CHAPTER - I

INTRODUCTION

1.1 Importance of Education in Human Life

Human life which is the best creation of God, has got two aspects: the biological and the sociological or cultural, while former is maintained and transmitted by food and reproduction, the latter is preserved and transmitted by education. Biological aspect is found in plant and animal life also. But the sociological or cultural aspect is the rare distinction of human life alone. It is only man who is capable of being educated. Through education, he tries to seek new ideas and new ways of life. It is again through education that he promotes his intelligence and adds his knowledge with which he can move the world for good or for evil according to his wishes. His life in the complex world is governed not only by the biological process, but also by a social process.

Education plays a vital role in giving human beings proper equipment to lead a gracious and harmonious life. Even lower animals make an unconscious effort to make their life happy by securing adjustment with their environment. Among human beings, the effort for self-improvement and making their life happy, and comfortable is conscious and deliberate. They try to secure happiness not
only at the physical, but also at mental and spiritual level. Education in the widest sense is this constant interactions between the individual and the environment. No good life is conceivable without education.

Ancient Indians considered knowledge as the third eye of man. The word 'Vidya' comes from the root vid (to know); it, therefore, means knowledge, science, learning love, education, scholarship and philosophy. A person who did not possess the light of education, was really described as blind. Education was thought of a veritable desire yielding tree. It was described a "man can discharge his debt to ancestors not merely by procreating sons but providing for their proper education."

The Rigveda regards "education as a force which makes an individual self-reliant as well as selfless." The Upanishads regard the result of education as being more important than its Nature. The end product of education, according to the Upanishads is 'salvation', Panini, the scholar and grammarian identified education as the training one obtains from nature, while Kannad, the ancient philosopher considers it to be a means of developing self contentment. Sankaracharya regarded education to be synonymous with self-realization.

The purpose of education is manifold one of its objectives is to prepare the people for economic development and overcome there by technical, cultural and social backwardness. To quote John Dewey "what nutrition and
reproduction are to physiological life, education is to social life."

"Education is the process by which an individual is enable to function according to the expectations of the society as well as according to his capabilities. Locke (1969) stated "plants are developed by cultivation and men by education." To Pestalozzi "it is the natural, harmonious and progressive development of mans innate powers." Rousseau recognises education as a process of development. It is the natural development of humanity, the spontaneous development of all our innate nature and faculties."

"Swami Vivekananda said "Education is the manifestation of divine perfection, already existing in man." To Gandhi "Education is the drawing out of the best in child and man - body, mind and spirit." According to Rabindranath Tagore "Education means enabling the mind to find out the ultimate truth which emancipates us from the bondage of the dust and gives us the wealth, not of things but of innerlife, not of power but of the love, making truth of its own and giving expression to it."

Education is the most fundamental requirement for overall development and alround progress of a nation. Education is a liberating force cutting cross the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.
In a democracy, education can be used for giving training in good citizenship. It can produce leaders in all walks of life. In a totalitarian setup, education is the most potent weapon for indoctrination. Under democracy education produces individuals capable of independent thought, judgement, self expression, originality and initiative. No wonder, therefore Aristotle declared that "Educated men are such superior to uneducated as the living are to the dead."

According to Smt. Indira Gandhi the late Prime Minister of India, education is a life long process. She hoped and wished that humanism should flourish through education. She described education as a process by which the inherent potential for excellence, creativity and receptivity which is present in all human beings would be developed to the maximum possible extent.

Emphasising the importance of education, the (Kothari Commission Report on Indian Education (1964-66) says "In a world based on science and technology, it is education that determines the level of prosperity, welfare and security of the people on the quality and number of persons coming out of our schools and colleges will depend on our success in the great enterprise of national reconstruction whose principal objective is to raise the standard of living of our people."

In the light of the above observations, it is no doubt that in the 21st century our society will be knowledge
dominant. It is the function of education to ensure that knowledge is widely diffused among the people, so that they may understand the use and direction of knowledge as power. In this respect education can no longer be limited to a few. For a knowledge based society the knowledge of science is indispensable.

1.2 Knowledge of Science on Human Life

Modern age is the age of scientific explosion. It is named as atomic age, age of technology or age of space travel. Scientific knowledge is advancing at astronomical speed, and this is the greatest characteristic of modern life. It has a great impact on human mind and human life.

