DOI: 10.17812/IJRA.9.35 (1)2022

International Journal of Research and Applications
July - Sep © 2022 Transactions 9(35): 2501-2508

eISSN : 2349 – 0020
pISSN : 2394 – 4544
www.ijraonline.com

PRIMARY EDUCATION REVIEW REPORT

General Science at Primary Level

Narender Rachamalla
Secondary Grade Teacher, MPPS. Kogilvai,
Mdl. Damera, Dist. Hanamkonda, Telangana State- India
narenderrln@gmail.com

ABSTRACT

The purpose of this study was to identify the challenges that teachers face when teaching science at the primary level. According to the literature on school science, students are uninterested in science. This lack of interest on the part of the students could be due to difficulties teachers are having in implementing the science curriculum at the primary level. These issues, if not addressed, may have an impact on the quality of science education. One research question guided the study, which was further subdivided into two sub-questions. We used a descriptive survey research design. Aside from the emphasis on non-cognitive abilities, academic achievement in various subjects is of primary concern for any schooling system. However, academic success is primarily determined by the development of mental abilities.

Keywords: Primary Level, Teaching, School, Students.

1. INTRODUCTION

A Child has a natural interest or tendency to know about the world around him. It is the duty of every teacher to encourage and involve the child to develop his domains of knowledge, understanding and psycho motor skills by making him actively participate in innovative activities along with developing the language, observation, recording of data, identifying the differences, drawing of inferences, classify and summaries, giving examples, estimate the outcomes, measuring etc help the student attain his goals or objectives. It is also our duty to develop the values of cleanliness, morality, mutual cooperation, protection of environment, protecting the animal species around him.

It is also being noted that there is no need to teach the students of 1st and 2nd classes to introduce science in their curriculum but can encourage them to learn by observing their surroundings. It is therefore, becomes imperative to make learning from 1 to 5 classes in the mother tongue of the child and motivate the child to develop deeper understanding of the environment in higher classes (3,4.5). The tools of evaluation at this stage should be on what the child has learnt, his observations, understanding, reading skills and also to work in groups should be taken into consideration.

The topics selected for children at the primary level should create interest to the child. They should be more lifelike and be within the reach of the child's experiences. The topics should closely relate the child to the real life things that happen around him.

The sciences are now taught as Environmental Sciences to the children at the 4th and 5th

standards in which Social Studies and Sciences are introduced. The same subjects should be strengthened giving scope to the child to explore the society more.

The concepts taught at the Primary Level should make the child correlate his ideas to the real life events and should be more meaningful. The child should do something creative of his own experiences. The children should be able to understand the concept more meaningfully and should explore the world around them. The children should have a healthy discussion with their teachers and classmates, collect information from the newspapers and available resources and should be able to small experiments.

The students learn the basics of Social and Science subjects in the form of Environmental Sciences. The subject should reflect the various facets of the society keeping in view of the following objectives.

2. OBJECTIVES

The natural curiosity and enthusiasm among the students be encouraged

- The teaching of science through EVS should encourage the attitude of questioning among students.
- They should explore their surroundings.
- The topics should encourage the observational skills.
- The students should correlate their experiences at school with that of the outside.
- Science subject should be taught as Environmental Science
- Develop the attitude of questioning
- Explore the student's surroundings
- Development of observational skills
- Student should be able to associate/ correlate his learning in his daily life.

3. PRESENTATION

The meaning of Science is the organized study of a subject. Learning is nothing but expansion of the boundaries of one's and knowledge and move forward. It leads to the development of ideas and creativity. Learning activity should be in such a way so that it strengthens the learnt knowledge. The learning of Science leads to the awareness of natural activities. The learner comes to know of the definitions, rules and tries to use them. These are the objectives of learning. The sensitive treatment of the nature, patience, sense of equality, utilizing the learnt material in daily life should be the main objectives of learning Science.

The students of 3rd to 5th classes should be made aware of the following objectives of learning Science.

