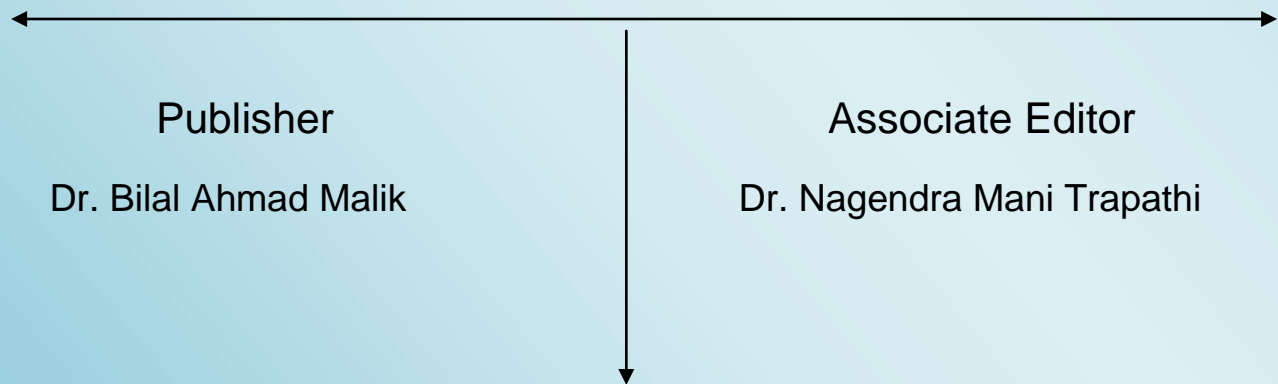


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ATTITUDE OF SCIENCE TEACHERS TOWARDS PROJECT METHOD

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ABSTRACT

The purpose of the study was to study the attitude of science teachers towards project method. The sample consisted of sixty teachers from schools affiliated to C.B.S.E and P.S.E.B. The data was collected by devising an attitude scale. The statistical techniques they were then employed to the data collected and analysis and interpretation of the data was done. The results of the study implied that there exists no significant difference in the attitude towards science of male and female science teachers, teachers taking secondary and senior secondary classes and teachers working in schools affiliated to C.B.S.E P.S.E.B.

Keywords: Science teachers, Attitude, project method.

INTRODUCTION

One of the objectives of science education is to develop student's interest in science and technology, as today's society depends largely on development in science and technology. According to Kothari Commission, "Science and Mathematics should be taught on a compulsory basis to all pupils as a part of general education during the first 10 years of schooling". There are various methods of teaching science such as lecture method, lecture cum demonstration method, heuristic method and problem solving method has been advocated from time to time and each method has its own merits and demerits. In India also in most of the institutions science is taught through lecture method and laboratories are not available for conducting experiments thus students are unable to develop understanding of science, which is going to become a big problem for teachers as well as students.

Keeping children engaged and motivated in school is challenging, even for the most experienced teachers. Although it is difficult to prescribe a "one-size-fits-all" approach, research shows that there are practices that will generally encourage students to be more engaged. These practices include moving away from rote learning and memorization to providing more challenging, complex work; having an interdisciplinary, rather than

departmentalized focus; and encouraging co-operative learning (Anderman and Midgley, 1998). Project-based instruction incorporates these principles. Using projects as part of the curriculum is certainly not a new concept; teachers often incorporate projects into their lesson plans. Project based work is an important part of the learning process. This approach is becoming even more meaningful in today's society as teachers increasingly teach groups of children who have different learning styles, cultural and ethnic backgrounds, and ability levels. The so-called cookie-cutter approach to learning does not help all kids to achieve high standards.

Project-based instruction builds on children's individual strengths, and allows them to explore their interests in the framework of a defined curriculum. Students generally work in small, collaborative groups in the project-based learning model.

The best way to implement PBSI is to tie it to a standard, unit curriculum and programme or after school science programme. If a science teacher wants to teach science through PBSI, the following steps should be followed:

1. In the first step, teacher provides a situation for the project to the students . Under this step, teacher should create such conditions in which students can make various kinds of scientific enquiries from him. Usually it is found that there is a spontaneous upsurge of such situations while at the same time, teacher has to plan for the creation of such conditions. Students can spot out such problems at any place, i.e., laboratory, classroom etc.
2. Once the students become interested in picking up and solving a problem, teacher should provide them with number of alternative suggestions out of which they can make a selection of suitable project in accordance with their mental abilities. To make choice of appropriate alternative, proper suggestion and advice should be provided to the students by the teacher.
3. In the third step, proper planning relating to project is made out. Teachers take certain steps by which students can be made to hold lively discussion. For this purpose, teacher can also arrange expert from the other institutions or schools. Students should carry out all the efforts for chalking out a detailed strategy in accordance with which chosen project will be carried out. In this stage, teacher should play an active role. It is only he who can provide the students with suggestions as how to choose the most practical plan of action. At this stage, teacher should assign duties and responsibilities among the students and they should be informed about their area of functions.
4. While keeping interest and mental capabilities of the students, teacher assigns work to the various students by which they can execute the project in reality. For proper execution of the project, it is necessary that all the

students should be provided with equal opportunities. Teachers also provide the students with the authority by which they can sub-divide the responsibility provided to them.

5. It is the responsibility of both teacher and students to review the success and failure of project frequently. This step is taken to ensure that set objectives of conducting project have been realized properly. Such conditions are created by teacher in which students can assess their level of performance themselves. For overall assessment, project is being evaluated at the end, once it is fully executed to determine the achievement, difficulties and lessons which are learnt by students during execution of project.
6. Students keep a complete record of work performed by them during execution of project. Every step taken by them should be recorded in proper manner. They should note down the difficulties which they face during their work properly.

OBJECTIVES

- ❖ To study the significance of difference in the attitude of male and female science teachers towards project method.
- ❖ To study significance of difference in attitude of teachers working in schools affiliated to PSEB and CBSE.
- ❖ To study significance of difference in attitude of science teachers towards project method teaching secondary classes and senior secondary classes.

HYPOTHESES

- ❖ There exists no significant difference in the attitude of male and female science teachers towards Project method.
- ❖ There exists no significant difference in the attitude of science teachers taking secondary classes and senior secondary classes, towards Project method.
- ❖ There exists no significant difference in the attitude of PSEB and CBSE science teachers towards the Project method.

Delimitations

- The study was restricted to 60 science teachers of Mansa district of Punjab only.
- The study was delimited to schools are affiliated to CBSE and are affiliated to PSEB.

- The study is limited only to the sample.

DESIGN OF THE STUDY

The present study is a Descriptive and Exploratory in nature and it intends to investigate the attitude of science teachers towards project method. In the present study, teachers were selected randomly from the different schools of the Mansa district. The objective of the present study is to study the attitude of science teachers towards project method .To achieve the objective, 60 teachers were taken as sample. Proper statistical treatment and their interpretation were done, to verify hypotheses.

PROCEDURE OF DATA COLLECTION

. To study the attitude of Science teachers towards project method, a suitable and appropriate attitude scale was devised. For this purpose, the critical analysis of all the available attitude scales was made and after a thorough study, the investigator constructed her own 'Attitude Scale'. It included 18 items. There were three options for each statement. It measures respondent's opinion on the basis of responses given as Yes, No and Sometimes. Every Yes response carries 3 marks, No response carries 2 marks and sometimes response carries 0 marks. The sum of the scores in all the statements give the total extent of teacher's interest in Science Projects

ANALYSIS AND INTERPRETATION OF THE DATA

Analysis and interpretation of data deals with the organization of data in terms of editing, classifying and tabulating the information gathered through administration of various tools on the selected sample. For the purpose of comparison t-ratios were computed.

Table 1
Difference in the Mean Score of Attitude of Male and Female Science Teachers

Sr. No.	Category	N	Mean	S.D	S.E _D	't' value	Level of significance
1.	Male Teachers	30	41	5.77	1.28	1.17	Insignificant at 0.01 and 0.05 levels.
2.	Female Teachers	30	39.5	4.03			

As shown in the Table 1 , the mean score of attitude towards project method of male science teachers is 41 and S.D is 5.77 , and female science teachers is 39.5 and S.D is 4.03 .The obtained ‘t’ value is 1.17, which is less than the table value i.e. 1.96 at 0.05 and 2.58 at 0.01 levels. So it is insignificant at both levels. It indicates that there is no significant difference between attitude of male science teachers and female science teachers towards project method.

Hence the Hypothesis 1 which states that “There exists no significant difference in the Attitude of male and female science teachers towards Project method “is accepted.

It may be concluded that Gender of Science Teachers has no effect on their attitude towards project method; attitude remains same in male and female science teachers. However slight difference between mean score can be due to chance factor or sampling errors.

Table 2
Difference in the Mean score of Attitude of Science Teachers taking Secondary classes and Senior Secondary Classes.