Science is responsible for human evolution. Scientific discoveries from the prehistoric time have changed the course of man's life. Very recent studies of the protein chemistry of primates suggest that we and the Chimpanzee were one stock, ten million years ago, while the Chimpanzee has remained static, human brain undergone remarkable changes. More than a million, perhaps two million years ago, the human race went on from using rudimentary tools (which the Chimpanzee does) to making them and keeping them for future use. That discovery, that simple lunge in to the technological foresight, released the break on evolution which the environment imposes on other animals, and sent man off break neck at a speed unmatched in the three billion years that life has existed on earth. Step by step man
learnt the use of tools, tried to understand his environment and began grappling with environmental situations rather than making passive adaptation to it. Even now a host of animal species run, fly, swim and creep on earth, but all are locked in to their environment. Man alone has achieved enough of command over the environmental forces. Though biologically unable to do so, the runs at enormous speed, swims through ships and flies through planes. "In the past, man has moulded himself for the most part unconsciously, by changing the environment, but now he is able to command at least his immediate future with much larger understanding."

This has given him an optimistic vision, and he is confident of effecting a self-willed evolution.

Science has built scientific attitude through the advances in science. Man's vision has found new vistas, and crossed new horizons. He has come out of the narrow groove of circumscribed thinking. His mind has grown logical and radical and has refused accepting traditional dogmas without testing those on the touchstone of logic and reasoning. He has scoffed even religion as opium of man, because he found many religious practices contrary to reason and scientific discoveries. Astronomical discoveries nullified geneeses and metaphysics given in religious scriptures. Biological and psychological studies cancelled racial discrimination (i.e., discrimination of untouchability in India). These proclaimed men and women at par both mentally and intellectually, customs like Sati (in India), serpent worship, human sacrifice and early widowhood came under severe criticism of
those who had scientific bent of mind (e.g., Raja Ram Mohan Roy). Discoveries in Medicine exploded in truth about unscientific beliefs about measles, small pox, chicken pox, and such diseases. Earthquakes, cyclones, storms and appearance of comets are no longer considered as wrath of Gods. Man began to accept nothing unless it came out of the test of reason and scientific beliefs.

Science has changed the economic life. Every new scientific discovery is followed by new developments in economic life, with industrialisation in England, the people moved from the farm to the factory, from the country side to the big industrial cities and towns. Man has travelled in time from pastoral age to agricultural and thence to industrial age.

The green revolution in India is characterised by agro-industrial development and is followed by past developing industrial network in the country. Life has become more mobile. Urbanisation has taken place more rapidly. The field of vocation has stretched far and wide, and multitudes of new vocations have cropped up like mushroom growth. The average standard of life gone high, and there is greater and greater demand for more amenities of life. The developed countries have reached a peak of excellence in material prosperity, and the developing countries are marking long strides to copy the same. The geographical barriers of countries have vanished and communication has become a world wide phenomenon. The
resources of all the countries are being part taken by the human race. Researches in nuclear energies have brought forth new hopes for exploiting the national wealth for constructive purposes.

Science has changed the social life. The family life has changed, joint family has surrendered to individual family. The caste is diminishing. Village community is bearing a modern outlook. Urbanisation is spreading fast. Labour has become mobile, women are taking to professions more and more. Educated men and women believe that both husband and wife must earn. The traditional position of women is thus changing. More and more people are believing in family planning. Caste barriers in marriages are vanishing. Untouchability also is diminishing. Other caste restrictions also are losing ground. The scientific attitude is changing the social life also.

As explained above a prominent characteristic of the modern age is science based technology which helps modernisation of agriculture and the development of industries. Many countries have been able to raise their Gross National Product (GNP) very rapidly because of the investment in basic science. Their society has changed basically, and their social life has put on a modern scientific cloak. The very attitude and thinking has undergone metamorphosis, and the old moors have lost the battle. In this respect many developing countries like Japan have already surpassed many developing countries. They have
acquired greatest progress by making science education as an integral part of school curriculum. A Russian boy works in both in the school and the farm or factory A Japanese boy is in the school for half of the day, and in the factory for other half of the day Thus educationists proclaim that in all the countries science should be a basic component of education and science education must be given the highest priority.

