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PROFESSIONAL PREPARATION OF IN–SERVICE SCHOOL TEACHERS FOR 'PRAYAS' PROGRAM IN 'SCIENCE' AND IMPACT IN CLASSROOMS IN KANDAGHAT BLOCK OF DISTRICT SOLAN OF HIMACHAL PRADESH

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Abstract: **Today most teachers enter teaching by means of a one or two-year, undergraduate program in education (B. Ed.). There is provision of in-service training for the teachers to make the teaching effective to bring the quality in education. Various in –service teacher training programs are organized by District Institutes of Educational Training and State Institute of Educational Management and Training under Sarva Shiksha Abhiyaan in Himachal Pradesh. But, the impact of the trainings has not been reflecting in the classrooms and students for last fifteen years. There is not optimum improvement in the learning level of the students. It is necessary to make the teaching enjoyable and flexible through various activities, small projects and ICT in new era. The creative and experimental activities are very much needed in teaching of Mathematics and Science subjects. These activities help in building the confidence in the students and give more opportunities of learning for the students. 'PRAYAS' in upper primary level is one of the program organized by the DIET Solan to prepare the in – service teachers professionally for implementing it at the school level. The objective of the study was to study the impact of In – service training program 'PRAYAS' in Science in the educational block Kandaghat block of district Solan of Himachal Pradesh. The researcher selected three schools conveniently in which two Govt. Senior Secondary Schools Chail and Kalhog; and one Govt. High School, Sakori of the concerned educational block. The researcher collected the data through semi structured interview and recorded the observations. It was found in the study that the students made the models and activities on the topics of their syllabus books under 'PRAYAS' program with eco friendly material and waste material also utilized where suited. In this way students learnt to use the waste material of routine life. The models and activities were very low cost and easy to handle and care. The students learnt and understood the concepts easily. The more outcomes of the program are discussed in the paper which will be beneficial for the educational planners and administrators and in-service teachers of the State.**

Keywords: *PRAYAS, Science, In-service teachers, DIET, SSA.*

I INTRODUCTION

Today most teachers enter teaching by means of a one or two-year, undergraduate program in education (B. Ed.). There is provision of in-service training for the teachers to make the teaching effective to bring the quality in education. Various in –service teacher training programs are organized by District Institutes of Educational Training and State Institute of Educational Management and Training under Sarva Shiksha Abhiyaan in Himachal Pradesh. But, the impact of the trainings has not been reflecting in the classrooms and students for last fifteen years. There is not optimum improvement in the learning level of the students. It is necessary to make the teaching enjoyable and flexible through various activities, small projects and ICT in new era. The creative and experimental activities are very much needed in teaching of Mathematics and Science subjects. These activities help in building the confidence in the students and give more opportunities of learning for the students. Prayas in upper primary level is one of the program

organized by the DIET Solan to prepare the in – service teachers professionally for implementing it at the school level.

II HISTORY OF THE PROGRAM (PRAYAS)

DIET Solan launched 'Sunehra Kal' program in one educational block Ramshehar in 2014 in which activities and models were constructed for Maths and Science content in Primary and upper primary with the collaboration of Praptham Education Foundation. The Science and Maths fairs were organized to demonstrate these activities in which parents of the students and local public also participated along with the teachers and students. A Science fair was organized at the large scale on 28/02/2015 at Govt. Senior Secondary School, Baddi. The students demonstrated the Maths activities and Science models nicely in front of administrators, teachers, students and local public. Every person praised their work and self confidence.

The DIET Solan organized five days workshop on 'Making Maths Activities and Science Models' in Government (Boys) Senior Secondary School, Solan in March 2015 in collaboration with Pratham Education Foundation for increasing the publicity of Science fairs. 120 students of the school participated in this workshop and made various Maths activities and Science models (working and non working). The students of classes 6^{th} to 8^{th} made 30 Science models and 20 Maths models in this workshop and displayed all these on the sixth day 30/03/2015 in the fair. The teachers, Headmasters and Principals of the adjoining schools ware also invited to participate in the fair. Taking into consideration the success of this fair, DIET decided to prepare three – three in – service teachers from each educational block through in – service teacher training program on 'Activity based Teaching' and prepared a District Resource Group (DRG) in April, 2015. All the Science and Maths teachers from Arki and Dhundan educational blocks were trained for this program and fairs were organized. The Pratham Education Foundation shared these experiences and program in Bilaspur district and DIET Bilaspur (Jukhala) converted it into 'Prayas' and implemented in whole of the district. Then, DIET Sirmour (Nahan) launched this program in two educational blocks. This program produced positive results and popularized in the State. Presently, the State Project Office, Shimla implemented this successful program in the State in this year at the upper primary level (classes 6^{th} to 8^{th}).

