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## Comparative study of scientific attitude of science and non-science pupil teachers

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### Abstract

Scientific attitude among pupil teachers play very vital role. It is essential for all but would be teacher can use this attitude for betterment of society. This aim of study was to see the scientific attitude in science and non-science group pupil teachers of Lucknow and to compare the gender difference of scientific attitude. The population of this study constitutes all the pupil teacher of institutes imparting B.Ed. Training of Lucknow District. For this purpose, 200 pupil-teachers selected, i.e. 100 from science stream and 100 from non-science stream. The people teachers related to Government and Non-Government Institutes. The sample was selected by using the purposive technique. *Scientific attitude scale (SAS)* tool was taken for this study. The tool was developed by Dr. Smt. Shailaja Bhagwat. This scientific attitude helps to approach different problems objectively without any bias and it promotes logical thinking. It helps to take proper judgments. The result shows that there is significant difference towards scientific attitude of science and non-science pupil-teachers but significant difference observed in male and female pupil teachers in science and non-science groups.

**Keywords:** Scientific Attitude, Science Pupil Teachers and Non-Science Pupil Teachers

### Introduction

Science has occupied almost all spheres of human life and living. Our society is completely drawn into the scientific environment. Mankind cannot think of a world without science. Science is considered as an assemblage of knowledge of systematic and organized fact. Science "is a process of enquiry" Resulting in building a body of systematized knowledge. Science as form of inquiry develops ability to think. Albert Einstein explains science in term of experiences. According to him- "The object of all sciences are to coordinate our experiences and bring them into a logical system."

The American education commission opines that it embodies "The spirit of rational inquiry." due to the advancement in science secondary education commission has recommended "Every school pupil should study general science as a compulsory subject, so that he gains a basic quantum of scientific knowledge as a part of his general education."

Science is universal in character and it has no barriers of any kind. The scientific revolution began in Western Europe where modern science was born but its home is now the whole world. The fruits of scientific discoveries in one country are enjoyed by the people all over the world. Science is neither concerned with caste, creed or color nor recognizes territorial barriers such a pattern inherent in science will definitely have an impact on the minds of the learners and is expected to help to develop broad mindedness in them. Science has opened innumerable avenues for pursuing different vocations. A student of science can study engineering and technology, medicine, agriculture or any similar subject and make his career in that profession. In addition scientific activities have given rise to many varieties of crafts and allied services science therefore, gives opportunities for career making pursuing profession and vocations. In fact, if we refer to profession of the individual for the future as one of the aims of education, then science, as a subject, is rightly serving this purpose. In this age of science and technology there is a demand for technical personnel. The maintenance and creation of new departments, new establishment need the services of engineers, scientist and technologies, technicians and there will always be need for research workers in new field of science. One of the aims of modern education is to provide means for utilization of leisure especially in the industrialized societies there is no end to interesting pursuits in science,

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intellectual or otherwise scientific activities provide the best hobbies and pass times for proper utilization of leisure. At higher levels, art and science are in no way different. There can be no good piece of art without application of science and on the other hand there are artistic or aesthetic elements in all scientific elements in all scientific activities. The great thinkers have always been stressing the need for the unity of science and arts. They originate from the same root. In the modern civilization scientific creation glorify arts and aesthetic and science may be said to be the modern substitute for arts in the sense that it is the result of the same kind of creative thought and action which have generate arts.

**Need and Significance of the Study**

Objectives proposed for science education always include the development of interest, values, attitudes, aptitudes and appreciation. Why these are so important and why we should include them in the school curriculum has long been under discussion. Science educators have long recognized that scientific attitudes are among the most important outcomes, which should result from science teaching. There is a general agreement among the investigators that an individual with scientific attitudes looks for natural cause of events, is open minded towards the work and opinion of others, bases opinions and conclusions on adequate evidence, evaluates techniques and procedures used and information obtained is curious concerning the things he observes, accurate in observation, experimentation and presentation of data, suspends judgments until accurate information is available, looks for cause and effect relationship; criticalness including self criticism, shows superstitions maintains such ideas as honesty, patience, persistence fairness and thoroughness. It has also been realized that without developing scientific attitude, any amount of knowledge in science contributes little to national development and to the process of social change. That is why development of scientific attitude through science lessons has been emphasized by science

**Objectives of the Study**

1. To compare the scientific attitude of science and non science pupil-teachers.
2. To see the gender difference towards scientific attitude in science and non-science pupil- teachers.

**Hypothesis of the Study**

1. There is no significant difference towards scientific attitude of science and non-science pupil-teachers.
2. There is no significant difference towards scientific attitude of male and female science pupil-teachers.
3. There is no significant difference towards scientific attitude of male and female in non-science pupil-teachers.

**Design of the Study**

**Population-** The population of this study constitutes all the pupil teacher of institutes imparting B.Ed. Training of Lucknow District.

**Sample-** A sample is small proportion of population selected for observation and analysis. As a sample 200 pupil-teachers, i.e. 100 from science stream and 100 from non-science stream, were selected from Government and Non-Government Institutes; both basis of gender (male, female), community (Hindu, Muslim) and stream (Science, Arts).

**Sampling Technique-** The sample was selected by using the purposive technique.

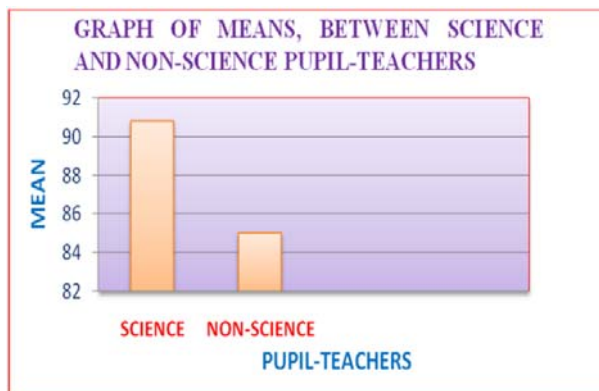
**Tool Used- Scientific attitude scale (SAS)** tool was taken for this study. The tool used in this study was developed by Dr. Smt. Shailaja Bhagwat. This scientific attitude helps to approach different problems objectively without any bias and it promotes logical thinking. It helps to take proper judgments. Appropriate statistical technique used for the data analysis.

