A study of General teaching competency of pupil teachers for academic achievement of students in senior secondary schools of Uttar Pradesh

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Abstract
Teaching competency is said to be the knowledge, attitude, skills and self-perception or the products that derive from the mixture of these behaviours resulting in consistent pattern of behaviour leading to the attainment of predicted outcomes. Competent teaching is assumed to be made up of a collection of modular skills and a chain of performances on such modules constitutes effective teaching performance. This study assesses teachers’ competence in secondary school; examines the factors influencing teachers’ competence, investigates the student perceptions of teacher leadership style and how these perceptions affect students’ academic performance. The purpose of the present investigation is to study the existing status of teacher and student-related variables, and also to find out the difference in their status and their interrelationships. In the following paper, the General Teaching Competency (GTC) of male, female and total sample of science teachers is described and their comparison is made. Finally, The ‘t’ test was therefore, applied to test the significance of difference between the means of different variables for the different sample. From the results of statistical analysis it is noticed that there are differences in means of scores in Science teacher variables (GTC & TA) as well as Science student variable (Academic Achievement).

Key Words: General Teaching Competency (GTC), Students Achievement, Classroom Behaviour, Teacher Attitude, Effectiveness, Science teachers

1 Introduction
The quality of education depends upon various factors. The teacher is, however, the most important factor for quality improvement. There has been a controversy among the researchers about the concept, definition and scope of teaching competency. The reason for this controversy is that so many terms like teaching competency, teacher effectiveness, teacher efficiency, teaching success, characteristics of teacher, criteria of competence, ability to teach etc. have been used to mean the same concept. Different criteria of teaching competency have also created confusion. Teacher competencies are various attitudes, understanding, skills and behaviours that facilitate intellectual, social, emotional and physical growth in children. From the above definitions it is clear that there is no agreement among the educationists regarding the concept of competency. This disagreement is due to the confusion between the concepts of teacher competency and teaching competency. While on the other hand, teacher competency has been defined as the average success of all of teacher’s behaviours in achieving his intended effect. Teacher competency is a wider term including teacher's personality's presage, process and product variables while teaching competency is restricted to the teaching behaviour presented during class-room teaching. However, regarding the concept, definition and scope of teaching competency, there has been a little agreement amongst concerned researchers. The Bholey Singh, Dr. Om Singh; - A study of General teaching competency of pupil teachers for academic achievement of students in senior secondary schools of Uttar Pradesh
reason for this agreement appears to stem from two reasons. Firstly, 'confusion' has resulted due to interchangeable usability of a large variety of terms. For example, teacher competency, teacher effectiveness, teacher efficiency, teaching success, characteristics of a teacher, criteria of competence, ability to teach and a host of other terms have been used to mean the same concept. Secondly, there is a disagreement as to which criteria of teaching competency are essential ones. For example, should the teachers be expected to produce immediate effects or long range consequences? Should they exhibit similar components in all situations in respect of different kinds of schools, pupils, subjects, grades and so on? The problem becomes more complex because of the varieties of outcomes that may result from teaching. In fact, a growing body of research suggests that students learn more deeply and perform better on complex tasks if they have the opportunity to engage in more “authentic” learning—projects and activities that require them to employ subject knowledge to solve real-world problems. Studies have shown a positive impact on learning when students participate in lessons that require them to construct and organize knowledge, consider alternatives, engage in detailed research, inquiry, writing, and analysis, and to communicate effectively to audiences.

