CHAPTER VII

IMPLICATIONS AND SUGGESTIONS

7.1 EDUCATIONAL IMPLICATIONS OF THE STUDY AND RECOMMENDATIONS

The Government of India is making concerted and meaningful efforts to raise teaching to the level of profession. The President of India Dr. Shankar Dayal Sharma (1995) in his teachers day message highlighted the importance of teaching profession and said that it must rise to meet the challenges of enhancing the quality of education. 'It is through knowledge and learning that we can become competitive, improve productivity and strengthen our work culture'. India today confronted diverse challenges of change and advancement. "It is imperative that we produce a generation of talent and calibre". He described teachers as critical agents of social change. They are an inspiration and example for the building of character. They give us our moral bearings and shape our approach to life and its problems. They instill in us the difference between right and wrong.

It is the time that the country's intelligentsia, educational planners, educational administrators, educationists, politicians, teachers and parents should give some serious thought to what direction the country's education system should go, and what should be the place of
science in the school curriculum. They owe it to their children and to the future generations. The time seems to be ripe for a serious national debate on the future of science education taking in to a serious view of its past and present.

It is a fact that science education in Indian schools is not taught interestingly, hence it does not motive students. The following are some of the possible reasons for this state of affairs. (1) In a majority of schools, facilities available for science teaching are far from satisfactory. (2) Methods adopted are outdated and stereotyped. (3) Opportunities are very meagre for students to take up laboratory work in schools, particularly in rural areas. (4) Over crowded classes. (5) Research and innovations have not been built into school programmes, consequently schools are almost ceased to be a centres of inquiry. (6) In most of the schools science teaching is going on at oral and verbal level with occational demonstrations.

Therefore it is the high time that the Government departments, research workers, NCERT, SCERT and other institutes came forward with constructive plans and programmes and taking the following points which can inspire our students to learn science with all genuine interest.
(a) At the outset, science teaching should never be confined to the four walls of a classroom, instead students should be taken out to study nature, visit near by factories and other places of scientific interest to acquire first hand information.

(b) The existing science curriculum should be restructured and revitalised and accordingly modern methods of teaching should replace of stereotyped methods.

3. The schools should be provided with necessary facilities, such as building, laboratory, library, science kits etc. With these facilities the students should do independent laboratory work, under the guidance of science teachers.

4. We should see the ideal class strength is not more than 40 at secondary school level. If the classes are over crowded it is hinderance for practising novel ideas and methods of instruction in the classroom. The efficient classroom management is also not being realised. The individual attention has become only a theoretical aspect.

5. Students should be encouraged to participate effectively in all activities of the school specially in science clubs, science fairs, science museums and science exhibitions, so that they can come out with their latent talents.
6. Research and innovation should be made part and partial of the school programme.

7. Students should be given facilities to do independent work under the guidance of science teachers.

The above aspects were kept in mind while making generalisation and suggestions in the light of the results obtained in the present investigation.

The status of an Indian teacher in general, is really paradoxical and he is being treated as a race-apart. On the one hand society expects so many things from a teacher with regard to his values and behaviour, while on the other hand, the society ever provides the status which the teacher deserves according to his race which he plays in the society. This can be set right by giving top priority to 'Education' on the national agenda. The parents will have to love and respect the teachers, who, in their turn, should take their duties in right earnest and take intense interest in the welfare of their students.

From the huge bulk of past literature of research studies, it was found that the majority of the studies on teaching effectiveness were related with teacher's morale, values, job satisfaction, different institutional climates from distinguishing samples of rural, urban, male and female etc. The were also research reports that have attempted to explore the relationship among personality factors, attitudes and aptitudes.
This study was also designed and conducted in the same directions (which turned out to be a very useful and encouraging study in the field of education). The relationships among attitude towards teaching profession, aptitude in teaching and personality factors on teaching effectiveness.

The results indicated that the general level of teaching effectiveness among the science teachers is more than the average. Out of 200 science teachers included in the investigation, 84 science teachers fall in the higher class intervals whereas only 42 science teachers fall in the lower class intervals. This indicates that most of the science teachers are more effective in their teaching with the available facilities in their schools. But the actual conditions observed by the investigator were not up to the mark of satisfaction. Many of the secondary schools did not possess with adequate buildings, library, laboratories and A.V. aids which are supposed to be the fundamental essentials to develop their teaching more effective.

There is another scheme namely, 'Science improvement programme' by which all secondary schools are being provided with equipments at the cost of Rs.75,000/- each to develop science education at secondary level. The results of the investigation in this regard was so encouraging that the little resources could satisfy the science teachers and hence their teaching effectiveness was high in about 40 per cent of the sample. If the schools are
really provided with all such resources which are essentially needed, it is a challenge, that our science teachers will work with more zeal and interest to improve the standard of science education. It is a reality that more resources are better than fewer, but it is hard to discuss that any particular resource affects any particular outcome. Therefore, the essential physical facilities should be provided before any body thinks for the improvement of the quality of education.