III REVIEW OF RELATED STUDIES

The reviews of the related studies help the researcher to find the gap between the studies of the selected area. Sim, Ju Youn (2011) studied the impact in Korea of an in-service teacher training (INSET) course on teachers' classroom practice and their perception change. The main finding in this study indicated that the two teachers faced some difficulties and challenges in implementing new ideas or knowledge obtained from the INSET course into their classroom practice, and did not do so to the same extent.

The contextual differences between the INSET and real practice, the content of the INSET, and lack of school support were identified as constraining factors that limit implementation. Uysal, H. H. (2012) studied evaluation of an in-service training program for primary school language teachers in Turkey. The study evaluated a one-week INSET offered by the Turkish Ministry of Education to explore its sustained impact on language teachers' attitudes, knowledge-base, and classroom practices. The program is first evaluated against the criteria for effective INSETs suggested by previous literature. Then, data were gathered through course materials analysis, interviews with trainers and teachers, and through a questionnaire distributed to 72 teachers 18 months after the course ended. Findings indicated that although the teachers' attitudes were positive towards the course in general, the program had limitations especially in terms of its planning and evaluation phases, and its impact on teachers' practices. Although, teachers expressed a need for more time and resources such as handouts, materials, CDs to be used for future reference and for classroom use. Berry, B.; Daughtrey and Wieder (2010) suggested that preparation and professional development are closely interwoven with collaboration and leadership opportunities. Because of these connections, the best proposals for creating and supporting professional learning for effective teachers will incorporate elements of each. Nemser, S. F. focused on different ways of conceiving and carrying out teacher preparation. It discussed the state of the art concerning programs of initial teacher preparation and indicates where conceptual, empirical and practical work is needed. The academic orientation focused attention on the distinctive work of teaching. What distinguished teaching from other forms of human service was their concerns with helping students learn worthwhile things they could not pick up on their own. It followed that preparing someone to teach means helping them develop ideas and dispositions related to this goal. These studies provided insights about the in – service teacher trainings and the Government initiatives in various places around the globe. The studies also investigated the aspects teachers found easy/hard to implement, their reasons for any difficulties they faced in their schools, and their needs for future in-service teacher education programs. Because any changes in teachers' beliefs, attitudes and behaviors are suggested to take place after a long period of time, once teachers have an opportunity to test new ideas and observe the outcomes in student learning. Hence, the present study was undertaken to study the professional preparation of in – service teachers for 'PRAYAS' programs and impact in

classrooms in Kandaghat block of district Solan of Himachal Pradesh.

Objectives of the Study:

1) To study the professional preparation of In – service teachers for the 'PRAYAS' program in the educational block Kandaghat.
2) To study the impact of In – service training program 'PRAYAS' in Science subject in the educational block Kandaghat.

Methodology: The descriptive research method was used in the present study.

Place of Study: The present study was conducted in the educational block Kandaghat of district Solan of Himachal Pradesh, India.

Duration of the Study: Four months. 05/09/2017 to 04/12/2017

Type of Study: School and community based qualitative study.

Sampling: The study was carried out in one educational block, Kandaghat of district Solan. There are 51 upper primary schools in the block from which 12 schools are selected by the DIET Solan for 'PRAYAS' program. The researcher selected three schools conveniently in which two Govt. Senior Secondary Schools Chail and Kalhog; and one Govt. High School, Sakori of the concerned educational block. The researcher collected the data through semi structured interview and recorded the observations. Six teachers, 10 students and 10 SMC members were selected conveniently by the researcher for recording their views towards 'PRAYAS' program in Science.

