CHAPTER-V

MAIN FINDINGS,
EDUCATIONAL IMPLICATIONS AND
SUGGESTIONS FOR FURTHER RESEARCHES

This chapter devoted to the main findings of the study based on analysis and interpretation of data. It is followed by discussion of results, educational implications and suggestions for further research.

5.1 MAIN FINDINGS

In the present study, the following main findings have been drawn from the analysis and interpretation of the data. It has been presented in the following headings:

5.1.1 Relationship between teaching competence and teaching aptitude of science teachers in colleges of education

1. It was found that there exists significant relationship between planning teaching competence and teaching aptitude of science teachers in colleges of education. In other words, teaching aptitude was negatively correlated to planning component of teaching competence. Thus, it can observed that good planning, content selection, content organization has a significant relationship with the teaching aptitude. Science teacher having better teaching aptitude will plan effectively and this will add to his/her competence.

2. It was found that there exists significant relationship between presentation teaching competence and teaching aptitude of science teachers in colleges of education. In other words, teaching aptitude was negatively correlated to presentation component of teaching competence. Thus, it can be seen that good presentation skills as introduction of lesson, fluency of questions, use of probing questions, explaining, illustration, stimulus variation, use of silence and non-verbal cues, increasing pupil has a significant relationship
with the teaching aptitude. Science teacher having better teaching aptitude will present the content effectively and will have better competence.

3. It was found that there exists significant relationship between closing teaching competence and teaching aptitude of science teachers in colleges of education. In other words, teaching aptitude was negatively correlated to closing component of teaching competence. It is further revealed from the findings that achieving closure, giving assignment by a Science teacher has significant relationship with teaching aptitude.

4. It was found that there exists significant relationship between evaluation teaching competence and teaching aptitude of science teachers in colleges of education. In other words, teaching aptitude was negatively correlated to evaluation component of teaching competence. Classroom evaluation, diagnosis of pupils difficulties as evaluation skill has significant relationship with teaching aptitude.

5. It was found that there exists significant relationship between managerial teaching competence and teaching aptitude of science teachers in colleges of education. In other words, teaching aptitude was negatively correlated to managerial component of teaching competence. Recognizing attending behavior and maintaining classroom discipline as a managerial skill among science teachers has a significant relationship with teaching aptitude.

6. It was found that there exists significant relationship between teaching competence and teaching aptitude of science teachers in colleges of education. In other words, teaching aptitude was negatively correlated to teaching competence. After analysis and interpretation of the data it was found that the data supported the assumption and the researcher retained the hypothesis. It may be due to the fact that teaching aptitude proved to be a vital factor which may produce competent teachers. This was supported by Chandrakanta (2000) teaching aptitude was positively correlated to teaching competence. Further, Kohalon and Saini (1989) mental health
has low positive correlation with teaching aptitude. Ken and Kleine (1984) reported that competency factor is also correlated significantly with aptitude variables. Thus, it can be concluded that teaching aptitude have found vital factor which may affecting teaching competence of science teachers in colleges of education.

5.1.2 Relationship between teaching competence and intelligence of science teachers in colleges of education

1. It was found that there exists significant relationship between planning teaching competence and intelligence of science teachers in colleges of education. In other words, intelligence of science teachers was negatively correlated with planning competent of teaching competence. Science teachers having better intelligence will be able to plan effectively.

2. It was found that there exists significant relationship between presentation teaching competence and intelligence of science teachers in colleges of education. In other words, intelligence of science teachers was positively correlated with presentation competent of teaching competence. Presentation will be effective if it is executed in an intelligent manner.

3. It was found that there exists significant relationship between closing teaching competence and intelligence of science teachers in colleges of education. In other words, intelligence of science teachers was positively correlated with closing competent teaching competence. Intelligence is related to achieving closure and giving assignment as a component of teaching competence.

4. It was found that there exists no significant relationship between evaluation teaching competence and intelligence of science teachers in colleges of education. In other words, intelligence of science teachers was negatively correlated with evaluation component of teaching competence.

