

STUDY ON DIFFERENT TEACHING METHODS USED BY THE SCIENCE TEACHERS AT ELEMENTARY LEVEL: A TEACHERS' PERSPECTIVE

^{1*}Abdul Qayyum Ch., ²Aneela Sheikh, ³Maheen Tauqeer, ⁴Hafsa Tahir

^{1,3,4} Institute of Education and Research, University of the Punjab Lahore. Pakistan

² CIMR, University of the Punjab Lahore. Pakistan

*Correspondence: careerpu@yahoo.com

ABSTRACT: The study was conducted to explore the different teaching methods used by the elementary school science teachers in public and private schools of Lahore. A purposive sample comprised of 100 teachers were selected from the population. A closed ended questionnaire was used as an instrument. The data collected was based on teachers' gender, qualification and experience at elementary level in private and public schools. Almost all male and female teachers agreed that they use lecture method, demonstration method, heuristic method, project method and discussion method for teaching science at elementary level. Results also revealed that demonstration and discussion methods are mostly being used in government schools whereas lecture, heuristic and project methods are mostly being used in private schools. Hence Demonstration Method, Heuristic Method and Discussion Method are frequently used by science teachers at elementary level.

Keywords: Teaching methods, Science teachers, elementary level

INTRODUCTION

Human mind is always busy in exploring nature. Man by his keen observation and ability of reasoning has come to the fact that everything which occurs in nature has some reasons behind it. While searching for these reasons man has gathered a vast store of knowledge known as science. Science education is very important because it promotes various skills in students that enable them to contribute in a gradually more technical and scientific world. In order to build science teaching most effective; instructor has to adopt the appropriate way of teaching. Which fulfills the aims and objectives of the study like Lecture method which is most commonly used by teachers. In this method teacher speaks and students are passive listeners. Demonstration method is considered to be superior method of teaching. It's essential steps are planning and preparation, introduction of the lesson, presentation, performance of experiments, black board summary and supervision. Heuristic method is a pure discovery method, the student is put in the place of an independent discoverer, and it develops the habits of self-learning. [1]

Project method is based on learning by doing. There are five stages in this method which include: providing a situation, choosing and proposing, planning of the project and executing the project. Discussion Method includes two way aiming upon the resources and time accessible in a given situation. In one way the teacher initiates discussion by posing some questions in logical sequence of given topic in given period of time. In the alternate way, the instructor offers a short beginning of the theme and explains several new conditions whereas students have to prepare very thoroughly the assigned part of the topic. [2]

A science teacher must possess academic and professional qualification. The middle school art and science curriculum should make sure chances for students to increase insights and abilities required to function effectively as problem-solvers in a technical and scientific world, in such a way by providing qualified teachers who must have full commands on the modern teaching methods of science in order to develop these skills among students.

Statement of the problem

To explore the instructional methods used by science teachers at elementary level and to find out which method teachers use frequently in teaching science in private and public schools of Lahore.

Significance of the study

Science education has its importance at elementary level as it enables the students to understand the natural world and how it works. It is done through observation and experimentation. To impart such knowledge and to promote skills in students that enable them to contribute in more technical and scientific world, teacher is basic source and the effectiveness of transferring such knowledge depends on the methods which he/she uses to teach.

So this study is beneficial for science teachers that they come to know about the various methods of teaching science at basic elementary stage. Teachers may use this study to relate scientific concept to the daily life aspects with examples. Researchers may find this study useful in order to continue their research work. [3]

OBJECTIVES

- To identify the teaching methods mostly being used by the teachers at elementary level.
- To identify the teaching methods based on gender difference.
- To identify the teaching methods used mostly in public and private schools.
- To identify the teaching methods based on teachers' qualification.
- To identify the teaching methods based on teaching experience.

METHODOLGY

Population of the study

Population of the study was comprised of elementary science teachers of both government and private schools of Lahore.

Sample size

A purposive sample comprised of 100 teachers were selected from the population. In which 50 were government school teachers and 50 were private school teachers of science at elementary level.

Instrument

The instrument of the study was a closed ended questionnaire, with a five point likert scale from strongly agreed to strongly disagreed, developed by the researcher. The validity of the questionnaire was confirmed by an expert opinion.

Delimitation of the Study

The research was limited to the specific areas of Lahore which includes private and government schools.

LITERATURE REVIEW**Science Teaching and its importance**

Science education is the basic knowledge because it promotes problem-solving abilities in students that enable them to contribute in more technical and scientific production. Science teaching gives students the capability to access information and knowledge in a more logical pattern. [4]

Several students find science particularly exciting and attractive. It enables students to develop understanding about natural phenomena and technological world and to construct questions based on facts. [5]

Science is now one of the most important subjects in the schools because of its different values. The science teacher occupies an essential place in laying good foundation in science through teaching – learning process. [6]

Good science teaching is one of the best ways to create and develop scientific thinking among citizens. It is mainly through teacher's devotion that a large number of students develop enduring scientific interests and determination and learn to appreciate and understand the environment of knowledge.