1.3 The Place of Science Education in School Curriculum

Science is being taught in India from very early days. During the Vedic period surgery, nosology, anatomy, therapeutics, toxicology were taught in their schools as science subjects and given second importance after grammar. In Muslim period also prominent place was given to natural sciences after grammar and rhetorics. The modern period brings remarkable changes in scientific thought and tradition Modern science was introduced along with foreign language in school curriculum.

A few decades back, science was given a stepmotherly treatment and was considered to be a subject meant for less promising students, the more promising students were encouraged to study the classics and mathematics as being more worthy and suitable subjects. But now the situation was changed. Modern science brings a radical change from the medieval and ancient sciences, newer branches of science had been developed, experimentation developed as a full-fledged technique of acquiring
information, language of science had taken a definite shape, scientific institutions had been developed and technology had made decisive break through. Science has now established its claim to be placed in the school curriculum. It has now been recognised as a compulsory subject right from the elementary stage and now one of the core subjects at higher secondary stage.

Science education in schools is more so emphasised as it improves concept development, fosters higher cognitive abilities and skills besides promoting the spirit of enquiry and experimentation.

In the past decades, our science lessons were mainly reading text books and hearing the teacher's talk. There was practically no "seeing and doing". We never saw the various articles of science apparatus, except in the pictures given in the text books or the drawing on the black boards. But now conditions have greatly changed. The pupils have more things to do and learn and to hear with the help of more number of audio-visual aids.

With respect to science and mathematics in past days it is observed that the time provided in the time-table is not quite adequate, more number of periods were allotted to languages especially English language. But now the trend is changed. More number of periods were allotted to science and mathematics in the school time table with the other subjects.
The science courses in the past were mostly based on foreign books having no relevance or little relevance to the Indian scene. But now the science courses were designed with the relevance of Indian conditions. It must address to the problems of Indian masses for example, energy, health, hygiene, disease, nutrition, conservation, pollution etc.

The science courses of the past could not be very functional, because of lack of equipment, lack of teachers with proper attitudes, abilities and skills and the approach. But now most of the schools having well equipped laboratories and necessary science kits. These are helpful to teachers for demonstration as well as experimentation and gives the first hand experience to the students. The method of teaching is also changed from teacher-centred to child-centred.

Science is a way of thinking, an attitude towards the solution of problems, a means of solving problems as well as the product of investigation of natural phenomena. Both the processes and product of scientific thinking inevitably affect the way of living. Science is enquiry and enquiry activity is a trial and error process. Science seeks unity in diversity. The unity of all science consists in its method, not in its materials.

Jawaharlal Nehru said "My preferences are all for science. The world is a narrower place now and there is little to discover in it, so it seems. But that is not so, for science has opened up tremendous new vistas, which wait
to be explored, and of adventure there is no lack, especially in India today."

Besides preparing, through development of scientific attitudes for adjustment to a fast changing world, science is needed by us in a more direct sense as well. As mentioned by the UNESCO Planning Mission (1964) in their report entitled Learning to be, "The ever growing importance of science and mathematics for the economy and culture of any country and the ever growing knowledge every year in the field of science have set the urgent task before all countries of the world to provide modern science and mathematics education to the youth so as to prepare the young people for life for mastering technical, agricultural, medical and specialisations which are necessary for economic and cultural progress."

In Encyclopedia of Britanica (1951) it is given that "Science became one of the human activities that man has created to gratify certain needs and desires. The search for truth became the dominant motive in the prosecution of science."

The Scientific Policy Resolution of the Government of India (1958) stated "The dominating feature of the contemporary world is the intensive cultivation of science on a large scale and its application to meet the country's requirements."
The Secondary Education Commission (1954) strongly recommended the strengthening of science education as an integral and compulsory element in schools. In its words "Science education should aim at awakening the natural phenomena around them at developing their capacity for practical application of their knowledge, at appreciating the tremendous impact of modern science on all aspects of our life and at creating an interest in them in the human side of scientific progress by introducing them to the lives of the great scientists."

Kothari Commission (1964-66) stated that "The progress, welfare and security of the nation depend critically on a rapid, planned and sustained growth in the quality and extent of education and research in science and technology. Science is universal and so can be its benefits. Science represents a cumulative and cooperative activity of mankind and its rate of growth is extremely rapid. The knowledge of science is doubling in a period of ten to fifteen years.

