A STUDY OF SCIENTIFIC TEACHING ATTITUDE AS THE PROCESS OF LEARNING IN SECONDARY SCHOOL TEACHERS

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Abstract: Scientific Attitude is the most important outcome of science teaching, through some educationalist view that scientific attitude as a byproduct of teaching science, yet a majority of educationalists consider it to be major product or the aim of science teaching. Attitudes are developed, they are not inborn. They can be changed or modified over the time. These modifications of attitudes are based on culture, tensions, needs, emotions, experiences, etc. Such an attitude is also noticed in the field of science, which we consider as scientific attitude. Here the scientific attitude means one’s inclination or readiness of mind towards the pursuit of scientific knowledge. Teachers should try to make learning of Science an enjoyable experience. The teacher’s attitudes have a great impact related to the science subjects in the class room at the stage of teaching and learning aspects. It is noted that for the transmission of the concepts of science related subjects while teaching in the schools with the laws, information, facts, valid with reliability. Therefore, it helps to understand the importance of Science and the significance of learning Science.

Index Terms - Scientific Teaching Attitude, Teachers & Learning Process

1. INTRODUCTION
Teacher should play an active part in the process of qualitative improvement of education. Education is a long lasting procedure of developmental condition. A study depicts that science teaching is greatly affected by the behavior or scientific attitude. Scientific education is that procedure by which an individual unreservedly builds up the ideas against certain patterns of attitude & habits. There are very few people who understand the importance of the science whereas lot of people is not aware with significance of science in their life. Teaching of science serves many purposes and out of those the most important aspect is that to motivate the learner to learn science and to enforce them to adopt scientific attitude

“Science is a cumulative & endless series of empirical observation, which result in the formation of concepts & theories with both concepts & theories being subject to modification in the light of further, empirical observations. Science is both a body of knowledge & the process of acquiring it.” – Frederic (1960)

Attitude
- Attitudes are intellectual, social and emotional components that are derived from experience and exercise a determining influence upon behavior.
- Jung's attitude is a “readiness of the psyche to act or react in a certain way”

Scientific Teaching Attitude
Scientific Attitude as important outcome of by-product of knowledge. It is a personal satisfaction & personality development of the creative environment the people consider & many new things with the variables of the social issues. Developing scientific aptitude amongst our children should be the major aim of science teaching and education. It completely changes the outlook of child. By teaching science effectively, keeping this scientific aptitude in view, it can bring about the desirable changes in the behaviour of the child. School is the only institution where children can be trained to develop this aptitude. Science teaching is not mere presentation of facts. It develops new ways of thinking this development reveals in itself increased skills, new habits of action, desirable aptitudes and improved character.

The Role of Teachers’ Attitudes
The experiments play an important role at teaching the subjects like chemistry, physics, biology etc. There is no unique teaching pedagogy for these subjects. It is depend on the situation and circumstances at the time of interaction with the students and very much depend on the teacher’s attitude. It is based on the people thinking, hearing and understanding etc. It also depend on the experience attained with the various phases of life. It also defines the responsiveness with the situation to others whether it is in favour or unfavours circumstances. It may be negative and depend on the situation may be positive. It is defined as under:
- Affective
- Conativ
- Cognitive

It is observed that the above parameters make the effect on the teachers in shaping whether he or she interacts with the society or in school. Many researchers suggested the behavior and attitudes related to the teachers

Teaching Attitude at the Process of Learning
The teaching strategy for education try to innovate and discover the abilities and learning obtained in the classroom are really made by the person because many teachers are positive peer culture, cooperative technically components related to science objectives. Cognitive, conative and psychomotor development of brain in the children with true meaning of the word framework of the theories as learning scientific knowledge what conceptions of discusses knowledge the teaching process, on the subject they understand and apply language in the school teacher in the between discourse development that deal formal studies both qualitative and psychological with shared building knowledge, mentions three aspects

Concept formation
Knowledge update
Relation between teachers & students

1.2. Objective of the Study

- It will examine a teacher can motivate the students & improving their scientific attitude
- Role of the teacher’s attitude & apply the teaching strategies are relevant in the way of teach in science.
- Scientific teaching attitudes & process of learning are positively correlated with each other’s.

1.3. Hypothesis of the Study

1. There is no significance difference in teacher’s scientific attitude in the way of teaching strategies.
2. There is no significance difference between the role of teacher’s in developing the scientific attitude among the students personality
3. There is no correlation between scientific attitude & process of learning.
4. There is no relation between process & teaching strategies

1.4. Variable of the Study

1. Independent Variable: Teachers
2. Dependent Variable: Students
3. Intervening Variable: Process, Strategies

1.5. Limitation of the Study

- The study is limited to the Secondary School Teacher.
- The study is limited to the subject of Science.