2 Background to the study

How did the teachers’ competence affect their everyday teaching in the classroom and the educational outcomes were a significant issue. The effective and ineffective classroom behaviour of teacher had differential influence on student behaviour. Verma and Ansari (1975) reported that the effective teachers had more indirect influence, student initiation, teacher response ratio; and pupil study state ratio whereas ineffective teachers had more direct teacher talk, silence or confusion and non-stimulating situation in classrooms. In the effective teachers’ teaching, student response and initiation were followed by teacher's praise and accepting feelings, whereas in ineffective teachers teaching, student response and initiation were followed by direction and authority. The effective teachers used more creative teaching methods. Competent teachers planned lessons in ways, that helped students in relating new information to existing knowledge and integrated the instructions across content areas. They also planned curricular materials in a way that engaged students' interests and were appropriate for students' abilities and needs (Osborn, Jones and Stein, 1985; Taylor and Valentine , 1985.; Porter and Brophy, 1988) . Mandeville and Liu (1997) tested over 9,000 seventh grade students from 33 matched pairs of schools whose mathematics teachers differed on level of preparation. The students under high preparation and planning teachers outperformed those under low preparation teachers on the higher level tasks. Little research existed on how effective teachers responded to student misconduct. In general, competent teachers dealt effectively with discipline problems ignoring minor distractions and instances of inattention, movement through the classroom or comments to the disruptive student (Taylor and Valentine, 1985). They talked to misbehaving students in private and tried to get the student to accept responsibility for the behaviour and to make a commitment to change (Brophy, 1987). As a last resort only competent teachers invoked punishments (Bidefeldt, 1988). Interactions with colleagues could improve teaching competency. Patel (1984) involved eight science teachers in the study spanning over a period of six months and noted that the discussions and guidance from colleagues resulted in 11% increase in the capacity for presentation and capacity for class-control. A 15% increase was noted in capacity for co-ordination of different teaching skills, in ability and habit of using audiovisual aid? for effective teaching and increase in interest in practical and written work of the pupil, and a 10% increase in knowledge of content. There is growing recognition that teachers make a crucial contribution to the social and emotional development of their students.
(Birch & Ladd, 1998; Hamre & Pianta, 2001, 2006; Murray & Greenberg, 2000; Pianta, Hamre, & Stuhlman, 2003) that has lasting effects on their lives well into adulthood (Pederson, Fatcher, & Eaton, 1978). Teachers influence their students not only by how and what they teach but also by how they relate, teach and model social and emotional constructs, and manage the classroom. This influence is affected by numerous contextual factors (e.g., school climate, principal, and parent support). In their report of a classic natural experiment on school effects, Rutter, Maughan, Mortimore, Ouston, and Smith (1979) concluded that “teaching performance is a function of school environment as well as of personal qualities” (p. 39).

3 Need of the study
The extensive researches were conducted in the field of General Teaching Competency (GTC), Teacher Attitude (TA) towards teaching, and Students Achievement (SA). But no study was carried out which cover all four variables on science teachers and students. Present study is an attempt to fill that gap. Hence, the present investigation seems to be sufficiently warranted and needed.

4 Research Questions
Main: To investigate the teaching competency of science teachers for academic achievement of students in senior secondary schools of Uttar Pradesh?

The following research questions will also be addressed by this research:

i. To what degree does teacher’s competence affect students’ academic performance?

ii. Is there any significant relationship between teacher’s personality type and academic performance of students in secondary school?

5 Objectives of the Study
The primary aim of this study was to examine the effects of teacher’s competence on students’ academic performance. Keeping in view the above stated problems, the major objectives of the present investigation were formulated as below:

- To study the general teaching competency of Science teachers of senior secondary schools of Govt. of U.P.
- To study the attitude to Science teachers towards teaching in Secondary schools of Govt. of U.P.
- To study the academic achievement of boys and girls in Class XII of Science in the schools of Govt. of U.P.
- To find out the relationship in general teaching competency and attitude towards teaching of male and female science teachers.
- To find out the relationship in general teaching competency of male and female science teachers and academic achievement of boys and girls in science.
- To find out the relationship in attitude towards teaching of male female science teachers and academic achievement of boys and girls in science.