Analysis of Data: The outcomes of the observations made were recorded categorically and interpreted as follows.

Professional preparation of In – service teachers for the 'PRAYAS' program: In Himachal Pradesh Science is taught by the Trained Graduate Teachers in medical in High and Senior Secondary schools and by the Trained Graduate Teachers in Non Medical in Middle schools. The related stream teachers were selected by the Block Resource Co-ordinater and the professional in – service teacher training was organized by the DIET Solan for five days for Science. In the first three days inputs were given regarding making various activities and models (working and non working) of the concerned syllabus of classes 6^{th} to 8^{th} in the collaboration with Pratham Education Foundation. The follow up of the program was conducted on the fourth day and next day fair was organized at DIET level to demonstrate the activities and models prepared by the participant teachers. This group named as District Resource Group (DRG).

This training was given by the DRG members for the one day at the block level in Science to the in – service teachers of the concerned streams and selected schools in which 'Prayas' program is implemented. The follow up was also conducted on the next day of the training. In Kandaghat block, ₹ 10000/- were given to 12 selected schools for Science and Maths kit under 'PRAYAS' program and ₹ 2756/- were allotted for making the charts/models/activities of the topics of their syllabus books of Science and Mathematics to other Middle and Senior Secondary schools of the block.

Impact of In – service training program 'PRAYAS' in Science: The trained teachers at the block level implemented the training at their respective schools. The normal school routine was not disturbed but the teachers implemented the program 'PRAYAS' in their normal classroom teaching. The students made the charts, activities and models (working and non working) for Science. The date of the fair was announced by the BRCC Kandaghat. The respective schools organized fair to display the activities and models in front of all the students of the school, teachers, School Management Committee (SMC) and community members. The students explained the details of their respective models and activities with great confidence. The SMC members also interacted with the students along with the Science teachers of nearby schools. The BRCC Kandaghat Smt. Kiran Thakur also interacted with each student and asked the detail of the respective chart/model/activity. She commented, "The students are learning the basic concepts of Science with the help of these activities. The concepts are very much clear to students as they are learning the concepts of their syllabus books by doing the concerned activity." The pictures of some selected activities and models are given in Fig. A as follows.

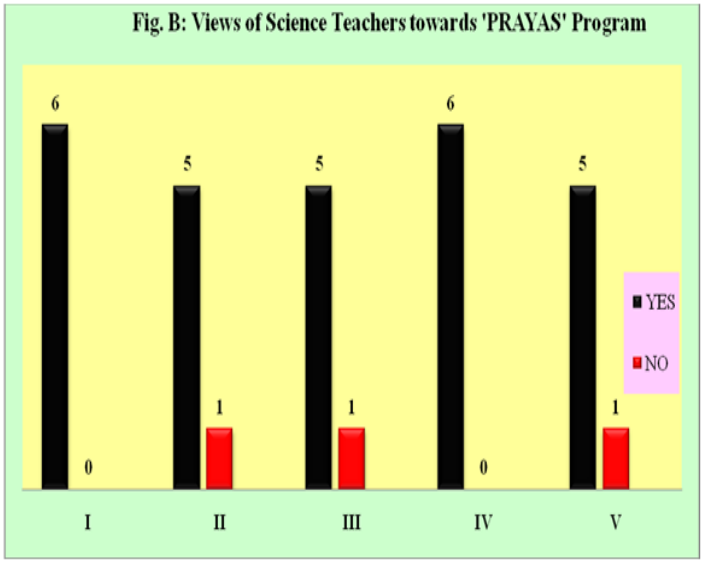
Figure A: Various 'PRAYAS' Activities in Schools of Kandaghat Block.

The researcher studied the impact of In-service training program 'PRAYAS' at the ground level with the help of semi structured interview scale and recorded the views of Science teachers of the concerned schools, students and School Management Committee members of the selected schools which are described as follows.