In view of the emerging importance of science education an approach paper relating to curriculum for the ten year school issued by the NCERT which states "There is hardly any need today to justify the place of science in a scheme of general education for school children. Science is in all pervasive. Modern societies exists on the basis of science. Science is intimately related to the means of production and means of communication."
It is time that the country's intellegetia, educational planners, educational administrators, educationists, politicians, teachers and parents should give some serious thought to what direction the country's educational system should go, and what should be the place of the science in the curriculum. To quote this the late Prime Minister of India Morarji Desai, while addressing the members of the Review Committee on the Curriculum for the ten year school at New Delhi stated "The books that I did carry in college are being carried by school students today. The students of science almost doubles every decade. We are to keep pace with this new development. Then the problem is how much knowledge in science should be given to a child at a particular level, so that he is not burdened.

Thus science has now become a compulsory subject in the school curriculum because of its multifarious value to the individual as well as the society. To teach such a valuable subject in the school we need a well qualified and efficient science teachers.

1.4 The Role of Science Teacher

The impact of science on life has its repercussions in every country, and hence in every country, science teaching is on the march. It is realised everywhere that the study of science is an essential part of education and hence it is necessarily included, along with other subjects in the curricula for school courses, and as much attention is being given to it as was given to study of
humanities in the olden days. Further a good knowledge of science is recognised as a necessary equipment of the citizens of tomorrow, hence it is said that teaching of science should be introduced even in the initial school days called as 'environmental studies' and promoted in such a way as to create interest and enthusiasm for it amongst the pupils and inculcate in them the capacity for thinking on right lines. The significance need can be seen from the fact that even the advanced countries of the world are concentrating their attention on the improvement of science teaching in schools.

The Education Commission (1964-66) of India has appropriately remarked that "If science is poorly taught and badly learnt, it is little more than burdening the mind with dead information and it could degenerate even into a new superstition. What we desperately need is the improvement in the standard and quality of science education at all levels in the country."

One of the starting point in science teaching should be that the science teachers should always keep in mind why he is teaching and why the student wants to learn. He should never forget that a child starts its education with an in-born interest in science. Trains, electricity, planes, rockets and other inventions of science give every child an interest in science and so it want to know something about this subject. The whole range of science is pure interest is always kept alive in the students. The
teacher should teach science in such a way that the student is continuously interested in science.

For an effective and efficient teaching of science we need well equipped science laboratories and more important than this we need well qualified science teachers. The quality of education depends mainly upon the quality of the teacher and not on the material facilities only. An efficient and resourceful science teachers can carry on his work quit efficiently even with inadequate science facilities. But it is rather a sad commentary that the continued failure to recognise and reward merit, and salary scales which always keep teachers below the margin of subsistence have all conspired to bring about a sense of frustration among science teachers. The result is an attitude of indifference towards effective science teaching. It is, therefore, of primary importance that the plight of the science teacher should be improved first in order to make the science teaching most efficient and effective.

The primary responsibility of a science teachers is to open the eyes of his pupils to the inexhaustive wonders of the country side by side and give them the instruction and practical experience by which its economic resources can be stepped up and improved. Such a teacher is a far greater benefactor of the community than one who mechanically marches his students down to the lane of an academic discipline.
The science masters should have a flair for the study of modern developments in science and an infectious enthusiasm for communicating it in meaningful terms to his young pupils. Inculcating an attitude towards science in young minds is far more important than putting them through examination routine.

Science masters should be afforded facilities to visit national laboratories and research institutes and see for themselves something of the country's efforts towards scientific achievement. Research scientists should be invited to high schools and requested them to describe their work to the young pupils in an easily understandable terms.

For the emergence of a mentally healthy and sober democratic society we have to enlightened citizens. A good part of the enlightenment has to do with science education a grasping of the basic character of science and an appreciation of its achievements and its perils. The foundation for this had to be laid in our secondary schools. The science teachers there in have an onerous, exciting and a rewarding responsibility in this missionary work.

The Secondary Education Commission has aptly remarked, "We are, however, convinced that the most important factor in the contemplated educational reconstruction is the teacher, his personal qualities, his educational qualifications, his professional training and the place that he occupies in the school as well as in the community. We are painfully impressed by the fact that social status, the
salaries and the general service conditions of teachers are far from satisfactory. In fact, one general impression is that on the whole their position today is even worse than it was in the past. It compares unfavourably not only with persons of similar qualifications and other professions but also, in many cases with less important and socially less significant duties. We are convinced that if the teacher's present mode of discontent and frustration is to be removed and education is to become genuine nation-building activity, it is absolutely necessary to improve their status and their conditions of service."