- Conceptual Understanding
- Asking questions and making hypothesis.
- Doing of small experiments and field investigations.
- Information skills and projects.
- Appreciation and development of aesthetics
- Drawings and model makings
- Bio Diversity and daily life applications.

The students learn sciences as Environmental Sciences at the primary level. The students understand their surroundings through observations and meaningful dialogues or discussions. They learn the science as General Science in the 6th class.

The learning outcomes will be achieved only when the child completely understands the process and skills at Upper Primary level.

The boundaries of science are widened when the child reaches 8,9,10 classes as the in depth learning takes place. The outcomes change as the subject gets divided to Biology, Physics and Chemistry at this stage.

The teacher should create awareness among the students to develop a kind attitude toward the plants and animals around him. He should encourage the student to work in groups which develops mutual cooperation. The student's understand various food habits and life styles of the people and respect their lifestyles.

4. OUTCOMES

- It should also help the student learn personal hygiene, healthy eating habits.
- The child understands to support the children with special needs and helping others.
- The teachers should encourage the students to make a keen observation of their surroundings.
- The students should also be made aware of the world that they do not know.
- The students should read and understand, question, work in groups, explore, collect information and could do small experiments.
- At least one experiment every month makes them do 10 experiments in a year.
- Introduction to one scientist every six months makes the students learn about 2 scientists in a year.
- Introduction of one element every 2 months makes them learn about 5 elements.
- The students should be encouraged to learn the concepts of Speed, Velocity, Energy, and Force with the help of little experiments. It motivates them to observe, analyze and develops scientific temper among them.

The achievements of India in the field of Science and Technology are comparatively far behind the advancements of the West particular America and that too it is very minimal. The field of Information and Technology has changed India a lot. It has changed beyond limits and the involvement of India in IT has become inevitable for the West. It is because India stands the largest English speaking nation next to the US and Britain. India also happens to be the largest skilled manpower of Information & Technology. In spite of these victories, India could not boast of its victories as scientific achievements as Science is being ill treated in this country and very little is done to expand its scope.

Mr. P C Rao in his letter to the then Prime Minister, Dr Manmohan Singh, in 2006, opined that Science is on its death bed in India. He also opined that the science in India could vanish in the next 5 years. We could therefore understand the intensity of the situation of Science in India.

The small countries like Taiwan, Singapore and South Korea have surpassed us in the field of Science many years ago.

"The impact of Science being reduced in India could be blamed as it has been decreasing its importance by itself "are the comments made by some eminent academicians and professors out of their anger and despair is not a fact that to be a positive development. According to the budget, the contributions to the growth of Science China stands first with 8.8 billion $ and India with only 2.9 billion $ in the year 2006-2007. The government under the leadership of Prime Minister Sri Narendra Modi has enhanced the budget for the

development of scientific research and his policies of Athma Nirbhar Bharat resulted in the invention and production of the vaccine for Covid-19.