5. It was found that there exists significant relationship between managerial
teaching competence and intelligence of science teachers in colleges of education. In other words, intelligence of science teachers was positively correlated with managerial competent teaching competence. Attending behavior and maintaining classroom discipline as a managerial skill among science teachers has a significant relationship with intelligence.

6. It was found that there exists significant relationship between teaching competence and intelligence of science teachers in colleges of education. In other words, intelligence of science teachers was positively correlated competent teaching competence. After analysis and interpretation of the data, it was found that the data supported the assumption and the researcher retained the hypothesis. Thus, intelligence was positively related to presenting, closing evaluation, and teaching competence of science teachers in colleges of education. Whereas, intelligence was negatively related to planning and managerial component of teaching competence. The results were supported by Jain (1977) intelligence promoted in teaching and it tended to denote proficiency in teaching only when it was low. Creativity components were positively effective correlates of proficiency in teaching. Mahapatra (1987) the coefficient of correlation between teaching success and intelligence, was positively significant. It can be concluded that intelligence has found a significant factor which may affects the teaching competence of science teachers except evaluation component of teaching competence.

5.1.3 Relationship between teaching competence components and attitude towards teaching of science teachers in colleges of education

1. It was found that there exists a significant relationship between planning teaching competence and attitude towards teaching of science teachers in colleges of education. In other words, attitude of science teachers towards teaching was positively correlated with planning competent teaching competence. Attitude towards teaching of science teachers in colleges of
education helps in planning their lessons. A positive and favourable attitude and proper planning makes the work not easier but also more satisfying and professionally rewarding.

2. It was found that there exists significant relationship between presentation teaching competence and attitude towards teaching of science teachers in colleges of education. In other words, attitude of science teachers towards teaching was positively correlated with presentation competent teaching competence. Science teachers in colleges of education present their lesson in a better way if they have positive attitude towards teaching. A teacher’s attitude not only affects his behavior in the classroom but also influence the behavior of students and presentation.

3. It was found that there exists significant relationship between closing teaching competence and attitude towards teaching of science teachers in colleges of education. In other words, attitude of science teachers towards teaching was positively correlated with closing competent teaching competence. Attitude towards teaching determines the closing teaching competence of science teachers in colleges of education.

4. It was found that there exists significant relationship between evaluation teaching competence and attitude towards teaching of science teachers in colleges of education. In other words, attitude of science teachers towards teaching was positively correlated with evaluation competent teaching competence. Science teachers in colleges of education who possess better attitude towards will evaluate effectively and have better teaching efficiency.

5. It was found that there exists no significant relationship between managerial teaching competence and attitude towards teaching of science teachers in colleges of education. In other words, attitude of science teachers towards teaching was positively less correlated with managerial competent teaching competence. A negative unfavourable attitude makes
the teaching task harder, more tedious, unpleasant and this will lead to managerial problems.

6. It was found that there exists significant relationship between teaching competence and attitude towards teaching of science teachers in colleges of education. In other words, attitude of science teachers towards teaching was positively correlated to teaching competence. After analysis and interpretation of the data, it was found that the data supported the assumption and the researcher retained the hypothesis. The finding shows that it was found that there exists significant relationship between planning, presentation, closing, evaluation, teaching competence and attitude towards teaching of science teachers in colleges of education. In other words, attitude towards teaching was positively related with the planning, presenting, closing evaluation, managerial components of teaching competence of science teachers in colleges of education. But attitude towards teaching of science teachers was less related in case of managerial teaching competence. The results were supported by study of Bhalwankar (1984) that reveals a positive relation between teachers’ attitude towards teaching and their teaching competence. Maurya (1990) attitude and teaching efficiency were significantly related.

5.1.4 Relationship between teaching competence components and teacher effectiveness science teachers in colleges of education

1. It was found that there exists no significant relationship between planning teaching competence and teacher effectiveness of science teachers in colleges of education. In other words, teacher effectiveness of science teachers was positively less correlated with planning component of teaching competence.

2. It was found that there exists no significant relationship between presentation teaching competence and teacher effectiveness of science teachers in colleges of education. In other words, teacher effectiveness of
science teachers was positively less correlated with presentation component of teaching competence.