Aims and Objectives of teaching science

Following are the selected aims of science teaching:

- It should make the pupil fit for the society.
- Must provide him/her practical experiences.
- To Make students enhance their interest towards science.
- To let the students acknowledge that science plays an important role in daily life.
- It develop a scientific attitude among students [7].

Objectives of Teaching Science

The objectives of teaching science at different stages have been summarized as:

- Arousing and maintaining an interest in nature and in the physical and social environment.
- Arousing love for nature and its sources.
- Developing the habit of observation, exploration, classification and systematic way of thinking.
- Developing the child's power of discriminating different facts, concepts and phenomena.
- Developing neat and orderly habits.

Methods of Teaching Science at Elementary level

The word method in Latin means form or path. In teaching it means the type by which the substance is conveyed from the educator to students. Methods of teaching might be distinct as the methods by the teachers convey information and abilities and the pupils understand facts and get the abilities in process of knowledge. There are a variety of methods which can be used by a teacher for teaching science. [8]

Lecture Method

Lecture method is the most commonly used method of teaching science. When talking about the science teaching, it is the teacher who gives instructions of different logical principles and concepts while pupils stay as passive listeners, who try to acquire the information conveyed by the teacher. This method is not quite suitable to the aims of teaching science but many of teachers whether male or female find themselves spending at least 40 to 50 percent of their teaching time in delivering lecture. Lecturing is the sole alternative in situations where the number of students in a class is large or there is a scarce of teaching resources. It also finds its utility in a situation where there is an inadequate amount of time accessible on the class time table [9].

Demonstration Method

A practice that is calculated to demonstrate a method, process or phenomenon is called a demonstration. Demonstration in art and science are efficient and give exceptional knowledge and experiences. This is the technique which equally teacher and students get the chance to set their opinions and thoughts. In front of the students, certain kinds of demonstrations are developed by the teacher. Pupils observe it and inquire diverse types of question after observation, students are required to explain every step taken by the teacher properly, as a result of which they feel a kind of compulsion. Teacher put various kinds of questions regarding the demonstration. This is an important method for science teaching as science is not only a theoretical subject but has a considerable portion of practical work also. By carrying out the successful demonstration activities in teaching process, a teacher can provide concrete experiences to the students. Through this method, students get opportunities to play active role in learning process. [10].

Heuristic Method

Heuristic is derived from the Greek word 'Heuriskin' meaning 'to find. This process was advocated by **Professor Armstrong** who defines it as Heuristic method of teaching. It involves students to discoverer methods which engages their opinions, rather of an individual telling about the things. [11]. The Heuristic method of teaching science aims primarily at developing the child's scientific outlook. This method strives to make the child as an energetic autonomous enquirer and inventor of information, instead to place a student as an inactive receiver of the information and mostly male and female teachers use this method, because student's real task is the discovery of knowledge by stirring the strength or enthusiasm of discovery and exploring the things by self effort. [12]

Project Method

The project method involves investigation, discovery and finding out something which was not known to the student before and it stresses on cluster activity and develops character of headship. Teachers whether male or female use this method because it works on the following principles:

- Learning by observation.
- Learning by doing
- Learning by trial and error and
- Learning by living

Project method of instruction was first introduced by John Dewey. Project is a diagram of act which engages a task or problem calling for productive thought or action or both on the part of the student [13].

DISCUSSION METHOD

This method of teaching science is pursuing in two approaches depending on time and resources accessible in a scrupulous organization in a given circumstances. Both Male and female teachers adopt this method in two ways. In one way the educator provides a short introduction of subject for conversation pursued by supervised learning by the students in groups or independently in the selected time of an hour or so while in the alternating way the instructor provides a concise opening of the topic and clarifies some new conditions. The class is separated into suitable groups and is requested to read the concerned topic with assisted specified suggestions. Every group is specially allocated one element of the topic which they have to practice very thoroughly and discuss later among themselves and with the teacher [14].

ANALYSIS OF DATA

This section deals with the analysis and explanation of data. Followings are the responses from teachers about given statements.

Table: 1

Gender	Frequency	%age
Male		
Agree	32	64.0
Un – decided	10	20.0
Disagree	8	16.0
Total	50	100.0
Female		
Agree	33	66.0
Un – decided	14	28.0
Disagree	3	6.0
Total	50	100.0

Table 1: indicates that 64% of the male respondents and 66% of the female respondents agreed that they use lecture method. Hence majority of the respondents use lecture method.