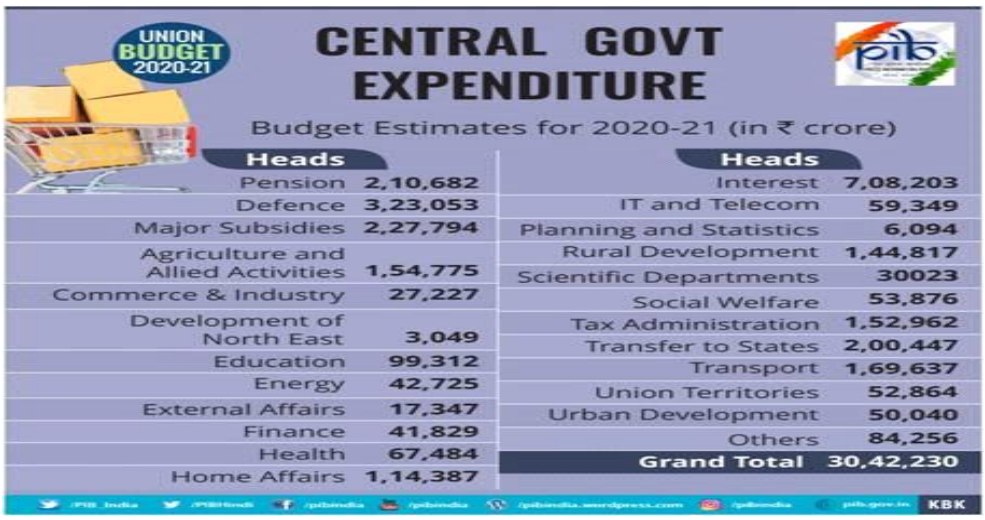
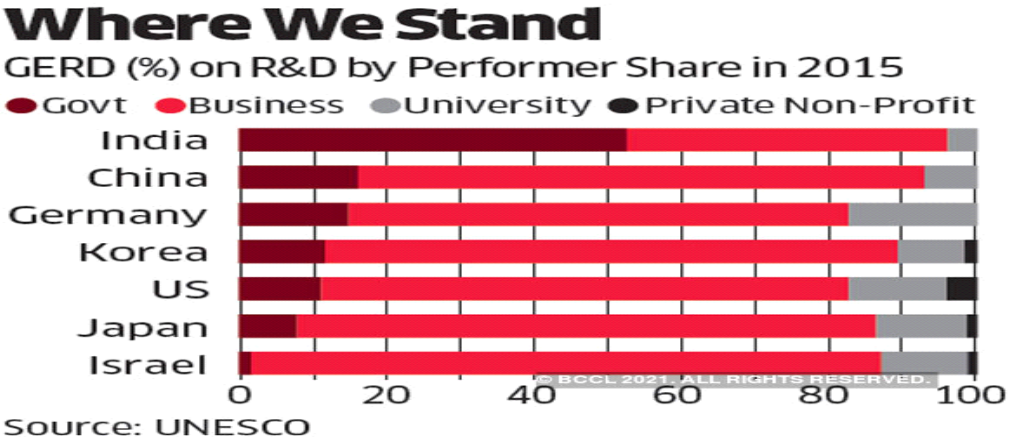
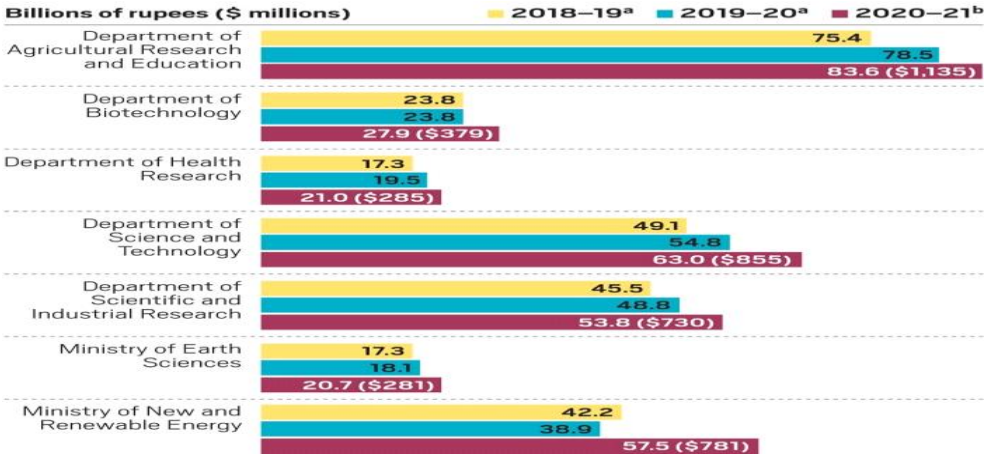


Fig-1: Budget Allocation at a Glance in India





It is pathetic on the part of the government that India is contributing/allotting more to the unproductive sector and very little to Science, we feel very happy that India is progressing a lot in the field of IT, the field of science is being totally neglected. The teaching of science and its research is losing its value as number of seats is remained empty in most of the universities. It is also pathetic that some universities have also shut down some branches due to the lack of teaching faculty. It is also to be noted that few people are available to teach Nuclear Physics at Aligarh University. There is no recruitment of faculty in most of the universities. All these incidents clearly show that we are clinging to the age old practices and the rotten Education Policies. The new Economic Policy on education should realize the importance of Science and should more focus on intuit should make science an attractive field of study. The present policy of science makes the student drab and shuns him away from taking up new areas in this field and there are innumerable reasons to it.