3. It was found that there exists no significant relationship between closing teaching competence and teacher effectiveness of science teachers in colleges of education. In other words, teacher effectiveness of science teachers was positively less correlated with closing component of teaching competence.

4. It was found that there exists no significant relationship between evaluation teaching competence and teacher effectiveness of science teachers in colleges of education. In other words, teacher effectiveness of science teachers was positively less correlated with evaluation component of teaching competence.

5. It was found that there exists no significant relationship between managerial teaching competence and teacher effectiveness of science teachers in colleges of education. In other words, teacher effectiveness of science teachers was negatively less correlated with managerial competent teaching competence.

6. It was found that there exists no significant relationship between total teaching competence and teacher effectiveness of science teachers in colleges of education. In other words, teacher effectiveness was positive and adversely correlated to teaching competence of science teachers. After analysis and interpretation of the data, the results show that there exists no significant relationship between planning, presentation, closing, evaluation, managerial components of teaching competence and teacher effectiveness of science teachers in colleges of education. Hence, the researcher rejected the hypothesis as a whole. In other words, teaching effectiveness was positively less related with teaching competence of science teachers in colleges of education. Whereas, teacher effectiveness of science teachers was negatively less related in case of managerial teaching competence.
These results were supported by Patel (1976) teaching competencies of trainees; specific five teaching skills were not related to red summative model and vicarious integration. Wangoo (1984) teaching competence and teacher effectiveness were significantly correlated. It can be concluded that teacher effectiveness has not significantly correlated factor which may affects the teaching competence of science teachers.

5.1.5 Comparison of teaching competence components of most effective and least effective science teachers in colleges of education

1. It was found that there exists no significant difference in the mean planning component of teaching competence scores of most effective and least effective science teachers in colleges of education. Thus, most effective and least effective science teachers in colleges of education do not differs significantly on their planning component of teaching competence.

2. It was found that there exists no significant difference in the mean presenting component of teaching competence scores of most effective and least effective science teachers of colleges of education. Thus, most effective and least effective science teachers of colleges of education do not differs significantly on their presenting component of teaching competence.

3. It was found that there exists no significant difference in the mean closing teaching competence scores of most effective and least effective science teachers of colleges of education. Therefore, most effective and least effective science teachers of colleges of education do not differs significantly on their closing component of teaching competence.

4. It was found that there exists no significant difference in the mean evaluation component of teaching competence scores of most effective and least effective science teachers of colleges of education. So, the most effective and least effective science teachers of colleges of education do not differs significantly on their evaluation component of teaching competence.
5. It was found that there exists no significant difference in the mean managerial teaching competence scores of most effective and least effective science teachers of colleges of education. Thus, the most effective and least effective science teachers of colleges of education do not differ significantly on their managerial component of teaching competence.

6. It was found that there exists no significant difference in the mean teaching competence scores of most effective and least effective science teachers of colleges of education. Therefore, most effective and least effective science teachers of colleges of education do not differ significantly on their teaching competence. After analysis and interpretation of the data, the results shown that there exists no significant difference between planning, presentation, closing, evaluation, managerial components of teaching competence of most and least effective science teachers in colleges of education. Hence, the researcher retained the hypothesis as a whole. Thus, most and least effective science teachers were equally competent in the planning, presenting, closing, evaluation, managerial component of teaching competence. These findings were supported by Amandeep and Gurpreet (2005) correlation between teacher effectiveness and teacher competency was found to be positive and significant. Mutha (1980) it was found that effective teachers have significantly higher scores than ineffective teachers, confirming aptitude as a significant predictor of effective teaching. It can be concluded that most effective and least effective science teachers in colleges of education have exhibited similar competence level in planning, presentation, closing, evaluation and managerial component of teaching.

