light, Shadows and Reflections, Electricity and Circuits, Fun with Magnets, Water & Air around Us

Class VII

Nutrition in Plants, Nutrition in Animals, Fibre to Fabric, Heat, Acids, Bases and Salts, Physical and Chemical Changes, Weather, Climate and Adaptations of Animals to Climate, Winds, Storms and Cyclones, Soil, Respiration in Organisms, Transportation in Animals and Plants, Reproduction in Plants, Motion and Time, Transportation in Animals and Plants, Reproduction in Plants, Motion and Time, Electric Current and its Effects, Light, Water: A Precious Resource, Forests: Our Lifeline, Wastewater Story

Class VIII

Crop production, Micro-organisms, Materials in daily life, Different kinds of materials and their reactions., How things change/ react with one another, Why conserve, The cell, How babies are formed, Idea of force, Friction, Pressure, Sound, Electric current and circuits, Rain, thunder and lightning, Light, Night sky, Earthquakes, Man's intervention in phenomena of nature, Pollution of air and water

NCF 2005 Formulated Activities

The mode of curriculum transaction which included engaging in learning through familiar experiences, working with hands with peers and teachers to design simple technological units & module, continuing to learn more about environment & health, scientific concepts to be arrived from activities & experiments, group activities, survey, scientific discussion, organisation of data, their display through exhibition, continuous & periodic assessment. Though these were the guidelines on which the actual school education should proceed but different studies observed that the actual school scenario was different.

In India the kind of inquiry and activities happen in school classrooms are more often scripted by textbooks, syllabus & teacher hand books developed in accordance with guide lines set by

centrally written curriculum. The science teachers are trained to follow these predetermined scripts & procedures. The actual science procedures gets confined to the content of text book, specific time frame allotted by the curriculum and syllabus. The science classroom process implemented through teacher within the limits of the curriculum, classroom time & scripts of science books offer provisions to draw little attention of the children to the relevance of their every day world thus converting science learning a decontextualized experience for children (Kumar, 1997)

Seventy years after independence much have been achieved but it is felt the actual acquisition of status worldwide is still to come. India has lost eminent position because of poor education which are cause and effect of present education (NPE, 2016). Many efforts have been made in last few decades indicating that literacy levels have improved but the quality of education remains poor. The NGO Pratham has been bringing out its Annual Status of Education Report, in 2014 survey it covered 577 districts 17,000 villages, 6 lakh children between ages of 3-16 years found that nearly half of the grade V students were not able to read grade II levels and nearly three fourth of them did not acquire arithmetic skills which they should have learnt by grade II. This decline in learning levels among school students can be improved by changing the method of education and correcting the flaws in existing model of education which is content based, impractical and disinteresting. The Indian students have potential and intelligence what is needed at this stage is providing good learning experiences and access to quality education (NPE 2016)

Indian National Science Academy conducted a study in 2004 and found that at class 6-8 level only 22% of the students said they would like to study pure science at higher level. 45% of them said that they are not perusing science because they have no interest in it (Chunwala & Natrajan 2013)

Thus we can say that the model followed in the schools was not a success and required modification to improve the quality of education

Objective 2: To inquire students attitude towards existing pattern of science teaching at school level

A questionnaire was given to student to get an idea of the actual situation in class it contained 10 items and students had to give their responses according to the frequency of activities done in the school. The following table shows their responses in percentage

S.no	Item	Never (%)	Sometimes (%)	Always (%)
1.	Is the syllabus of science lengthy for you to understand	21	25	54
2.	Is the learning of science interesting in class	24	50	26
3.	Does the teacher teach through activities	59	21	20
4.	Do you learn more about environment & health in science class	40	46	14
5.	Do you learn principles of science by experiments	78	21	02
6.	Group activities and scientific discussions are done in class	69	25	06
7.	You all go for scientific surveys & organize data collected	80	15	05
8.	Do you display scientific learning through exhibition	30	13	77
9.	Do the science textbook you use are interesting	22	54	24
10.	Does evaluation method in science help you in improving.	43	24	33

The responses clearly indicate that science teaching performed in the schools does not follow the major guidelines it just a mode of imparting information thus missing the soul of science. The major reason for this is the large syllabus which the students have to complete in the given time thus cannot incorporate various activities necessary for developing scientific attitude. There is excessive burden of curriculum on students, the reason for this is inability of teachers to distinguish between information and knowledge and lack of participation of the teachers in curriculum developmental process. The textbooks used are incomprehensible and there is lack of academic quality

Conclusions and Implications of the Study

The study brings about the clear picture of the science education at the school level. The curriculum framework offers a many dimensions but due comprehensive syllabus and inadequacy of practical grounds the quality of education has reduced. The principles should be accompanied with experiments and observations which will make learning interesting. Regular survey, exhibitions and scientific discussions should be conducted. The curriculum development goals should be modified, academic burden should be reduced. International standard can be maintained by promoting excellence at all levels by effectively planning a model which aspires the satisfaction of the present needs of the science teaching. There is an over load of syllabus which compels the students to memorise the facts which makes the learning of science boring and difficult and they ultimately lose interest in it. The above observations indicate that there is a need to move towards new model of school science education

in which science is not alien but organically linked with the students experiences and the students have to be given opportunities to do things and learn. Such model will ensure the accomplishment of both narrower and wider aims of science education. There is a need to challenge the orthodox Indian school science education to produce scientists with potential and individuals with scientific and technological literacy. The school science up to standard X has to be based upon new model which is based on the student experiences and inculcating in them the ability to understand and apply scientific processes so science emerges as something exciting for students

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