The interest towards science is being killed at the school level itself. The students just don't understand how the subjects of physics and chemistry would help them have a good scope in their future. The students who have studied these subjects do not show any interest to become a scientist or come to the field of science & technology. Those students of this age who want to turn their professional life encouraging do not look Science as an option but go for other fields. The age old practice was to select the genius students and encourage them towards science and research. These students are now turning towards the fields of IT or Management.

The boom of IT has increased in such a way that employees of software earn equally belonging to the top three government scientists. It is opined that recruitment of scientists in the offices has so many hurdles resulting in the recruitment of less qualified and those with the real knowledge and zeal do not get the required opportunities.

India is compared to China in many aspects but we have to accept the fact that there is a large gap in the field of science and technology. The percentage of expenditure in China towards research and development has increased from 4% to 9%, almost double. (As per the UNESCO Science Repot). On the other hand, India could only spend a marginal 2.2% for the development of Science &Technology. As per the world expenditure on Science &Technology, India's contribution is only 2.1% where as China could reach up to14.7 Billion.
It is also to be noted that we are far behind the scientific publication of China.

In the bye gone days, China, Taiwan and South Korea were far behind India. These countries have now surpassed India. It should not be understood that we are not progressing but the development has slowed down to a large effect. We are running but not so fast as other countries. This need not be taken seriously but the field of Fundamental Research has to be certainly thought of.

The ancient Indian researches in science have been the only source for the other countries of the world. This process has been changing ever since India got its independence. The researches have limited to most extent and were done only in agriculture, the autonomous bodies like AIMS, DRDO.

Therefore, it seems that the software and the Biotech institutes started flourishing, In order to measure the standards in Science; Eugene Garfield of USA has formulated "SCIENCE CITATION INDEX". According to this, the

development countries developed Scientific Researches occupied the prominent place.

In the 1970's India stood /8th after America, Japan, Britain, Russia, France, Japan and Canada and this position reached 15th position in the field of scientific research. But in the development of citation index and development index unscientific mission there is an argument that it should measured in the fields of oriented research scientific progress. If we examine the world researches, India's contribution.

India	China
Bio Science share 1.35	Bio Science-2.03
Mathematics-3.02	Mathematics-10.35
Chemistry-9.8	Chemistry-2.5

Source-Current Science

Proportion of scientists for every 10 lakh population.

India	1,57,000
China	5,45,000
Japan	5,95,000
South Korea	2,00,319
Australia	3,00,353
Great Britain	2,00,666
USA	4,09,000

Source: World Bank

Per Capita Expenditure in Research and Development in (Dollars)

India	5.5
China	11.7
South Korea	241.0
Australia	235.0
Britain	460.0
America	705.0
Japan	978.0

Source: World Bank

It is very sad state of affairs that Science has lost its importance in India in general and in the schools in particular. Intelligent students come out of the schools only when there are competent teachers. If the focus on Science is left out, India will be pushed back to 50/60 years. It is also be noted that the intelligent youth are turning to the fields of Information Technology and Engineering. India has very less number of Scientists at present. In order to revive this, the government has to allot necessary funds to improve the standards. The results would at least take 15 years from now. The scientists working in draw a meager amount 10% that the software engineers earn. There is a miss understanding regarding the appointments of scientists in government organizations where the intelligent scientists are not allowed to grow or suppressed.

It is imperative that our country is always comparing to the neighboring country to china. There is a vast difference between India and China in the field of scientific research. In the field of research and development, China has doubled its expenditure in 1997-2002 from 4% to 9% which is more than double.

According to the estimates of the UNESCO Science Reports -2005, India is spending only 2.5% expenditure on research and development. Compare to the countries of the world India growly spend 2.1% whereas China could go up to 14.7%.