5.1.6 Comparison of teaching competence components of male and female science teachers in colleges of education

1. It was found that there exists no significant difference in the mean teaching competence scores of male and female science teachers of colleges of
education. After analysis and interpretation of the data, the finding shows that there exists no significant difference between teaching competence of male and female science teachers in colleges of education. Hence, the researcher retained the hypothesis. So, male and female science teachers in colleges of education were equally competent in their teaching competence. This result was supported Amandeep and Gurpreet (2005) male and female teachers do not differ significantly in teaching competence. Thamilmani (1990) male and female teachers were similar in their teaching competencies and personality human relations and interpersonal skills. Thus, male and female science teachers of colleges of education do not differs significantly on their teaching competence.

2. It was found that there exists no significant difference in the mean teaching aptitude scores of male and female science teachers of colleges of education. After analysis and interpretation of the data, the finding shows that there exists no significant difference between teaching aptitude of male and female science teachers in colleges of education. Hence, the researcher retained the hypothesis. Thus, male and female science teachers in colleges of education were having equally aptitude towards their teaching. This was supported Sharma (1984) male and female teachers do not differ significantly their teaching aptitude. Sajan (1999) found that there exists significant difference in teaching aptitude of male and female student teachers. Ranganathan (2008) teaching aptitude and there is no significant different between males and females and the level of self-esteem and teaching aptitude. Male and female science teachers of colleges of education do not differs significantly on their teaching aptitude.

3. It was found that there exists significant difference in the mean intelligence scores of male and female science teachers of colleges of education. After analysis and interpretation of the data, the finding shows that there exists significant difference between intelligence of male and female science
teachers in colleges of education. Hence, the researcher rejected the hypothesis. Male science teachers have higher intelligence than female science teachers. This result was supported by Singh (1977) the difference in the mean intelligence scores of male and female teachers was not significant. Singh (1991) male and female teachers teaching effectiveness was positively related to intelligence. Male and female science teacher of colleges of education differs significantly on their intelligence.

4. It was found that there exists significant difference in the mean attitudes towards teaching scores of male and female science teachers of colleges of education. After analysis and interpretation of the data, the finding shows that there exists significant difference between attitude towards teaching of male and female science teachers in colleges of education. Hence, the researcher rejected the hypothesis. The attitude of male science teachers towards teaching were shown better than female science teachers. These results were supported by Sarswat (1976) that reported a significant difference between the male and the female and the science and arts teachers. The female students were better critics of their teachers than the male. Ramakrishnaih (1980) revealed through his study, that women teachers have a significant and more favourable attitude towards teaching than men teachers. Another study conducted by Rawat and Sreevastava (1984) revealed significant difference between male and female teacher trainees in their attitude towards teaching profession. Thus, the male and female science teacher of colleges of education differs significantly on their attitudes towards teaching.

6. It was found that there exists no significant difference in the mean teaching effectiveness scores of male and female science teachers of colleges of education. After analysis and interpretation of the data, the finding shows that there exists no significant difference between teaching effectiveness of male and female science teachers in colleges of education. Hence, the
researcher retained the hypothesis. The male and female science teachers in colleges of education were having equally effective in their teaching. These results were supported by Singh (1977) who reported that there is no significant difference in mean scores of male and female teachers in their effectiveness. Subarayan (1985) male and female teachers did not differ significantly in respect of teacher effectiveness. Thus, the male and female science teachers in colleges of education do not differ significantly on their teaching effectiveness.

It can be concluded that gender has found significant factors which may influence the intelligence and attitude towards teaching. But it has no effects on teaching competence, teaching aptitude and teaching effectiveness of science teachers.

5.2 EDUCATIONAL IMPLICATIONS

The present study is supposed to add to the existing stock of knowledge in the field of education. The aim of education is to humanize the humanity and to make life progressive, cultured and civilized. It is through education that man develops his thinking and reasoning, problem solving and creativity, intelligence and aptitude positive sentiment and skills, good values and attitudes, etc. A teacher holds a key position in the whole of infrastructure of education.