6 Hypothesis of the study
H 1: There is no significant difference between General Teaching Competency of Male and Female Science Teachers
H 2: There is no significant difference between Attitude of male and female science teachers

Bholey Singh, Dr. Om Singh, - A study of General teaching competency of pupil teachers for academic achievement of students in senior secondary schools of Uttar Pradesh
H 3: There is no significant difference between academic achievement of Boy and Girl Science students

H 4: There is no significant relationship between general teaching competency and attitude of male science teachers, female science teachers and total sample of science teachers.

H 5: There is no significant relationship between general teaching competency and academic achievement of Male Science teachers and their boy science students, Female Science Teachers and their girl science students and Total sample of Science Teachers and their total sample of science students.

7 Delimitations of the study
- The study is confined to Senior Secondary Schools under the Govt. of U.P.
- Although there are nine districts under the Govt. of U.P. namely East, North-East, North, North-West, West, South-West, South, New Delhi, Central, the present study was further limited to the schools falling under East and Central districts only.
- Science teachers teaching Class XII were taken for study.
- The study was further delimited to Class XII Science students.

8 Research Methodologies

8.1 Sample of the study
The two districts-East and Central were taken as the sample for present study. These districts were selected randomly. Since all schools run by Govt. of U.P. in the East and Central district are not having science stream. Only 98 schools of these districts offer Science to their students at Senior Secondary level. So, all Science school are taken as a sample for Present Study. From 98 Science Stream Schools, 46 schools are girl schools, 52 schools are boy’s schools. Propulsive sampling was used in which each school was designated as the sampling unit. Thus, all the teachers teaching to Class XII students and all the students studying in Class XII of these 98 schools were taken as sample for the study. Thus, the total number of teachers forming the sample including 52 male and 46 female teachers. The total number of students forming the sample was 3328.

8.2 Tools used in the study
There are four variables selected for the present study. These variables are:
- General Teaching Competency (GTC)
- Teacher Attitude (TA)
- Student Achievement (SA)

8.3 Collection and Organisation of Data
The data was collected by administrating the earlier mentioned three tools open the target group of teachers and student achievement record of C.B.S.E. board exam of Class XII of science group and was organised according to variables and Hypothesis of study. There are two main purposes of the study - the first is to find out the present status of the concerned variables in teachers and students, second is to determine the relationship between the dependent and independent variables. The following statistical calculations were got done with the help of computer:
- Mean and Standard Deviations.
- 't'—values to find out the significant differences between male and female teachers in respect of different variables.

Bholey Singh, Dr. Om Singh: A study of General teaching competency of pupil teachers for academic achievement of students in senior secondary schools of Uttar Pradesh
iii) Correlation coefficient by Pearson’s Product Moment Correlation method to determine the relationships, if any between the different variables. The data was compiled in tabular form for each variable and analyses to see the number of teachers and students falling below and above the mean scores of each variable. This was done by placing the data in frequency tables. Data was further analysed and interpreted on the basis of t-value to find out the significance difference if any, in the male and female groups of science teachers and also on boy and girl science student of each variable. Similarly, the relationships between the variables were determined by the coefficient of correlations. The result were analysed and interpreted in the light of the objectives and hypotheses citing them wherever appropriate. It may be pointed here that the low score on attitude scale indicates a favourable attitude whereas high score indicates a reverse trend. The results have been interpreted accordingly.

9 Analyses and Interpretation of data

This part of paper presents an analysis and interpretation of data regarding the present status of teacher-related (GTC and TA) and student related (SA) variables. The data was collected from a sample of 98 science teachers (52 male and 46 female) and 3328 students (2001 boys and 1327 girls). The teacher related all the scales (scales of GTC and TA) were administered on the same sample of 98, science teachers. Similarly the student achievement related data's were collected on the same sample of 3328 science students who are taught by the same sample of 98 science teachers on whom scales of GTC and TA were administered. Now, the distribution of competency scores of entire sample of 98 Science teachers is shown in Table (A). The mean and S.D. are also given.