It is sad to know that we are lagging behind in terms of scientific publications the countries like Taiwan, South Korea…etc should be behind India.

These countries have now crossed India. It does not mean that India is not going backwards but the development in Science has slowed down, it also means that we are

running slowly there is no need to take it seriously but there is a strong feeling that we think rethink about Fundamental Research.

The ancient Indian scientific have not been in the reach of other countries for centuries but the situation has been changing since independence. The agricultural researches, the devilments of AIMS, DRDO have neutralized and the fields of software, Bio tech industries have been progressing.

5. IMPLICATIONS

- It should be observed the expenditure allotted to the areas of science and technology, instead of funding to improve minimum requirements, it should be seen that these institutes should be strengthened on par with the International standards. Necessary steps should be initiated in this regard. So 2-3% of the GDP is allotted to science and technology. The same may be allotted to the field of education. After this funding, the output from the scientists and organizations should be analyzed.
- The restrictions on scientists, teaching faculty should be removed and their appointments should be unbiased and intellect should be taken into consideration.
- So steps should be initiated for the educational and scientific institutes so as to maintain specific standards, goals and objectives in awarding of Ph.D.'s. Necessary instructions/guidelines should be formulated. An autonomous body should be formed to analyze and protect them. The science to reach every nook and corner of the society and the youth from the remote areas should be encouraged.
- The Indian organizations and its scientists should be supervised/guided by the Non-Resident Indian scientists by forming of Research Teams so that an active interaction would lead to constructive development.
- A favorable atmosphere free from any kind of interference either political or official should be implemented.
- The education system right from the school level to the university level should be thoroughly modified. The students should love the subject. Science should be made such attractive.
- The universities should be made the centers of excellence.
- Adequate funds and international standards yield excellent results.
- The establishment of highest Standards of the would help promote Science& Technology in India.

6. THE ROLE OF THE TEACHERS

1. According to the philosopher Sir Richard Grags, the most valuable instrument is the child's mind. As such, the children should be taught about the historical backgrounds, innovations in science, great events, life histories of scientists, wonders of science, and effects of new innovations are to be added in teaching the science subject. These will certainly influence the child.
2. Science Melas, Quizzes, Seminars and National Science Day are to be conducted on a regular basis.

3. The teaching learning activity is to be modified and made more child centered.
4. The teacher should have a clear idea of the evaluation processes.
5. The teacher should adopt various teaching skills to improve the learning activity.
6. The given project works should motivate the child to collect information, understand the causes and effects, analyze and motivate the child to participate actively.
7. The teacher should follow the process of guided enquiry instead of merely transferring the information.
8. The teachers should conduct minor experiments in the class room and inculcate the children to do the experiments on their own.
9. A democratic atmosphere should be maintained in the classroom which provides the child to express his own ideas without any fear.
10. The teacher should be able to procure all the material he needs and should involve the children in the maintenance of the material.
11. The most important tool for a science teacher is the Text Book. The important features such as the cover page, contents and foreword should be made clear to the student.
12. The teacher should not be bound by the syllabus prepared by others or examination pattern and should transmit the subject according to the interest of the students.
13. The teacher should have a clear knowledge of the subject and the activities to be taken up and should achieve the required objectives through activities.
14. The teacher should try to reduce the gap between the children and the curriculum and the objectives specified.
15. Science enables the student to procure knowledge and logical thinking. The scientific thinking guides the student to develop scientific thinking.
16. Therefore, it should be concluded that the main role of the teacher is to develop scientific thinking and interest towards the subject.

7. CONCLUSION

Out of 8 pharmaceutical companies, 2 have already reached CORONA vaccine goals. Bharat Biotech manufactured and Serum Institute tied up with Melinda Gates Foundation. We should feel proud that Bharat Biotech produced vaccine independently whereas the Serum Institute tied up with the US Company. It is notable that India is advancing at a greater pace in the field of science& technology, but at the same time, it should be understood that much is needed to be done.

REFERENCES

1) Online Science Journals, The National Academy of Sciences
2) The Times of India newspaper
3) Vartha News paper (2001)