

**STUDY OF SCIENTIFIC ATTITUDE OF B.ED. AND
B.ED. (SPECIAL) PUPIL TEACHERS****Uday Singh, Ph.D**

Assistant Professor Department of Education, Deen Dayal Upadhyaya Gorakhpur University, Gorakhpur-273009,
UPusingh2007@gmail.com

Preeti Mishra

Research Scholar Department of Education, Deen Dayal Upadhyaya Gorakhpur University, Gorakhpur-273009,
UPpreetymishragkp@gmail.com

Abstract

Science has changed men's material environment, provided new outlook and has, thus, extended man's mental horizon. The aims of science cannot be fulfilled if a society lacks scientific environment. School as a social sub-system, develops scientific attitude through experiences based on observation and experimentation. Scientific attitude is composition of mental habits or tendencies to react consistently in certain ways in a novel or problematic situations. These habits or tendencies include accuracy, open mindedness, intellectual honesty, suspended judgment and habit of looking for true cause and effect relationships. It is a cognitive concept. Scientific attitude is normally associated with mental process of scientists however it is important for everyone in his day to day life

Key Words: *Scientific Attitude, B. Ed, B. Ed. (Special) Students.*



Scholarly Research Journal's is licensed Based on a work at www.srjis.com 4.194, 2013 SJIF© SRJHIS2014

INTRODUCTION: Teaching of science at school level helps in developing scientific literacy. It also helps in formation of scientific attitude which is required in removing different social evils and is helpful in developing forward outlook, open mindedness and decision making. It seems that, students lack characteristics mentioned above because many unscientific and irrational beliefs are prevailing in our society and among our students. So, the development of scientific attitude should not be left to the chance. Activities in day to day teaching must be from

significant areas of living which correct the erroneous ideas and misconceptions (**Pillai, 2012**). Educators are stressing the need of developing scientific attitude so that students can contribute in the making rational and just society. It has been revealed that even educated persons and scientists may not be scientific in their affective behavior (**Anand, 2002**). Many problems related to our daily life are the outcome of lack of scientific attitude. Scientific attitude is warranted not only in pursuit of scientific problems but also in solving day to day problems at home and in society (**Swami, 2012**). School being a miniature society and the teachers therein being the framers of future society are responsible for developing scientific attitude among new generations.

Scientific Attitude is defined as a set of emotionally toned ideas about science, scientific methods and related directly or indirectly to the course of action in the literature of science education. The term Scientific Attitude applies such qualities of mind as intellectual curiosity, passion for truth, respect for evidences, and appreciation of the necessity of free communication in science. Thus, scientific attitude is open-mindedness; a desire for accurate knowledge, confidence in procedures, seeking knowledge and expectation that solution of the problem will come out through the use of verified knowledge (**Singh, 1988**).

The teacher bears the responsibility of developing scientific attitude among students. Without scientific attitude aims of science cannot be attained (**Sharma, 2005**). Scientific attitude, now days, is found to be lacking even in highly educated persons, teachers and students. This is a hindrance in the path of acquiring knowledge. The teachers and students need to have a scientific outlook. They must make themselves free from false beliefs and irrational thinking. In this background the investigators ventured this study of Scientific Attitude. The problem of research reads as 'STUDY OF SCIENTIFIC ATTITUDE OF B. Ed AND B. Ed (SPECIAL) PUPIL TEACHERS'.

OBJECTIVES OF THE STUDY: Following were objectives of the study;

1. To study the Scientific Attitude of B. Ed. and B. Ed. (special) pupil teachers.
2. To study the Scientific Attitude of B. Ed. (Special) pupil teachers in relation to their Course of Study.
3. To study the Scientific Attitude of B.Ed. pupil teachers in relation to their Course of Study.

4. To study the Scientific Attitude of B. Ed. (Special) pupil teachers in relation to their Scholastic Achievement.
5. To study the Scientific Attitude of B.Ed. pupil teachers in relation to their Scholastic Achievement.

