

4.9 Prayog Pariwar Kendra

Abstract

Scientific knowledge is developing at a tremendous rate and is affecting our life both socially and economically. Talented Indian young boys and girls have the right to receive the kind of education that allows their potentialities to blossom. Prayog Pariwar Kendra (PKK) primarily aims at creating facilities for science learning through experimentation and research in both schools and colleges. The article describes the philosophy of PKK, its structure, functioning and programmes are described briefly. (By: LA)

Why do we need a network of Prayog Pariwar Kendra ?

The importance of science and technology is understood by every conscious man of 21st century. 21st century will be dominated by knowledge. Science and Technology will decide the power of the nation. The rate of growth in the knowledge of science and technology is tremendous. The time gap in new scientific discovery and its conversion in technology is reducing fast. One can not afford to neglect science and its conversion in to technology. We must advance in scientific research and technological expertise. The science education in school and colleges has acquired great importance in this context.

Science and Technology is one of the important tools of the economic and social transformation. Fortunately India is brimming with talented young boys and girls in urban as well as in rural area. It is there fundamental right to get such an education system in which, they will flower out with full of their capacities. Then only they will contribute in scientific research and development of technology. It is our sacred duty to provide them such an educational system.

India has developed fine infrastructure of National laboratories, research laboratories, IITs, Universities and colleges. Still our contribution to basic science and to the expansion of human knowledge is marginal and our contribution to technology is hardly any. There are many reasons to this situation. But everybody agrees that one of the main reasons lies in great lacunae in science education in our schools and colleges.

Prayog Pariwar Kendra aims to create facilities of learning science through experimentation for school and college students in first phase. PPK will generate the facilities of research for students through small projects in second phase. PPK will generate facilities for other sectors of society in third phase.

PHYLOSOPHY OF PRAYOG PARIWAR KENDRA:

There are laboratories in every science college and in every school. It is assumed that they function well and facilitate the experiments in curriculum. The experiments in curriculum are mostly of 'verification of law' type and those which can be performed very easily. In our country, most of the primary and secondary schools are funded by state government. Hence only those experiments are included in curriculum, which are readily available. Also the mentality of teachers and management is that, they will equip the school laboratory with those experiments only which are in curriculum only. The experiments done by the scientist or groups of scientists to arrive 'to some rule' are generally not the part of the curriculum. Such exploration kind of experiments which help concept building, which make you analyse and infer will be the soul of PPK. There will be many additional open ended experiments in PPK.

There are many science museums. Science museum has its own role to play. Very few students get real flavor and proper inspiration while going through the science museums. Most of the visitors carry a sense of magic and astonishment while leaving the science museum. This is much

harmful to science and science popularization. Science is the logical sequence of thoughts. Moreover it has firm foundation of experimental proof. A student can get same thrilling experience of original discovery while doing experiments. That builds their faith in science and confidence.

Catchy experiments will attract the attention of lay visitors. But concept building experiments are of more importance for students. Such experiments need keen observation, thorough analysis, logical inferences, error estimation, error correction and designing of new experiment with minimum error. The abilities of the students build through such stages. In PPK, students will be inspired to do such things. Students will enjoy doing science through synergetic, constructive and beautiful combination of exploration, innovation and working by own hands.

The process of learning and education happens in better way while working with own hands and through dialogue. There will be maximum 10 to 12 students per teacher at a time in PPK. This will make the dialogue possible. Students will be promoted to ask questions to guide teachers in PPK as well as they will be promoted to discuss things amongst themselves. Learning science by doing experiments in exploratory way will be a point of distinction and point of strength of PPK. The process of joyful learning through dialogue will be actually practiced.

Every educationist in almost every of his lecture says that 'there should be paradigm shift in education system'. What is this change exactly? The joyful science education that the students will take through experimentation and dialogue will be one of the answers to this problem.

STRUCTURE OF PRAYOG PARIWAR KENDRA

School students must study all subjects well and they should have firm foundation of knowledge. PPK will initially facilitate science and mathematics education. PPK will be equipped with mainly physics, chemistry, life science and mathematics laboratories and computer science and electronics as subsidiary laboratories. The regular students of PPK will perform experiments in curriculum, experiments beyond but related to curriculum, concept building experiments. They will be doing experiments with increasing difficulty level.

There will be some industrial products in PPK in second phase. Students will learn which techniques are used in manufacturing these industrial products and which scientific principles are used in developing these techniques.

In third year and in third phase students will acquire the ability of designing new experiments and also to execute some small projects.

Visitors will be toured through catchy experiments, demonstration experiments, industrial products, attractive puzzles and science games. They will also be explained some principles in simple way.

PPK may not be grand in its physical appearance and size but it will make remarkable impact due to its exclusively rich programmes and the difference of its execution.

THE PROGRAMMES OF PRAYOG PARIWAR KENDRA

- 1) Following will be the main programmes of the Prayog Pariwar Kendra for regular students:
 - i) experiments from school curriculum
 - ii) experiments related to curriculum but by exploratory way
 - iii) concept building experiments
 - iv) Demonstration experiments

There will be

- 2) Summer workshops
- 3) Creativity and hobby workshops
- 4) Science Promotion Programme for college students
- 5) Teacher Training Programmes
- 6) Visits of the schools

HOW WILL THE PRAYOG PARIWAR KENDRA FUNCTION

- It will facilitate VIII, IX and X standard students to learn Science through experimentation.
- It will operate two hours before and two hours after the local school hours. This may be extended on demand, later.
- Actual time for the student is 1.5 Hr per turn.
- The strength of the batch will be maximum 10 students per teacher, also it will depend on physical size of particular PPK. Personal attention, dialogue with the student and participation of a teacher in the experiment is possible due to the small number.
- The batch timings will be adjusted to suit the school timings.
- Students will enroll themselves for minimum one year and they will regularly come to PPK once a week. A student is expected to do twenty experiments from curriculum and twenty experiments beyond curriculum in a year.
- Every student will learn at least five to ten demonstration experiments.
- Students will receive all information about competitive examination in PPK in first phase. PPK will be equipped as a nurturing center in second and third phase.