2. REVIEW OF THE LITERATURE

Reddy (2011) conducted “A Study on Teaching Aptitudes and Attitudes of Secondary School Teachers in Andhra Pradesh”. The present study tries to assess the teaching aptitudes and attitudes of secondary school teachers in Andhra Pradesh in relation to their sex, age, faculty and category. The researcher has test whether sex, age, faculty and category of teachers have any influence on their teaching aptitude and attitude. In the study, 332 student teachers of the B.Ed. regular course for the year 1989-90 admitted in colleges of education affiliated to the Kakatiya University, Warangal, were taken as the main sample. A sub-sample of 80 experienced secondary school teachers (School Assts.) with a service of more than 10 years was selected from government, private (aided) and Zilla Prajaparishad secondary schools of V Zone of A.P. The tools used included the Thematic Apperception Test (TAT) and the Teaching Aptitude Inventory. Mean, median, SD, skewness, kurtosis’ ratios, product-moment coefficient of relationship and chi-square test were processed to examine the information. The female respondents performed generally better in the Teaching Aptitude Test

3. METHODOLOGY OF RESEARCH

- Re + search = again + explore, to explore the relationship between two or more variables. Research is a process of which a person observes the phenomena again and again and collects the data and on the basis of data he draws some conclusions. Mainly three Type of Research
  - Descriptive
  - Historical
  - Experimental

3.1. Sample & Sampling Technique

- Sampling Methods: This research various Random Sampling methods are used because of not possible to study whole universe.
- Sample Size: 50 teachers at secondary science schools. Age ranged from 35 to 45 years, male and female both.
- Sampling Location: In the area of secondary schools at West Bengal, Kolkata.
- Research Instrument: Structure Questionnaire
3.2. Research Design

Describe the characteristics of relevant group. Here secondary science schools teachers

To make specific prediction. Use in Hypothesis

Present Study used here

Descriptive Research

Specific Population & exhibiting a specific behaviour. Here, 50 teachers at secondary science schools teachers, age 35 to 45 yrs male & female both.

To determine the degree to which the variables are associated. Independent, Dependent & Intervening related with the present study.

3.4. Data Analysis

The data will be analyzed in here use in Frequency & Percentage with Graphical representation & use here Mean, Standar Deviation, & Significance Level of Mean & SD, T test & Correlation.

3.5. Interpretation of Data

We asked the teachers that they can use any kind of specific teaching strategies which they assume to be best for science teaching. Regarding this we found the response of the teachers under the survey as shown below:

Table 1: Response of the Question No 1

<table>
<thead>
<tr>
<th>SL. No</th>
<th>Parameters</th>
<th>Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>S A</td>
<td>30</td>
<td>60%</td>
</tr>
<tr>
<td>2.</td>
<td>A</td>
<td>18</td>
<td>30%</td>
</tr>
<tr>
<td>3.</td>
<td>U</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>4.</td>
<td>D</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>5.</td>
<td>S D</td>
<td>2</td>
<td>4%</td>
</tr>
</tbody>
</table>

Out of 50 respondents S A (Strong Agree) 30(60%) A (Agree) with 18 teachers (30%) U (Undecided) with 10 teachers (20%) D (Disagree) 3(6%) & S D (Strong Disagree) only 2(4%). It’s represented that most of the teachers prefer their scientific attitude in teaching profession.
We asked the teachers that whether they agree that by developing scientific attitude, personality of a student can also be improved. Regarding this we got the feedback of the respondents as mentioned below in the table and chart.

Table 2: Response of the Question No 2

<table>
<thead>
<tr>
<th>SL.NO</th>
<th>Parameters</th>
<th>Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S A</td>
<td>22</td>
<td>44%</td>
</tr>
<tr>
<td>2</td>
<td>A</td>
<td>18</td>
<td>36%</td>
</tr>
<tr>
<td>3</td>
<td>U</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
<td>6</td>
<td>12%</td>
</tr>
<tr>
<td>5</td>
<td>S D</td>
<td>4</td>
<td>8%</td>
</tr>
</tbody>
</table>

Out of 50 respondents S A (Strong Agree) 22(44%) A (Agree) with 18 teachers (36%) U (Undecided) 3(6%) D (Disagree) 6(12%) & S D (Strong Disagree) only 4(8%). It’s represented that most of the teachers can play a vital role in developing & improved the scientific attitude among the students personality.

We asked the teachers that a teacher can motivate the students to learn & hence improve their scientific attitude. Regarding this we found the response of the teachers under the survey as shown below:

Table 3: Response of the Question No 3

<table>
<thead>
<tr>
<th>SL. No</th>
<th>Parameters</th>
<th>Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>S A</td>
<td>25</td>
<td>50%</td>
</tr>
<tr>
<td>2.</td>
<td>A</td>
<td>13</td>
<td>26%</td>
</tr>
<tr>
<td>3.</td>
<td>U</td>
<td>5</td>
<td>10%</td>
</tr>
<tr>
<td>4.</td>
<td>D</td>
<td>8</td>
<td>16%</td>
</tr>
<tr>
<td>5.</td>
<td>S D</td>
<td>4</td>
<td>8%</td>
</tr>
</tbody>
</table>

Out of 50 respondents S A (Strong Agree) 25(50%) A (Agree) with 13 teachers (26%) U (Undecided) 5(10%) D (Disagree) 8(16%) & S D (Strong Disagree) only 4(8%). It’s represented that most of the teachers can motivate the students to learn & improve their scientific attitude.
4. RESULT DISCUSSION & ANALYSIS

The analysis of data was based on teacher’s attitude in the way of teaching strategies. We taken the 50 sample represented to secondary school teachers. Table: 1 show that most of the teachers prefer their scientific attitude in teaching profession.