HYPOTHESES OF THE STUDY: Following hypotheses were formulated;

1. There is significant difference in Scientific Attitude of B. Ed. and B. Ed. (special) pupil teachers.
2. There is significant difference in Scientific Attitude of B. Ed. (Special) pupil teachers in relation to their Course of Study.
3. There is significant difference in Scientific Attitude of B.Ed. pupil teachers in relation to their Course of Study.
4. There is significant difference in Scientific Attitude of B. Ed. (Special) pupil teachers in relation to their Scholastic Achievement.
5. There is significant difference in Scientific Attitude of B.Ed. pupil teachers in relation to their Scholastic Achievement.

METHODOLOGY: Keeping the nature of the problem in mind the researcher has applied Normative Survey Method of research under Descriptive Method of Educational Research has.

POPULATION OF THE STUDY: All the pupil teachers enrolled in B. Ed and B. Ed. (special) programs of faculty of Education, Banaras Hindu University, Varanasi, have constituted the population of the study.

SAMPLE AND SAMPLING: Total One Hundred pupil teachers, fifty each from B. Ed and B. Ed (special) were selected as the sample of the study. The sample was drawn through Stratified Random technique of sampling. Randomization was done through lottery method.

TOOLS OF THE DATA COLLECTION: The KRIYA-BHAV-VICHAR-SHAILI PRAHNAWALI (Singh, 1988) was used to collect relevant data. The format of the questionnaire was that of forced choice with multiple choice items. The test measured six dimensions of scientific attitude viz. Curiosity, Objectivity, Rationality, Open-mindedness, Aversion to Superstition and Suspended Judgment. The responses which were highly scientific were given scores 2 and the items which were scientific and antiscientific were given score of 1 and 0, respectively. The total score was the algebraic summation of the number of situations which the

person had marked as correct. The maximum score possible on test was 106 and minimum 0. The split half reliability of the test was 0.85 and test retest reliability of the test was 0.54.

DATA COLLECTION: The investigators have visited the institution and explained the purpose of the study to the sampled pupil teachers. All the necessary instructions were passed on to the subjects before administration of the test. There was no time limit for filling up the questionnaire however the subjects were asked to respond the items as quickly as possible after the clarification and understanding of the instructions.

STATISTICAL TECHNIQUES USED: To process the data for purpose of testing of hypotheses t-test and f-test were applied. The hypotheses were tested at 0.05 level of significance.

ANALYSIS AND INTERPRETATION OF DATA: To compare the Scientific Attitude scores both two groups of pupil teachers, t-test was applied. The t-value for groups along with mean, S.D. and S.E.M. has been presented below in tabular form;

It is evident from the table-1 that number of subjects in both groups of B. Ed. Students was fifty in each mean values of both groups were 64.16 and 57.42, respectably. Vale of Standard Deviation of both groups were 12.7 and 20.0 and Standard Error of Difference of Means was 3.35. The table exhibits that calculated t-value 2.04 was significant at 0.05 level of significance as it was higher than the fix value of 1.98. So, the hypothesis ‘there is significant difference in Attitude of B. Ed. and B. Ed. (special) pupil teachers’ was approved and the null hypothesis there is no difference in Attitude of B. Ed. and B. Ed. (special) pupil teachers’ was

Table-1: Comparison of Scientific Attitude of B. Ed & B. Ed (Special) Pupil Teachers

Groups	N	Mean	S.D.	S.E.M	t-value
B.Ed.(general)	50	64.16	12.7	3.35	2.04*
B.Ed.(special)	50	57.42	20		

*significant at.05 level

‘disapproved. It was, thus, revealed that level of Scientific Attitude among B. Ed. And B. Ed. (special) groups of pupil teachers differ significantly. As the mean score of the group of B.Ed. pupil teachers was greater than that of the group of B.Ed. (special) pupil teachers so it can be derived that B.Ed. pupil teachers have more scientific attitude than that of B.Ed. (special) pupil teachers.