The most outstanding character of any research is that it must contribute something new to the development of the area concerned. The contents of the study are of much importance and vital concern to educators. The present study has established that to increase the student achievement the general teaching competency of teachers is one of the most important factor. It was also found that be higher which will be possible only if the teacher is competent and has favorable attitude towards teaching profession. So, the investigator has drawn the following educational implications of his study. The present study has its implications for both the teachers, students and policy makers. A number of significant implications emanate from the foregoing findings. They may be listed as follows:
1. It has found that teaching aptitude is positively moderate correlation with teaching competence of science teachers in colleges of Education. Therefore there is a need to raise the level of teaching competency of science teachers. To improve the teaching competency of teachers following steps need to be taken:

(i) Teacher with better qualification in science subjects should be appointed.
(ii) Faculty development programme should be made more affective.

Therefore, it should be compulsory for them.

(iii) Regular in-service training should be organized for teachers. Training during vacations or regular seminars should be organized regularly to make the teacher conversant with the latest methods of subject teaching and solve their subject problems also.

2. In the present study it was found that the teaching competency and attitude of teachers towards teaching profession are associated with each other. Generally it is expected that the teaching competency of teachers will be higher or lower according to their favourableness or unfavourableness of attitude towards teaching.

3. On the other hand, the teaching competency is related to intelligence which can be observe or measured by the behavior of teacher in the class-room. It calls for hard works and preparation for teaching that is why there is almost negligible relationship between these two variables.

4. In the present study it was found that teacher effectiveness was not significantly related with the planning, presenting, closing, and evaluation, managerial and teaching competence of science teachers in colleges of education. In other words, the teaching competency and teacher effectiveness are not associated with each other. It is neither an expected nor a desirable finding. Generally it is expected that the teaching competency of teachers will be higher or lower according to their effective or ineffective of 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 colleges of Education. The present finding thus may be due to small sample of teachers taken for the study or there are different factors which affect the teacher effectiveness and competency of science teachers in colleges of Education in Haryana.

Among other programmes to shape out quality teachers and their teaching procedures, the first and foremost need is to identify factors that enhance teaching effectiveness by administrating teacher effectiveness scale. If definite predictors of teaching effectiveness are known precisely. It may be possible to help school administrators in their work. The study of teacher effectiveness give valuable information for recruiting teachers for employment, administration and management of schools and arranging and organizing programmers for professional growth of teachers.

The study has its implication for the organizers of educational institutions, administrations and planners of educational policies. Role of effective science teachers explicitly expressed the role of effective teachers and their teaching strategies for proper growth of future generations. There is a pressing need that the work of the teachers should be objectively assessed. Basically, some adequate criteria must be specified.

5.3 SUGGESTIONS FOR FURTHER RESEARCHES

Based on the findings and conclusions of the study and taking into considerations its delimitations, the following suggestions are made for further research in this area. In view of the gains and limitations that the study points out, a few topics may this stage be for further investigation:

1. The present finding thus may be due to small sample of teachers taken for the study or there are different factors which affect the competency and attitude of science teachers in secondary level teacher training institutions. Therefore, it needs further research on a large sample of science 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.
2. Studies may be conducted to study the behaviour patterns of science teachers in relation to gender, socio-economic status and other demographic variables.

3. Further studies also needed on general teaching competencies of primary, secondary and higher secondary trained and untrained teachers.

4. To study the general teaching competency, teaching attitude and teaching interest by pre-service teacher training trainees having different achievement in the qualifying examination.

5. The present study is delimited to science teachers working in self-financing secondary level teacher training institutions of Haryana state only. It will be worthwhile to replicate it on a larger sample consisting Government and Private Institute.

6. Further studies may be conducted on school environment, student self-concept, teacher job satisfaction, and their effects on student learning outcomes.

7. Studies may be undertaken by taking into consideration other variables like socio-economic status, emotional intelligence, locus of control, job-satisfaction, teacher commitment, organizational health and other variables.

The present investigation which is perhaps the first and the only available comprehensive study regarding the science teachers in colleges of education pertaining to study of variables viz. teaching competence, teaching aptitude, intelligence, attitudes towards teaching and teacher effectiveness, which will stimulates thinking and generate interest among the researchers. It is hoped that the researchers in future shall be encouraged to undertake further follow up work in these areas to improve the teacher training programmes.