Table (A). Frequency distribution of GTC scores of total sample of science teachers (n = 98)

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Frequency (f)</th>
<th>% of f</th>
<th>% of Cumulative Frequency (c.f.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>55-64</td>
<td>0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>65-74</td>
<td>0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>75-84</td>
<td>1</td>
<td>1.020</td>
<td>1.020</td>
</tr>
<tr>
<td>85-94</td>
<td>2</td>
<td>2.041</td>
<td>3.061</td>
</tr>
<tr>
<td>95.104</td>
<td>13</td>
<td>13.265</td>
<td>16.326</td>
</tr>
<tr>
<td>105-114</td>
<td>14</td>
<td>14.286</td>
<td>30.612</td>
</tr>
<tr>
<td>115-124</td>
<td>20</td>
<td>20.408</td>
<td>51.020</td>
</tr>
<tr>
<td>125-134</td>
<td>29</td>
<td>29.592</td>
<td>80.612</td>
</tr>
<tr>
<td>135-144</td>
<td>14</td>
<td>14.286</td>
<td>94.898</td>
</tr>
<tr>
<td>145-154</td>
<td>5</td>
<td>5.102</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Mean = 121.63  
S.D. = 15.08
In the above table the distribution of teaching competency scores of male and female teachers are given together. These scores are spread from 75-154. There is no any case in the sample falling below the interval '75-84'. This indicates that there are no cases in the extreme category of lowest competent teachers. The mean score of the total sample (Male and Female) is 121.63. It is seen from the distribution of scores given in the table that 20.41% cases fall in the interval '115-124' containing the mean. About 30.61 % cases fall below the mean interval '75-84' and 48.98% cases fall above the mean interval. This shows that a higher percentage of teachers in the sample taken for the study fall in the category of above average competent teachers. It is also seen that 1.02% of the teachers falling in the lowest intervals of '75-84' belong to the category of teachers possessing lowest competency whereas 5.10% of teachers in the sample falling on the intervals of '145-154', containing teachers having highest competency.

Table (B): Comparison of frequency distribution of GTC scores of science teachers

<table>
<thead>
<tr>
<th>Score-Range</th>
<th>Male (N = 52)</th>
<th>Female (N = 46)</th>
<th>Total (N = 98)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>% of f</td>
<td>% of c.f.</td>
</tr>
<tr>
<td>55-64</td>
<td>0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>65-74</td>
<td>0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>75-84</td>
<td>1</td>
<td>1.923</td>
<td>1.923</td>
</tr>
<tr>
<td>85-94</td>
<td>0</td>
<td>0.000</td>
<td>1.923</td>
</tr>
<tr>
<td>115-124</td>
<td>13</td>
<td>25.000</td>
<td>63.462</td>
</tr>
<tr>
<td>125-134</td>
<td>14</td>
<td>26.923</td>
<td>90.385</td>
</tr>
<tr>
<td>135-144</td>
<td>4</td>
<td>7.692</td>
<td>98.077</td>
</tr>
<tr>
<td>145-154</td>
<td>1</td>
<td>1.923</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td></td>
<td><strong>118.19</strong></td>
<td></td>
</tr>
<tr>
<td><strong>S.D.</strong></td>
<td></td>
<td><strong>13.75</strong></td>
<td></td>
</tr>
</tbody>
</table>

So it can be concluded from the above two categories of scores that the highly competent teachers in the sample are more than the percentage of teaching having lowest teaching competency. Not a Single case has been found to show the extreme' category of extremely low competent teachers. The standard
deviation of the sample is 15.08. If the cases falling between -1 and +1 are taken into consideration, it is found that 67 cases (68%) of teachers of the sample are covered. Similarly 95 cases (97%) are covered between -20 and +20. These results show that the distribution of the sample is almost normal. In the following Table (B), a comparison of General Teaching Competency score of male, female and total sample of teacher is given:

So far attitude of male, female and total sample of teachers towards the teaching profession has been discussed. Let us now consider the comparative picture of these three categories as shown in Table (C).