Views of Science Teachers: The views of the Science teachers recorded by the investigator through semi structure interview scale. The concept for making the model or activity has been given to the students by the teachers. The students mostly used the waste material for making the models. One of the teacher said, "Students are taking interest in learning the concept for developing the model and I judged that they have learnt the concerned concept more deeply than in normal classroom learning." Another Science teacher told, "Students amazed all of us with their active involvement in these activities and given good results in FA 2 and FA 3 tests. I think this will be the best program for Science learning at this stage. I appreciate it personally." The total views of 10 sampled Science teachers are given in Table 1 as follows.

Table 1: Views of the Science Teacher towards 'PRAYAS' program in Science

Sr. No.	Statement	Yes	No
I	Is the 'PRAYAS' program in Science useful to students?	6	0
II	Are the students participated actively in developing the model/chart/activity?	5	1
III	Is the program helpful in deep learning of the concepts for which model/chart/activity is developed?	5	1
IV	Is the Scientific attitude developed in students?	6	0
V	Is the performance of the students in Unit tests better than before implementing the program?	5	1



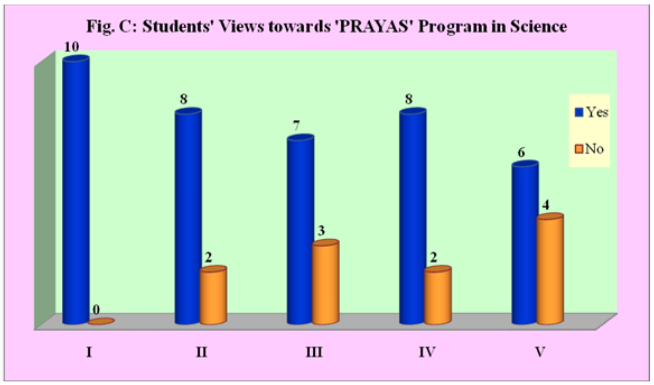
The Table 1 and Fig B show the view of the Science teachers towards 'PRAYAS' program in Science. All the Science teachers stated that it is useful for the students and scientific attitude is developed in the students, 5 teachers stated that program is helpful in deep learning of the concepts for which the chart/model/activity has developed and all the students participated actively in making the activities and performance of the students in FA 2 and FA 3 tests was better than before implementing the program.

Views of Students: The views of students towards implementation of 'PRAYAS' program in Science in schools were recorded through semi structured interview scale. The students were found more interested in making the charts/models in classrooms with help of their teachers. One student of class 6th interacted with the investigator and reported, "I was slow learning student in Science. The concepts were tough for me to understand. But, by making chart/model with the help of teacher I understand the things better and got good marks in FA 2 tests." Another student of class 8th recorded his view towards 'PRAYAS' program as "I really enjoyed doing the activity myself as I read these in my book. It increased my confidence to do more in future." Vivek Sharma of class 8th told that I felt proud when teachers of other schools appreciated my model along with the skill of explaining its working. I am self motivated and now I will develop more activities of other topics of my syllabus. I have learnt the concept and I cannot forget it now." The recorded views of all the sampled students are given in the Table 2 as follows.

Table 2: Views of Students towards 'PRAYAS' program in Science

Sr. No.	Statement	Yes	No
I	Have you got the guidance of your teachers in making chart/model?	10	00
II	Have you learnt the concepts deeply with the help of all charts/models developed by the class?	8	2
III	Have you got good marks in FA 2 and FA 3 tests after learning through these activities?	7	3
IV	Will you want to develop more charts/models for other concepts?	8	2
V	Have you planned for developing the charts/models for other concepts?	6	4

Table 2 and Fig. C deal with the view of the students towards 'PRAYAS' program in Science. It is clear that all the students were guided by their respective teachers for developing the chart/model/activity in Science. 8 students recorded their view that they have learnt the concepts of their syllabus books easily and deeply with the help of material developed in the program and get good marks in FA 2 and FA 3 tests. 8 students want to make more materials of other concepts of Science in future and 6 students have planned their strategies for making their project during the program. The remaining 4 students were also thinking about the future planning of making their activities of the topic of their interest related to syllabus of their books.