Sr. No.	Category	N	Mean	S.D	SE _D	‘t’ value	Level of Significance
1.	Teachers taking Sec. classes	30	39.2	5.6	1.35	0.30	Insignificant at 0.01 and 0.05 levels
2.	Teachers taking Sen. Sec. classes	30	39.6	4.9			

As shown in the Table 2 , The mean score of attitude towards project method of science teachers taking secondary classes is 39.2 and S.D is 5.6 and taking senior secondary classes is 39.6 and S.D is 4.9. The obtained ‘t’ value is 0.30 which is less than the table value i.e. 1.96 at 0.05 and 2.58 at 0.01 levels. So it is insignificant at both the levels. It indicates that there is no significant difference between attitude of science teachers taking secondary classes and senior secondary classes towards project method.

Hence the Hypotheses 2 which states that “There is no significant difference in the attitude of science teachers taking secondary classes and senior secondary classes, towards Project Method” is accepted.

It may be concluded that teachers taking secondary classes and senior secondary classes have same knowledge of methodologies which they have learnt in their teacher training programmes and they have same knowledge about

techniques of science which can be used in science project. However, slight difference between mean score of above two groups of teachers can be due to chance factor or sampling errors.

Table 3
Difference in the Mean score of Attitude of PSEB and CBSE Science Teachers.

Sr. No.	Category	N	Mean	S.D	S _{ED}	't' value	Level of Significance
1.	PSEB Teachers	30	38.3	4.7	1.33	0.74	Insignificant at 0.01 and 0.05 levels
2.	CBSE Teachers	30	39.2	5.6			

As shown in the Table 3 , The mean score of attitude towards project method of PSEB science teachers is 38.3 and S.D is 4.7, and CBSE science teachers is 39.2 and S.D is 5.6 .The obtained 't' value is 0.74 which is less than the table value i.e. 1.96 at 0.05 and 2.58 at 0.01 levels. So it is insignificant at both the levels. It indicates that there is no significant difference between attitude of PSEB science teachers and CBSE science teachers towards project method.

Hence the Hypotheses 3 which states that "There is no significant difference in the attitude of PSEB and CBSE science teachers towards Project method" is accepted .

It may be concluded that PSEB science teachers and CBSE science teachers have same attitude towards project method because PSEB and CBSE schools have the same facilities like well equipped laboratories , study material and technologically advanced teaching methods . Secondly, salaries of teachers and burden of extra work over teachers is also same in both of CBSE and PSEB schools. However, slight difference between mean score of above two groups of teachers can be due to chance factor or sampling errors.

CONCLUSIONS

1. There exists no significant difference in the attitude of male and female science teachers towards Project method. It may be concluded that Gender of Science Teachers has no effect on their attitude towards project method. However, slight difference between mean score can be due to chance factor or sampling errors.
2. There exists no significant difference in the attitude of science teachers taking secondary classes and senior secondary classes, towards Project method. It may be concluded that teachers taking secondary classes and senior

secondary classes have same knowledge of methodologies which they have learnt in their teacher training programmes and they have same knowledge about techniques of science which can be used in science projects. However, slight difference between mean score of above two groups of teachers can be due to chance factor or sampling errors

3. There exists no significant difference in the attitude of PSEB and CBSE science teachers towards the Project method. It may be concluded that PSEB science teachers and CBSE science teachers have same attitude towards project method because PSEB and CBSE schools have the same facilities like well equipped laboratories, study material and technologically advanced teaching methods. Secondly, salaries of teachers and burden of extra work over teachers is also same in both of CBSE and PSEB schools. However, slight difference between mean score of above two groups of teachers can be due to chance factor or sampling errors.

EDUCATIONAL IMPLICATIONS

The present study has the implications for the science teachers and teaching of science. Project method makes the understanding of scientific principles easy. The students can go in the search of truth and solutions to their queries emerged from their efforts, they can develop scientific attitude. In the present study teachers have in general positive attitude towards project method of teaching science. But due to lengthy syllabus, financial strains and overburdened teachers, it is not mostly used in teaching of science. So, to develop the interest of teachers towards project method in teaching of science following measures should be taken:-

- Refresher courses, seminars and workshops should be organized on project method of teaching science for science teachers.
- The teachers should not be overloaded with extra work like census etc.
- The teachers should get appropriate funds so that they can utilize these funds in different projects conducted by students.
- Teachers should get some incentives, certificates, increments etc to guide the students in science projects.
- The students should be given proper rewards and encouragement for their outstanding performance in project work.
- Project work should be taught on compulsory basis in schools.
- Proper equipment should be provided to the students for their project work.

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