<table>
<thead>
<tr>
<th>Score-Range</th>
<th>Male (N = 52)</th>
<th>Female (N = 46)</th>
<th>Total (N = 98)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>% of f</td>
<td>% of c.f.</td>
</tr>
<tr>
<td>3.00-3.49</td>
<td>0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>3.50-3.99</td>
<td>0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>4.00-4.49</td>
<td>0</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>5.00-5.49</td>
<td>18</td>
<td>34.615</td>
<td>48.077</td>
</tr>
<tr>
<td>5.50-5.99</td>
<td>18</td>
<td>34.615</td>
<td>48.077</td>
</tr>
<tr>
<td>6.00-6.49</td>
<td>7</td>
<td>13.462</td>
<td>96.154</td>
</tr>
<tr>
<td>6.50-6.99</td>
<td>1</td>
<td>1.923</td>
<td>98.077</td>
</tr>
<tr>
<td>7.00-7.49</td>
<td>1</td>
<td>1.923</td>
<td>100.000</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.D.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However, it has not yet been found whether the differences in mean on different variables related to teacher and students were significant or not. It will therefore, be useful to see whether the differences in mean are significant or not. The significance of differences which have been computed by applying ‘t-test’. The ‘t’ values for the differences in means of male and female Science teachers and boys and girls Science students are given in various tables and their interpretation discussed. From the results of statistical analysis it is noticed that there are differences in means of scores in Science teacher variables (GTC TA and SA) as well as Science student variable (Academic Achievement). The ‘t’ test was therefore, applied to test the significance of difference between the means of different variables for the different sample. The following sections now describe separately tile differences in means of

Bholey Singh, Dr. Om Singh; - A study of General teaching competency of pupil teachers for academic achievement of students in senior secondary schools of Uttar Pradesh
GTC score, TA score and JS score for male and female Science-teachers and also student academic achievement score for boy and girl science students. However, the analysis of data has been according to the hypothesis as formulated in the study.

- **Testing Hypothesis – 1**: This Hypothesis was tested by using ‘t’ test of significance. The result in this analysis are illustrated in the table 1 below:

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>'t' Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>52</td>
<td>118.192</td>
<td>13.753</td>
<td>2.46*</td>
</tr>
<tr>
<td>Female</td>
<td>46</td>
<td>125.522</td>
<td>15.712</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at 0.05 level

It is seen from Table 1 that the ‘t’ value of 2.46 for the difference of means of GTC score of Science teachers is significant at 0.05 level of confidence. Thus the male and female teachers differ significantly from each other in their general teaching competencies. The hypothesis, that the general teaching competency of male and female Science teachers teaching in Government Senior Secondary Schools of NCT of Delhi differ significantly, therefore is not accepted.

The analysis of means shows that female teachers are more competent in teaching science. Therefore, the conclusion may be drawn that the female teachers are more competent than the male teachers.

- **Testing Hypothesis – 2**: Table 2 describes the testing of 2nd hypothesis. The difference in the means of attitude score of male and female science teachers is explained in table below

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>'t' Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>52</td>
<td>5.537</td>
<td>0.535</td>
<td>2.28*</td>
</tr>
<tr>
<td>Female</td>
<td>46</td>
<td>5.316</td>
<td>0.405</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at 0.05 level

It is evident from Table 2 that the ‘t’ value of the difference between the means of attitude scores for male and female science teachers towards teaching profession is 2.28 which IS significant at 0.05 level. It is also seen that the mean score of female teacher is less than male teachers which shows that the attitude of female teachers is more favourable towards the teaching profession than that of male teachers as already stated that in this attitude scale the low attitude score shows more favourable attitude and high score shows less favourable attitude towards the teaching profession.