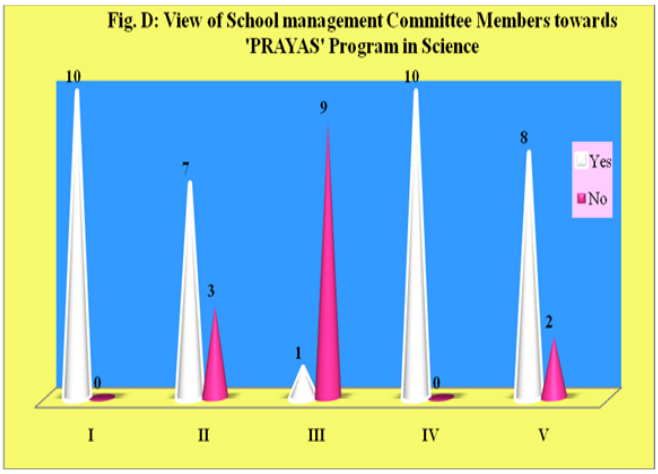


Views of School Management Committee (SMC) Members: The views of students towards implementation of 'PRAYAS' program in school were recorded through semi structured interview scale. The SMC President of one school said, "The PRAYAS' program is the best program to create the interest of the students towards Science. The children are enjoying their learning by creating things themselves." Another parent of one student recorded her view as, "The students are taking keen interest in making their models. They are learning the basic concepts more easily and I think this learning is permanent." The views of all the sampled SMC members are given in the Table 3 as follows.

Table 3: Views of SMC Members towards 'PRAYAS' program in Science

Sr. No.	Statement	Yes	No
I	Have you liked the work done by the students?	10	00
II	Have your children made these charts/models with interest?	7	3
III	Have the children demanded money for making these activities?	1	9
IV	Do you want such type of activities and Fairs should be continued in future?	10	00
V	Has the performance of your children increased during this program?	8	2

Table 3 and Fig. D are concerned with the views of School Management Committee members towards 'PRAYAS' program. All the SMC members liked the work of the students and favored these type of activities in future. 7 members made their charts/models with interest and 8 members given their view that the performance of their children in Science increased due to implementation of this program.



IV CONCLUSION

Science is the subject which should be taught by activity based methods. The activities help the students to understand the concept easily and rote memory discouraged. The students made the models and activities with eco friendly material and waste material also utilized where suited. In this way students learnt to use the waste material of routine life. The models and activities were very low cost and easy to handle and care. This is outcome of the professional preparation of in – service teacher training program 'PRAYAS'. The SMC members and community members appreciated the program and demanded to implement it all the remaining schools of the block. It is concluded that the 'PRAYAS' program for Science is successful in all the selected schools as BRCC Kandaghat reported. The students learnt the basic concepts of the syllabus of their books very easily and the results of FA 2 and FA 3 also proved this fact. Science subject should be taught with the active participation of the students to increase the interest of the students towards the subject.

V RECOMMENDATIONS OF THE STUDY

1. The 'PRAYAS' program is found useful for the students in the practical subject 'Science'. The students' performance is increased after implementation of the program. Hence, the program should be implemented in other schools also.
2. The grant ₹ 2840 is not enough for making the models in one school. It should be enhanced up to ₹ 4000 for each school.
3. No program is successful without the active participation of the community. Therefore, SMC members should encourage their children for making more models/charts/activities.
4. The Science teachers should be trained at the National level to make the program more effective and fruitful.

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BIOGRAPHY

Dr. Sanjeev Kumar is working as Trained Graduate Teacher in Non-Medical in Govt. Middle School Rugra of distt. Solan in Himachal Pradesh. He is honourable member of the Governing Council of Himachal Pradesh Educational Society (SSA & RMSA). He is well known for activity teaching in Science and Mathematics. He is editorial board member of many reputed national and international journals. He has published 63 papers in national journals in national and international journals and attended 68 national and 23 international conferences and seminars. He is awarded with 'Bharat Shiksha Rattan' award in 2010 for his exemplary work in the filed of education. Also, he has got appreciation from the Director of Elementary Education, Himachal Pradesh Govt. in 2017 for including his school in 'Khaas Shiksha'. He is national level resource person for in-service teacher training especially in 'Vedic Mathematics and Abacus.