Swami Vivekananda wanted to combine western progress with India in its spiritual background. He said, "Make a European Society with India's Religion." "Be an accidental of accidentals in your spirit of equality, freedom, work and energy and at the same time a Hindu to the very back bone in your religious culture and instincts." The task of spreading scientific knowledge and building up habits of thought and action in consonance with what Swami Vivekananda has said, devolves upon the secondary school science teachers more than on any body else.

A science teacher is a teacher first and then a science teacher. As a teacher he should be understanding, sympathetic, reachable and free of prejudices. Science teaching requires a sound knowledge of the subject and a real interest and ability in sharing this knowledge with others. It also requires keeping up-to-date knowledge in
that subject. The work is not easy, but it is creative, and it can be extremely exciting and satisfying. It takes thought, energy, and enthusiasm.

The high school teacher of science is a specialist. Hence, he often is interested in making specialists of his students especially those who appear to succeed well in their study of science. At the same time he may permit the weaker students to fall by the way wide. Much intellectual guidance is needed by the learner in science on the high school level. The principle of integration should be stressed raise and the previous experiences of the learners should constitute the basis of teaching.

Science lends itself easily to motivation by the alert teacher. The biology teacher has his special equipment his models, his specimens etc. The physics teacher is equipped with material and machines and the chemistry teacher has his compounds and elements. Any of these become an immediate source of interest to learners. However, since careful organization of material and well-considered drill are essential to the mastery of science, it is what the teacher does with, what he has that counts.

Mainly through the inspiration of devoted science teachers, great number of students develop life long scientific interests and learn to appreciate and understand the nature of science and its usefulness to mankind.
1.5 The Criteria of Teaching Effectiveness of Science Teacher

Good teaching depends on the attitude and the skills of a teacher. The teacher who has faith in democracy, who believes that children by nature are good, who has confidence in the reasonableness of the youngsters and who is full of hope for the future of mankind, will teach in a completely different way than a teacher who staunchly believes in particular faith, who believes that mankind is born out of sin and who is determined to keep them under strict discipline.

The first kind of teacher is considered a good teacher and is liked by his/her pupils.

Examination result is one tool with which teaching effectiveness is determined. There was a time when teachers were thrown out of job for producing poor results. But now educationists have realised that examination is not a very reliable tool even to assess the pupils performance, leave alone the assessment of teacher's efforts or effectiveness of his/her teaching.

Another parametric can be the supervisor's or administrators opinions about the teacher's effectiveness. This again is not very reliable as opinions are much biased more often than not. Popularity among the pupils can be considered one of the determinants of effectiveness, since mutual affection has a good effect on the learning outcomes.
Knowledge, training, participation in school activities, personality and many other factors are the determinants of effectiveness.

A number of studies have been carried out to study teaching effectiveness. Mitzel (1960) proposed three categories of criterion on the basis of product, process and presage variables.

(1) Product criterion

In this criterion the pupil's gain is considered as the basis for teacher effectiveness. Although, theoretically the product criterion is important. It is surprising that a few studies used the measure of student growth as the operational definition of teacher's competence. Barr's summary of 138 studies published in 1948, listed only 19 different investigations in which a measure of student gain was used as a criterion. In 1956 Mitzel and Gross found only 20 studies which had used a student growth criterion to measure teacher effectiveness in elementary and secondary schools.

(ii) Process criterion

It considers both - teacher and student behaviour in the classroom. The interaction between them appears to be the dominant aspect of the whole process of learning. This criterion was also not found frequently in the studies devoted to predict the teacher effectiveness.
(iii) Presage criterion

In a sense they are pseudo criteria, for their relevance depends upon assumed or conjecture relationship to their criteria, either on process or product variables. The bulk of research on teacher competence has employed dependent variables which fit in to this category.

Huntley (1976) in an article discussed the difference between extrinsic and intrinsic classification methods and in doing so throws light upon the process by which we discern quality. Students observe their teachers over a period of time, they compare them to other teachers they have had, and they, generally unconsciously, evaluate them and re-evaluate former teachers in the light of such comparisons.