**Analysis of Data and Interpretation-** In this study, collected data was analyzed and interpreted as following:

**Hypothesis-1** There is no significant difference towards scientific attitude of science and non-science pupil-teachers.

Group	Frequency (N)	Mean (M)	S.D.	t-value df=198	Significance
Science	100	91.37	6.822	6.510	Significant
Non-science	100	84.85	7.333		

Above table shows that the mean of science pupil-teachers is 91.37 and S.D. is 6.822, it also shows that the mean of non-science pupil-teachers is 84.85 and S.D. is 7.333, and t-value is 6.510 at the df = 198. But the table value are 1.97 and 2.60, at the level of 0.05 and 0.01 respectively at the df =198. Here the calculated value of t is greater than the table value (6.510>1.97) and (6.510>2.60) at the level of 0.05 and 0.01 respectively. Thus clearly there is significance difference between science and non-science pupil-teachers with regard to scientific attitude. Therefore the hypothesis no. 1 is rejected. The mean of science pupil teachers is greater than mean of non science pupil teachers (91.37>84.85). So the science pupil teachers are more scientific than non science pupil teachers. It indicates that the science students have greater tendency to test traditional belief and adopt critical attitude in comparison to non-science students.



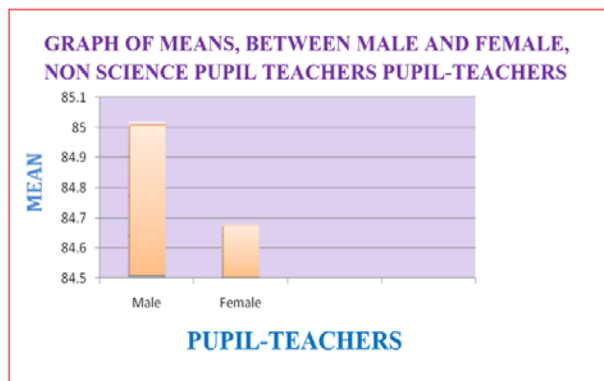
**Hypothesis-2** There is no significant difference towards scientific attitude of male and female science pupil-teachers.

Gender	Frequency (N)	Mean (M)	S.D.	t-value df=98	Significance
Male Science	54	91.91	7.577	0.809	Not Significant
Female Science	46	90.83	5.757		

Above table shows that the mean of male science pupil-teachers is 91.91 and S.D. is 7.577, it also shows that the mean of female science pupil teachers is 90.83 and S.D. is 5.757, and t-value is 0.809 at the  $df = 98$ . But the table value are 1.98 and 2.63, at the level of 0.05 and 0.01 respectively at the  $df = 98$ . Here the calculated value of t is less than the table value ( $0.809 < 1.98$ ) and ( $0.809 < 2.63$ ) at the level of 0.05 and 0.01 respectively. Thus clearly there is no significant difference between male science and female science pupil-teachers with regard to scientific attitude. Hence the hypothesis no. 2 is accepted. Therefore male and female science pupil teachers have same scientific attitude. But mean of male science pupil teachers is slightly greater than mean of female science pupil teachers ( $91.91 > 90.83$ ), due to some more freedom.

**Hypothesis-3** There is no significant difference towards scientific attitude of male and female in non-science pupil-teachers.

Gender	Frequency (N)	Mean (M)	S.D.	t-value df=98	Significance
Male Non-Science	50	85.02	7.265	0.232	Not Significant
Female Non-Science	50	84.68	7.399		



Above table shows that the mean of male non-science pupil-teachers is 85.02 and S.D. is 7.265, it also shows that the mean of female non-science pupil-teachers is 84.68 and S.D. is 7.399, and t-value is 0.232 at the  $df = 98$ . But the table value are 1.98 and 2.63, at the level of 0.05 and 0.01 respectively at the  $df = 98$ . Here the calculated value of t is less than the table value ( $0.232 < 1.98$ ) and ( $0.232 < 2.63$ ) at the level of 0.05 and 0.01 respectively. Thus clearly there is no significant difference between male non-science and female non-science pupil-teachers with regard to scientific attitude. Hence the hypothesis no. 3 is accepted. Therefore male and female science pupil teachers have same scientific attitude. But mean of male non-science pupil teachers is slightly greater than mean of female non-science pupil teachers ( $85.02 > 84.68$ ), due to some more freedom.

**Educational Implications**

Education helps in overall development of personality which includes intellectual development, mental development, moral development, social development, physical development etc. In present times, nearly all subjects have a

scientific organization systematic curriculum and interrelation with other subjects, all contributes to inculcate scientific attitude. The democratic setup of classroom provides more independence to the students. They are free to ask query and remove their doubts. The increasing importance of co-curricular activities, debates, quiz programmers, sports etc. also change the view points of student and reasoning ability, tendency to accept criticism, desire for knowledge of new areas and subjects. Scientific knowledge is very necessary for everyone. It helps to the person to take decision scientifically.

This study is done on the pupil-teachers of Sitapur District. So the study provides a picture of the results of our educational system. The present study has, therefore, some implications for the educational world. To develop scientific attitude is an important aim of education. So implication of such a study is quite important in present context.

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