It is evident from the table-2 that number of subjects in Arts, Science and Commerce group of B. Ed.(special) Students was 21, 23 and 06, respectively. Mean values of the groups were 52.7, 58.95 and 59.6, respectively. The table-exhibits that calculated value of F- ratio 6.24 which was significant at 0.05 level of significance. So, the hypothesis ‘there is significant difference in Scientific Attitude of B. Ed. (Special) pupil teachers in relation to their course of study’ was approved and the null hypothesis ‘there is no significant difference in Scientific Attitude of B. Ed. (Special) pupil teachers in relation to their Course of Study’ was disapproved. It was thus,

Table-2 Analysis of Variance of B.Ed. (special) Pupil teachers of different courses of study

B.Ed. (special)	N	df	Mean Square	F-ratio	Mean
Arts	21	2	3211.5	6.24*	52.7
Science	23	49	514		58.95
commerce	06				59.6

*Significant at 0.05 level

revealed that level of Scientific Attitude among B. Ed. (special) groups of pupil teachers in relation to their course of study differ significantly.

Table-3 exhibits that calculated value of F- ratio 8.8 which was significant. So, the hypothesis ‘there is significant difference in Scientific Attitude of B. Ed. pupil teachers in

Table-3: Analysis of variance of B.Ed. Pupil teachers of different courses of study

B.E.d./Groups	N	M	df	Ms	F-ratio
Arts	22	57.54	2	4078	8.8*
Science	25	69.56	49	460	
Commerce	03	59			

*significant at 0.05 level

relation to their Course of Study’ was approved and the null hypothesis ‘there is no significant difference in Scientific Attitude of B. Ed. pupil teachers in relation to their Course of Study’ was disapproved. It was, thus, revealed that level of Scientific Attitude among B. Ed. groups of pupil teachers in relation to their course of study differ significantly. Table-4 exhibits that calculated t-value 1.16 was not significant at 0.05 level of significance because it was lesser than the fix value of 1.98. So, the hypothesis ‘there is significant difference in Scientific Attitude of

B. Ed. (Special) pupil teachers in relation to their Scholastic Achievement’ was disapproved and the null hypothesis ‘there is no significant difference in scientific attitude of B Ed. (Special) pupil teachers in relation to their Scholastic achievement’ was disapproved. It was, thus, revealed that level of Scientific Attitude among

**Table-4: Comparison of Scientific Attitude of B.Ed. (special) Pupil teachers
in relation to their Scholastic Achievement**

B.Ed. special	N	Mean	S.D.	S.E.M	t-value
Ist division	21	63.76	22.8	7.6	1.16
IInd	29	55	30.14		

*not significant at.05 level

B. Ed. (Special) pupil teachers in relation to their Scholastic Achievement did not differ significantly. As the mean score of high academic achiever group of B. Ed (special) pupil teachers was greater than that of the low academic achiever group of B. Ed. (special) pupil teachers so it can be derived that high academic achiever B.Ed. pupil teachers have better scientific attitude than their low academic achiever counterparts. Table-5 exhibits that calculated t-value 2.8 was significant at 0.05 level of significance as it was greater than the fix value of 1.98. So, the hypothesis ‘there is significant difference in Scientific Attitude of B. Ed. pupil teachers in relation to their Scholastic Achievement’ was approved and the null hypothesis ‘there is no significant difference in B. Ed pupil teachers in relation to their Scholastic Achievement’ was rejected. It was concluded that Scientific Attitude among high and low academic achiever B. Ed pupil teachers differ. As the mean score of high

**Table-5: Comparison of Scientific Attitude of B.Ed. pupil teachers’
in relation to their Scholastic Achievement**

B.Ed.	N	Mean	S.D.	S.E.M	t-value
Ist division	25	67.72	11.9	2.5	2.8*
IInd	25	60.6	3.7		

*Significant at 0.05 level

academic achiever group of B. Ed pupil teachers was greater than that of the low academic achiever group of B. Ed pupil teachers so it can be derived that high academic achiever B.Ed. pupil teachers have better scientific attitude than their low academic achiever counterparts.