No doubt teaching is a complex and creative art. Various characteristics of the individuals may have their influence on their teaching behaviour. In the present investigation, it is found that the following 10 characteristics are identified as the most important for effective teaching of science. They are: (1) Professional zeal and enthusiasm (2) Proficiency in teaching (3) Developing questioning attitude and intellectual curiosity in children (4) Skill in teaching (5) Indepth knowledge in the subject matter (6) Clarity in expression (7) Expert in conducting experiments and providing first hand experiences to children (8) Developing self-learning skills (9) Knowledge in child psychology and (10) Emotional stability and mental health. It is necessary to see to what extent the present pre-service and in-service training programmes are aiming at developing the above characteristics among the trainees. Therefore, it is suggested that all teacher education programmes should have a separate chapter viz., 'Effective teaching - concept, need, factors leading to teaching
effectiveness, distinction between ideal teaching or good teaching from effective teaching; introspection or self analysis' in its curriculum, so that the candidates would develop their skills in line with the requirements of an effective teacher.

It was found that the science teachers with lower qualifications were less effective in their teaching effectiveness than that of those with higher qualifications. Similarly less experienced and more experienced science teachers were found to be less effective in their teaching than the moderately experienced science teachers. Again the science teachers from moderately large families were found to be significantly less effective in their teaching than the science teachers from small families. Therefore, the SCERT, Teacher Training Colleges and University Departments of Education should conduct inservice courses such as workshops, seminars, conferences, refresher courses, and orientation programmes etc., to increase the teaching efficiency of all those groups of science teachers who were found to be less effective in their teaching.

A positive attitude of the science teachers towards their profession is so important and at the same time so intricate. A teacher who has a proper positive attitude will enjoy his profession and will at least attempt to deliver the goods he is expected to. Therefore, while selecting the candidates for teacher training colleges and teaching profession it is necessary to see whether they are
right persons to this profession. Even during the training period an attempt has to be made to enhance their attitude towards this profession.

Regrettably, at present there are no standardised aptitude tests available, that can be relied upon for selection of candidates neither for teacher training institutions, nor for recruitment to the teaching profession. Therefore, the present investigation is helpful to some extent in this regard. The following characteristics are kept in mind while selecting the candidates for teaching profession as pre-requisites. They are: cooperative attitude, kindliness, patience, wide interests, fairness, moral character, discipline, optimism, scholarly taste, and enthusiasm. There must be conscious effort to develop the above characteristics among trainees during the pre-service and in-service teacher education programmes.

With regard to personality factors it was found that there was very little impact of these factors on teaching effectiveness of science teachers. Only five factors B, C, F, O and Q₂ could bring significant influence on teaching effectiveness of science teachers. However, the earlier researches also disclosed that the personality factors namely A, C, F, L and Q₂ could influence teaching effectiveness. Therefore, the personality characteristics of effective and ineffective science teachers were not leading to any generalizations. Thus, the profile similarity coefficients (rₚ) of the science teachers working in
secondary schools was significant at 0.01 level. Therefore, it may be concluded that the two groups of science teachers who were more and less effective in their teaching were possessing almost similar personality profiles. Hence, the educational administrators need not bother much about the recruitment of teachers with a specific personality trait or other wise.

It could be possible to predict teaching effectiveness with the help of different sets of independent variables. Therefore, it is recommended that a series of surveys of this nature may be taken up with more number of variables by NCERT, University Department of Education and SCERT to identify those variables which are prominent in contributing to teaching effectiveness. Then, of course, it may be possible to list out those characteristics as a set of pre-requisite characters of an effective science teacher on the basis of which candidates would be selected for this profession.

Finally it is recommended that a Central Bureau of Vocational Guidance may be established at the state level. Advanced countries have already established such bureaus at various levels to achieve quality in education. The function of such vocational guidance centre must be to assist the individual to choose an occupation, prepare for it, enter upon and progress in it is rather very much necessary to reduce the existing in effectiveness among the inservice science teachers, and to prevent the ineffective teachers to
enter in to the teaching profession. So, a separate 'Central Bureau of Vocational Guidance' should be established to look after the manpower needs of educational system in the state. It should act as a mediating agent between teachers and other personnel involved at various levels in the process of education and as a coordinating organisation between different agencies of secondary education.

7.2 LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FURTHER RESEARCH

1. The study included only 200 science teachers of Chittoor district of Andhra Pradesh. Similar study may be conducted on a larger population of different regions in Andhra Pradesh.

2. The present study was the science teachers handling higher classes. Similar studies may be conducted on other teachers viz., social studies, maths and other subjects.

3. The study is limited to secondary school teachers only. Similar studies may be conducted on teachers of various levels viz., primary, upper primary, intermediate, teacher training colleges and degree colleges.

4. Only a few independent variables are included in the present study. There are still some more variables such as region, age, type of school, economic status of the parents, vocational interests, adjustment variables etc. Many such variables may be considered in the further research studies.
5. Teaching effectiveness could be measured in different methods like observation, residual pupil gain, personal and peer ratings etc., but in this study teaching effectiveness was measured by a composite index derived from the ratings provided by students and head of the institutions. Therefore, teaching effectiveness may be measured by other than the methods used in this study and the results may be confirmed.

6. The present study is confined to establish relationship between teaching effectiveness and a bunch of independent variables viz., attitude towards teaching profession, aptitude in teaching personality factors on teaching effectiveness of secondary school science teachers. However, separate investigations may be carried out to find out the relation between attitude towards teaching profession and teaching effectiveness, aptitude in teaching and teaching effectiveness; personality factors and teaching effectiveness, and the inter correlational studies among different independent variables.

7. In measuring the personality of teachers, at least two forms of 16 PF should be used to obtain more stable results. But in the present study only one form was employed because of the use of several other data gathering instruments. The future researchers may use at least two forms of 16 PF and the results may be compared.