SCIENTIFIC REPORT

TITLE OF THE PROJECT


INTRODUCTION AND PURPOSE

With the revision of Syllabus of VIII, IX & Xth std science, it is observed that some topics are new to the teachers e.g. Rainbow with diagram, electromagnetic induction, Flemings right hand rule, Left hand rule, A.C. & D.C. generators, principle of galvanometers, origin of magnetism etc. According to me these topics will be taught justifiably by a physics post graduate.

- In schools post of a science teacher is filled with graduation in any science subject. My observation is, in Ratnagiri District, the number of physics graduates appointed as science teachers in schools is hardly 15%. This means the science teacher with botany as graduation subject will be teaching the physics topics very reluctantly.

- A science teacher is not given freedom to handle the lab in a school.

- In some schools labs are not well equipped. In some schools the teachers are not demonstrating any experiment throughout the year.

- If there is any breakage or rusting of the apparatus making it inoperative, most of the managements recover the cost of it as per new rate from their salary.

- In Maharashtra government has stopped non-salary grants for the last many years. Many schools have not purchased any instruments in the lab since then.

HYPOTHESIS OR QUESTION

Physics is the subject which needs demonstrations of certain experiments to emphasise on the basic concepts, which otherwise are not well understood or not understood at all even after repeated explanations e.g. torque on a coil etc.

To get rid of the fear about the recovery from salary etc. a teacher should be given full freedom to handle the apparatus.

A solution to this major hurdle is very essential.

Materials & Method :-

There is no doubt that all these science teachers need physics teaching of the relevant topics and also sufficient practice to perform the experiment. It was felt that a minimum of one week duration is required. A laboratory, free premises with sufficient infrastructure, government order to depute the teachers, sanction their T.A. D.A. and include this additional qualification in their service book qualify the teacher for promotion etc. All this was to be geared up.
Availability of funds was another major issue. It was necessary to tap different sources.

To make the teacher free from the botheration of the school administration the teacher should have a free hand in the lab.

To overcome all these problems it was felt that a kit should be provided to the teacher which should contain the equipments required for most of the demonstration & equipments of VII, IX & Xstd. Physics experiment.

Availing of funds was a serious and difficult task. A known source was the I.A.S. Bangalore. It approved the project and IAPT could successfully conduct it.

Data & Result

Every topic in physics of all the three standards was taught by resource persons, who were well experienced and renowned teachers from different schools. While teaching the discussion with the participants revealed the following points.

1) Out of five theory resource persons two were not confident of demonstrating in the class.

2) Teachers did not have any references to get additional knowledge about the topics, so the mistakes in the text books were not noticed by the RPs for e.g. the diagram of rainbow formation in the text book is wrong.

3) As per the board rules a student should be given full credit to an answer written according to the text though the text matter is wrong. RPs should be confident enough to bring such errors to the notice of board authorities.

4) Participants were not knowing the proper plotting of graphs or drawing correct diagrams. There were at least 10 mistakes in the graph plotted :- angle of incidence versus angle of reflection.

5) Out of curiosity some lecturers from other disciplines also visited the lab session and expressed their wish to have similar refresher course in their subjects also.

Conclusion :-

1) The decision of providing a kit seemed to be the correct one. Each participant was handling the equipments with possessive nature. They had taken interest in preparing model especially in the last two days. Every participant was trying to get the correct result of allotted experiment by analyzing his own mistakes.

2) Every participant has requested IAPT to explore the possibility of holding such refresher courses in other subjects also.

3) The Education Officer, Ratnagiri district was also impressed and requested IAPT to hold more such programmes in different Talukas of Ratnagiri District. So that at
least one science teacher from every school undergoes this type of training. This indicates the importance of such refresher course.

4) If such courses are conducted, then the output of 10th class reaching 11th science will have proper background of physics subject and the fear of the subject will not remain.

5) Instead of sanctioning non-salary grants if government helps IAPT in conducting of such programmes it will be more cost effective.

6) In all there is need of continuous evaluation of efforts from the schools where kits are provided wherein teacher will be kept alert, ultimately benefitting the students.

ACKNOWLEDGEMENT

1) The 1st and foremost appreciation is of Indian Academy of Sciences, Bangalore accepting the proposal and sanctioning the grants which has helped IAPT in successfully carrying out the project.

2) The acceptance of education department Government of Maharashtra, Ratnagiri District, to depute the teachers and sanctioning duty leave is highly appreciated.

3) The acknowledgements are also due to the Gogate Jogalekar College and the physics department staff for allowing the use of infrastructure and other facilities.

4) IAPT also needs full credit for analyzing the need of such course, proposing the scheme for its execution all by Prof. G.V. Kelkar, and sanctioning matching funds over and above the one sanctioned by Indian Academy of Sciences, Bangalore.