FINDINGS OF THE STUDY: Following are the findings of the study;

1. B. Ed. And B. Ed. (special) pupil teachers' differ significantly on scientific attitude.
2. Arts, Science and Commerce stream B. Ed. (special) pupil teachers differ significantly on scientific attitude.
3. Arts, Science and Commerce stream B. Ed pupil teachers differ significantly on scientific attitude.
4. High and low academic achiever B. Ed. (Special) pupil teachers did not differ on scientific attitude.
5. High and low academic achiever B. Ed pupil teachers differ on scientific attitude.
6. Mean scientific attitude of students securing I division is higher than their II division counterparts in B. Ed and B. Ed (special) groups of pupil teachers.
7. Mean scientific attitude score of commerce students is higher than Arts and Science stream B.Ed. (special) pupil teachers.
8. Mean scientific attitude score of science students is high than Arts and Commerce stream pupil teachers in B. Ed group.

CONCLUSION: The findings of the study indicate that there were some factors like stream of study and academic achievement which influenced the scientific attitude of both B. Ed and B.Ed. (special) groups of pupil teachers. It was probable because the B.Ed. pupil teachers were selected on the bases of their higher merit and so they possessed better scientific attitude. The study also revealed that students of science and commerce streams were more scientific than the arts stream group of pupil teachers the probable reason behind it might be the difference in curriculum of these streams of study which are based on more practical learning and observation as compared to arts. It was also found that students with higher scholastic achievement had greater scientific attitude. The findings of the study are on the line with the findings of previous researches **(Swami 2012, Pillai 2012, Sharma 2005 and Anand 2002)**.

Education moulds the attitudes. The investigators felt that the students who exhibited better scholastic achievement had acquired better education and thus, better attitude and greater

quantum of scientific outlook among them. Teacher educators should take all the necessary measures to develop scientific attitude among their pupil teachers. The investigators feel that if teacher educators succeeded in developing higher scientific attitude among their pupil teachers, proper modification of the behavior, thoughts and actions among pupil teachers might be possible which in turn will leave impact on scholastic achievements of the trainees. All school programs should emphasize the development of scientific temperament among the pupil teachers. Scientific attitude of teachers, teacher educators as well as of pupil teachers must be tested and the weaker dimension of scientific attitude must be identified. The investigators, during the study, observed variations in scientific attitude among pupil teachers of arts, commerce and science streams. The investigators suggest that a common general science curriculum based on scientific lines must be compulsory even at higher levels of study and training as it will contribute to the development of scientific attitude. The emphasis on liberal arts education affects the progress of learners as it does not facilitates the learners to avail proper place in present scientific and technology driven world.

REFERENCES

- Anand, A. (2002): A study of relationship between Environmental Awareness and Scientific Attitude of higher secondary students of Varanasi, Unpublished Doctoral Thesis, Faculty of Education Varanasi; Banaras Hindu University.
- Pillai, P.K.S. (2012): An Analytical study on Scientific Attitude of Higher Secondary students in Virudhnagar district, International Journal of Teacher Educational and Research, Vol. 3 (12), pp. 173-174.
- Sharma, I. (2005): A study of relation between Scientific Attitude and Problem Solving Ability of tenth class students, Unpublished Doctoral Thesis, Faculty of Education, Patna; Bihar University.
- Singh, P. N. (1988): KRIYA-BHAV-VICHAR-SHAILI PRAHNAWALI, Varanasi; Banaras Hindu University.
- Swami, C.C. (2012): A study of Scientific Attitude among the students of Secondary schools, International Journal of Current Research, Vol. 3 (34), pp. 42-43.