The hypothesis that male and female teachers differ significantly in their attitude is, therefore, not
accepted. The analysis of means shows that female teachers have more favourable attitude towards teaching of Science as compare to male Science teachers.

- **Testing Hypothesis – 3:** The Third Hypothesis state that there is no significant difference between academic Achievement of Boys and Girls Science Students. The ‘t’ value and the mean scores on achievement test for boys (50.57) and girls (58.87) are calculated and presented in Table 3.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>'t' Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>2001</td>
<td>50.569</td>
<td>9.501</td>
<td>4.57**</td>
</tr>
<tr>
<td>Girls</td>
<td>1327</td>
<td>58.874</td>
<td>8.358</td>
<td></td>
</tr>
</tbody>
</table>

* Significant at 0.01 level

It is noticed from the Table 3 that the ‘t’ value of 4.57 for the difference in means of boys and girls students of Class XII for achievement in Science is significant of 0.05 level. This indicates that the boys and girls students have differ significantly from each other in their achievement. The hypothesis that the achievement of boys and girls students of class XII in Science differ significantly is, therefore not acceptable. It is seen that the mean value of boys is lower than girls, which indicates that the girls tend to achieve better than the boys. It is thus quite clear from the above discussion of the ‘t’ value of teacher competency and teacher attitude of male and female teachers and those of achievement of boys and girls of Class XII students that there is significant difference in the competency of male and female teachers teaching attitude towards teaching and student achievement of boys and girls. This shows that the factors related to teacher competency, teacher attitude towards teaching and student achievement affect the means of the respective groups significantly.

- **Testing Hypothesis – 4:** As already stated there are two variables teaching competency and attitude related to teachers and other one achievement related to students. In order to find out whether the teacher related factors influence the student related factors, the teacher related factors are associated with each other and whether the student related factor are associated between themselves, coefficient of correlation were found out between them. Therefore, a discussion of the relationship between the following pairs of variables selected for the present study is given below

1) General Teaching Competency (GTC) and Teacher Attitude (TA)
2) General Teaching Competency (GTC) and Student Achievement (SA)
3) Teacher Attitude (TA) and Student Achievement (SA)

Each of the above mentioned relationship have been determined on the basis of sex only. The ‘r’ values for different variables are given in various tables. These were computed by coefficient of Pearson correlation method. It may be mentioned here that in the present study, the low scores on the attitude scale indicate the presence of a positive attitude

*Bholey Singh, Dr. Om Singh:* - A study of General teaching competency of pupil teachers for academic achievement of students in senior secondary schools of Uttar Pradesh
towards the object. Whereas the higher scores on this scale are indicative of an unfavourable attitude. On the other hand, the scores on the teaching competency and student achievement are to be interpreted as usual manner.

Table 4: Correlation coefficient ('r') between variables of the science teachers and their students (male science teachers 52 and their boy students 2001) (female science teachers 46 and their girl students 1327)

<table>
<thead>
<tr>
<th>Correlated Variables</th>
<th>Male (N = 52)</th>
<th>Female (N = 46)</th>
<th>Total (N = 98)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Teaching Competency &amp; Teacher Attitude</td>
<td>0.0693</td>
<td>−0.0515</td>
<td>−0.0395</td>
</tr>
<tr>
<td>General Teaching Competency &amp; Student Academic Achievement</td>
<td>0.1753</td>
<td>−0.0326</td>
<td>0.1706</td>
</tr>
<tr>
<td>Teacher attitude and Student Academic Achievement</td>
<td>0.1956</td>
<td>−0.0390</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

* Significant at 0.05 level

> **Testing Hypothesis – 5**: The Fifth Hypothesis state that there is no significant difference between General Teaching competency (GTC) and Teacher’s Attitude (TA) of science teachers. This Hypothesis was divided into the sub-Hypothesis. Thus, each of the three Hypotheses has been tested by applying correlation coefficient (r) of significant. The conclusions have been drawn and discussed in the following paragraph: There is no significant relationship between General Teaching Competency (GTC) and Teacher Attitude (TA) of male Science teachers.