Table: 2

Gender	Frequency	%age
Male		
Agree	38	76.0
Un – decided	9	18.0
Disagree	3	6.0
Total	50	100.0
Female		
Agree	34	68.0
Un – decided	12	24.0
Disagree	5	10.0
Total	50	100.0

Table 2: indicates that 76% of the male respondents and 68% of the female respondents agreed that they use demonstration method. Hence majority of the respondents use demonstration method.

Table: 3

Gender	Frequency	%age
Male		
Agree	30	60.0
Un – decided	10	20.0
Disagree	10	20.0
Total	50	100.0
Female		
Agree	36	72.0
Un – decided	2	4.0
Disagree	12	24.0
Total	50	100.0

Table 3: indicates that 60% of the male respondents and 72% of the female respondents agreed that they use project method. Hence majority of the respondents use project method.

Table: 4

Gender	Frequency	%age
Male		
Agree	38	76.0
Un – decided	5	10.0
Disagree	7	14.0
Total	50	100.0
Female		
Agree	34	68.0
Un – decided	9	18.0
Disagree	7	14.0
Total	50	100.0

Table 4, indicates that 76% of the male respondents and 68% of the female respondents agreed that they use discussion method. Hence majority of the respondents use discussion method.

Table: 5

Gender	Frequency	%age
Government		
Agree	32	64.0
Un – decided	8	16.0
Disagree	10	20.0
Total	50	100.0
Private		
Agree	35	70.0
Un – decided	10	20.0
Disagree	5	10.0
Total	50	100.0

Table 5: indicates that 64% respondents of government schools and 70% respondents of private schools agreed that they use lecture method. Hence lecture method is mostly used in private schools.

Table: 6

Gender	Frequency	%age
Government		
Agree	41	82.0
Un – decided	3	9.0
Disagree	6	12.0
Total	50	100.0
Private		
Agree	34	68.0
Un – decided	10	20.0
Disagree	6	12.0
Total	50	100.0

Table 6: indicates that 82% respondents of government schools and 68% respondents of private schools agreed that they use demonstration method. Hence demonstration method is mostly used in government schools.

Table: 7

Gender	Frequency	%age
Government		
Agree	31	62.0
Un – decided	9	18.0
Disagree	10	20.0
Total	50	100.0
Private		
Agree	41	82.0
Un – decided	4	8.0
Disagree	5	10.0
Total	50	100.0

Table 7: indicates that 62% respondents of government schools and 82% respondents of private schools agreed that they use heuristic method. Hence heuristic method is mostly used in private schools.

Table: 8

Gender	Frequency	%age
Government		
Agree	32	64.0
Un – decided	8	16.0
Disagree	10	20.0
Total	50	100.0
Private		
Agree	35	70.0
Un – decided	10	20.0
Disagree	5	10.0
Total	50	100.0

Table 8, indicates that 56% respondents of government schools and 78% respondents of private schools agreed that they use project method. Hence project method is mostly used in private schools.

FINDINGS

1. Frequency analysis of Lecture Method used by male and female teachers show that majority of the respondents use lecture method.
2. Frequency analysis of Demonstration Method used by male and female teacher show that majority of the respondents use demonstration method.
3. Frequency analysis of Project Method used by male and female teacher show that majority of the respondents use project method.
4. Frequency analysis of Discussion Method used by male and female teachers show that majority of the respondents use discussion method.
5. Frequency analysis of Lecture Method being used by teachers of government and private schools indicates that lecture method is mostly used in private schools.
6. Frequency analysis of Demonstration Method being used by teachers of government and private schools indicates that demonstration method is mostly used in government schools.
7. Frequency analysis of Heuristic Method being used by teachers of government and private schools indicates that heuristic method is mostly used in private schools.
8. Frequency analysis of Project Method being used by teachers of government and private schools indicates that project method is mostly used in private schools.

CONCLUSION

From the analysis it is evident that both male and female teachers agreed that they use lecture method, demonstration method, heuristic method, project method and discussion method in teaching science at elementary level.

It is also indicated that demonstration and discussion methods are mostly being used in government schools whereas lecture, heuristic and project methods are mostly being used in private schools.

Hence Demonstration Method, Heuristic Method and Discussion Method are frequently used by science teachers at elementary level.

RECOMMENDATIONS

- 1) Teacher should be aware of various methods of science teaching.
- 2) Teacher should be more qualified and professionally experienced in using different methods for teaching science.
- 3) Variety of teaching methods should be used by teachers of both government and private schools.
- 4) Teacher should develop scientific attitude among students.
- 5) Teacher should make conducive atmosphere for students according to the method which he/she is going to use.
- 6) During lecture method teacher should encourage students to participate actively in the classroom.
- 7) Teacher should impart information to students by keeping in mind their mental level and the time required for instruction.
- 8) Teacher should use demonstration method frequently for teaching science.

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