Table for 1
Significance in the difference teacher’s scientific attitude in the way of teaching strategies

<table>
<thead>
<tr>
<th>Sample</th>
<th>Total no of Sample (F)</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Significance of Mean &amp; SD</th>
<th>T Value Of t test</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher at secondary schools</td>
<td>50</td>
<td>54.1</td>
<td>15.3</td>
<td>Significance of 5% level of Mean &amp; SD</td>
<td>1.80</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Above the table represent that mean value of teachers is 54.1 standard deviation is 15.3, mean & sd is significance at 5% level, t value is 1.80 which is significance at 0.05.

Table for testing 1 Hypothesis 1
There is no significance difference between teacher’s attitudes in the way of teaching Strategies.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>Number</th>
<th>Observe Value</th>
<th>Degree of Freedom</th>
<th>Table Value</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (A)</td>
<td>29</td>
<td>7.2</td>
<td>25</td>
<td>1.80</td>
<td>48</td>
<td>0.05- 2.02</td>
<td>5%  level of significance</td>
</tr>
<tr>
<td>Group (B)</td>
<td>25</td>
<td>8.1</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The analysis of data that the Null hypothesis is rejected So, there is no difference between teacher’s scientific attitude in the way of teaching strategies. We was divided the teachers within two groups. Group A and Group B. Calculate the ‘t test’. The observe value is 1.80 & degree of freedom is 48, table value 0.05 level is 2.02 ,so that null hypothesis is rejected.

Table for 2
Significance difference between the roles of teacher’s in developing the scientific attitude among the students personality

<table>
<thead>
<tr>
<th>Sample</th>
<th>Total no of Sample (F)</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Significance of Mean &amp; SD</th>
<th>T Value Of t test</th>
<th>Significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher at secondary schools</td>
<td>50</td>
<td>52.3</td>
<td>13.6</td>
<td>Significance of 5% level of Mean &amp; SD</td>
<td>1.89</td>
<td>0.05</td>
</tr>
</tbody>
</table>

The analysis of data that the Null hypothesis is rejected So, there is no difference between the roles of teacher’s in developing the scientific attitude among the students personality. It’s maintained that the teacher’s can play a vital role in developing & improved the scientific attitude among the students personality. We was divided the teachers within two groups. Group C and Group D. Calculate the ‘t test’. The observe value is 1.89 & degree of freedom is 48, table value 0.05 level is 2.02 ,so that null hypothesis is rejected.
### Table for testing 3 Hypothesis 3

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Correlation Of Coefficient Between Scientific Attitude &amp; Process Of Learning</th>
<th>Negligible</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$r = 0.21$</td>
<td></td>
</tr>
</tbody>
</table>

The analysis of data that the Null hypothesis is rejected. So, there is no correlation between scientific attitude & process of learning. Point out that Scientific Attitude & Process of learning are positively correlated.

The independent & reliable correlation between Teachers and participation in Students – the main two variables are partial out the two intervening variables (variable 3, process & variable 4, strategies). Here used in second order partial correlation.

### Table 4: Second order Partial Correlation

**Table for testing 4 Hypothesis 4**

There is no relation between process & strategies

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Partial Correlation between two intervening variables. Variable 3 (Process)</th>
<th>Variable 4 (Strategies)</th>
<th>$(r_{12.34}) = 0.24$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It’s defined that variable 3 (Process) & variable 4 (Strategies) are positively correlated each other’s & crate a good impact on independent & dependent variables.

### 5. FINDING

The conclusion can be drawn by the testing of hypothesis.

1. Hypothesis 1 – Maintained that the teacher’s scientific attitudes are the positive way of teaching strategies at the teaching profession.
2. Hypothesis 2 - Maintained that the teacher’s can play a vital role in developing & improved the scientific attitude among the student’s personality.
3. Hypothesis 3- Positively correlated between scientific attitude & process of learning in secondary school teachers.
4. (Variable 3)- Scientific Attitude & (variable 4) Teaching Strategies are positively correlated each other’s & crate a good impact on independent & dependent variables.

### 6. CONCLUSION

1. Teacher’s profile as an active agent, constructing perspectives and taking action. They should be encouraged their capabilities to make good educational decisions.
2. Teachers’ styles, and mainly their attitudes, are strong context outcomes, in the sense that they are developed the interaction between teaching strategies & learning process.
3. As effective learners, as and the demands placed on them outside the school world. Pre-service courses & In service courses existence of group have good teaching ideas. An education system should be such which involves learning skills that a person will carry with them even after school attitude sometimes interchanged with competence rebuilding significantly pedagogical and secondary teacher with the students capability and skill formation are based on the fact that very few competent authorities are frequently mention the characters of the imagination and its existence with exercise.

### 7. REFERENCES