It is seen from the Table 3 that the correlation coefficient between the teaching competency and teacher attitude is 0.0693, which is not found to be significant. Here the Positive sign indicates a negative relationship because attitude score of scale moves in downward direction. This ‘r’ value shows that the teaching competency is not significantly related to teacher attitude towards teaching. Therefore hypothesis that there is no significant relationship between the teaching competency and teacher attitude is accepted. Though the correlation IS not significant at 0.05 level but this correlation is positive. The General Teaching Competency (GTC) of Male science teachers not affected by Teaching Attitude (TA) of male science teachers. General Teacher competency and Teacher Attitude of Science teachers are not found significant for male, female and total Sample of teachers but the relationship between General Teaching competency and Teaching Attitude in respect of female and total sample of positive while male teachers has negative relation. This shows that teaching competency of teachers and their attitude towards teaching profession are not associated with each other. It also means that it is not necessary that a teacher having favourable attitude towards teaching profession will be a competent teacher. The reason for this insignificant relationship indicate that these two variables belong two different domains (i.e. General Teaching competency being in the cognitive domain and teacher attitude in

*Bholey Singh, Dr. Om Singh; - A study of General teaching competency of pupil teachers for academic achievement of students in senior secondary schools of Uttar Pradesh*
the affective domain) and the result of the present investigation and other studies show that both factors (cognitive and affective) are not associated with each other.

10 Findings of the study

⇒ Attitude of teachers towards teaching profession

The attitude of teachers towards teaching profession measured by an Attitude Scale developed by Goyal (1980) Thurstone’s technique of equal appearing intervals. The findings are given in the following section:

1. The frequency distribution of attitude scores shows that 13.46% of male teachers have a favourable attitude, 69.23% of male teachers have neutral and 17.31% of male teachers possess negative attitude towards their profession. In case of female teachers it is found that 17.39% of the female teachers possess favourable attitude 76.09% of female teachers possess neutral attitude and 6.52% have negative attitude towards their profession. In total sample of teachers 15.31% of teachers have a favourable attitude 72.45% of teachers possess neutral attitude and 12.24% have negative attitude towards teaching profession.

2. The mean score on the attitude scale of male teacher is 5.54, female teacher is 5.32 and of total sample is 5.43. This shows that there is no significant difference in the mean scores of male and female teachers. Thus there is no significant difference in attitude of male and female science teachers. Here low scores on the attitude scale indicate the presence of a positive attitude whereas the higher scores on this scale are indicative of an unfavourable attitude. So it can be concluded from the distribution of attitude scores that female teachers have more favourable attitude towards their profession than male teachers.

3. While the mean scores on the attitude scale for male and female teachers are 4.10 and 4.00 as given in the Manual of Teacher Attitude Scale (TAS), the mean scores of teacher attitude on the scale in the present study are found to be 5.54, 5.32 and 5.43 for male, female and total sample respectively. The comparison shows that although there is significant difference in mean scores of manual and present study, the present results shows less favourability towards teaching profession as compared to original manual, as lower scale represents higher attitude.

⇒ Student achievement

Marks of Students achievement was collected from examination conducted by C.B.S.E. for the subject of Science of Class XII in the academic year 2010-11. The findings are given below:

1. It is seen from the frequency distribution of achievement score that the percentage of average achievers are found to be 25.14, 24.79 and 25.00 for boys, girls and total sample respectively. This indicates that in the category of ‘average achievers’ the percentages of boys are more than girls and total sample of students.

2. It is also observed that the percentage of boys, girls and total sample of students falling in category of ‘below average achievers’ (i.e. low achievers) are 38.93, 34.89 and 37.32 respectively which shows that in this category the percentage of boys are more than girls and total sample.

3. In ‘above average achievers’ (i.e high achievers) category, the percentage of boys, girls and total sample are seen to be 35.93, 40.32 and 37.68 respectively. This indicates that in this category the percentage of Girls is more than boys and students in total sample.

4. The comparison of ‘low’ and ‘high’ achievers shows that total Sample of students the percentage of ‘low’ achievers and ‘high’ achievers are almost same.

5. The comparison also shows that although In category of ‘average achievers’ the percentage of boys are more than girls and total sample of students, the reverse is true in ‘low’ achievers category.
where percentage of boys are more than girl and total sample of students. The comparison in 'high achievers' the percentage of girls students are more than of boy students.

6. The mean on achievement test for boys, girls and total sample of students are 50.57, 58.87 and 54.47 respectively, which shows that there is significant difference between the mean score of different categories of students based on their sex.

**Interrelationship among the variables**

The relationship between different variables studied In the present investigation were determined by correlation coefficient (Pearson ‘r’). In this section of findings of the study are given:

1. The relationship between teaching competency and attitude of male science teachers towards teaching profession is not found to be significant. The hypothesis therefore that there is no significant relationship between the teaching competency and teacher attitude is accepted.

2. These two variables (GTC and TA) mentioned above are not significantly related in case of female science teachers also, the above stated hypothesis therefore stands accepted again.

3. Teaching competency and attitude of teachers towards teaching profession are not associated with each other in total sample of teachers. Therefore the hypothesis that teaching competency and attitude are not significantly related is accepted.

4. Teaching competency of male teachers and achievement of their students are not significantly related. The hypothesis that there is no significant relationship between teaching competency of male teachers and achievement of their students is thus accepted.

5. There is not significant relationship between teaching competency of female teachers and achievement of their students. They are not significant, so, 'the hypothesis that there is no significant relationship between teaching competency of female teachers and achievement of their students is accepted.

6. In case of total sample of teachers teaching competency and student achievement are no significantly related. The hypothesis that teaching competency and student achievement are not significantly related is therefore accepted.

7. Attitude of male teachers towards teaching profession and student achievement are not significantly related. So the hypothesis that there is no significant relationship between attitude of male teacher and student achievement is accepted.

8. No significant relationship is found between attitude of female teachers and achievement of their students. Therefore the hypothesis that there is no significant relationship between attitude of female teachers and achievement of their students is accepted.

9. In case of total sample of teachers also no significant relationship is found between attitude of teachers and achievement of their students. Therefore the hypothesis that there is no significant relationship between attitude of teachers towards teaching profession and student achievement is accepted.

**Conclusion and suggestions for further research**

In the present study it was found that the teaching competency and attitude of teachers towards teaching profession are not associated with each other. It is neither an expected nor a desirable finding. Generally it is expected that teaching competency of teachers will be higher or lower according to their favourableness or unfavourableness of attitude towards teaching. The present finding thus may be due to small sample of teachers taken for the study or there are different factors which affect the attitude and competency of science teachers in Government Senior
Secondary Schools of Govt. of U.P. Therefore, it needs further research on a large sample of teachers and to investigate the reasons as to why the teachers in the sample have highly favourable attitude towards teaching profession but their teaching competency is not that much higher.

It appears that in India, the factors contributing to make the attitude of teacher more favourable towards teaching are not those expected in a usual manner. Here teachers, seem to have favourable attitude if they are allowed to work in their own way without any accountability and if they are given the facilities and other benefits without any difficulty. It seems that if the teachers are made more accountable and are asked to put in hard work their attitude may become unfavourable towards teaching. Moreover, attitude is related to affective domain and is thus related to feeling and opinions about a thing and idea of a person, which cannot be observed or measured. It may change in a short time on the basis of certain experience. On the other hand, the teaching competency is related to cognitive aspect which can be observed or measured by the behaviour of teacher in the class-room. It calls for hard work and preparation for teaching that is why there is almost negligible relationship between these two variables.

12 References