Teaching is a public activity that refers directly to those taught, rather than to a list of criteria. Thus it may be concluded by quoting the views of Verble (1979) that, in any given school and no matter how they may be rated on a pseudo objective scale, good teachers are those whom students think are good and bad teachers are those whom are considered bad by their students. And everybody in the school and the community - knows who they are.

1.6 Aptitude for Science Teaching

After Independence India is making an alround rapid progress in all aspects of human affairs and education
and training are considered as the important means for the continuous supply of new knowledge, skills and values, so as to master the challenge of the new situations. In a developing society, very heavy demands are made on education and a great deal depends on the teacher's role and performance in insuring the goals of education. Today the teacher is required to go beyond transmitting the knowledge of science with accumulated facts to explore the potential abilities of the students and develop them accordingly to be deserving citizens of a sovereign, secular, socialistic and democratic India, by building scientific attitude and good moral character, instilling in them the virtues of tolerance and seeing that they do not fall a prey to untouchability, communalism, provincialism, religion, language and fanatacism. Teachers also have to organise and coordinate teaching and learning process in the community and make active educational efforts in the field of health, general cultural development and citizenship education. Therefore, as stressed by the Education Commission (1964-66) "Of all the different factors which influence the quality of education and its contribution to National development, the quality, competence and character of teachers are undoubtedly the most significant. Nothing is more important than securing a sufficient supply of high quality recruits to the teaching profession."

The National Policy on Education (1986) has placed immense trust in the teaching community, teacher competency, accountability, aptitude and favourable attitude to the
profession are to be ensured before training or recruitment of teachers takes place. The competency of the teacher depends on his/her knowledge of the subject area, psychology of children and adolescents and research and development. The Report of the Committee for Review of National Policy on Education (1986) (Popularly known as Acharya Ramamurthy Committee) recommended that selection of students should be regulated through stringent aptitude, and attainment criteria and not merely on University grade or marks. Effective steps have to be taken so as to develop in student qualities such as empathy, an attitude towards teaching profession and society and other cherished values.

Therefore, in the interest of a successful, meaningful and developing educational system for the country, it is absolutely essential that the choice of the teachers is made properly, scientifically and objectively. Secondly, even after the choice is made, if the ability of the teaching class as a whole is to be improved, then there should be standardised system to assess their effectiveness and to suggest ways and means of better performance. If the desirable characteristics are to be developed in teacher trainees the trainees need to have the aptitude for these characteristics. In the absence of the aptitude these may not be developed to the required levels.

According to Good (1959) in the Dictionary of Education, aptitude is described as a pronounced innate capacity for or ability in a given line of endeavour, such
as a particular art, school subject, or vocation." In the same volume, capacity is defined as, the potentiality of a person for a given function as conditioned by the total pattern of causes: partly hereditary and partly environmental. Ability is defined as "the actual power present in an organism to carry to completion any given act or to make adjustments successfully.

In the Dictionary of Education Derek Rowntree described Aptitude as "An individual's ability to acquire a particular or general skills which he has not yet acquired, e.g., mathematical aptitude or mechanical aptitude. Indicates potential level (and or speed) of achievements, rather than present achievement.

Teaching aptitude is a person's potential for teaching, the sum total of all the traits and abilities which are needed for success in teaching. A person who has a good proportion of the traits and abilities required for becoming a successful and effective teacher like high mental caliber, real interest in the profession, an adequate grounding in the subject matter, willingness to improve professionally, skill in experimentation, love and thirst for knowledge, creativity, interest in reading and love for children may be said to possess an aptitude for teaching.

In view of the urgent need for revamping the educational scene recruitment of teachers with high aptitude for science teaching assumes great importance. It may be possible for the teacher training institutions to do better
job if candidates with high aptitude for teaching enter their portals. A knowledge of the specific aptitude factors that have strong influence on teacher behaviour may help the training institutions in their selection process. A study of this kind may reveal in the present investigation what are the aptitude factors may influence the teaching effectiveness of science teachers.

Therefore, the above paragraphs show that a science teacher has not only a right aptitude for his teaching but also a positive attitude towards his profession, which is of an utmost important for the progress of the educational system.

1.7 Attitude Towards Teaching Profession

Before we consider the profession of teaching it is good to consider, at first, what a "profession" is? A 'profession' is a work pursuit, one person's effort to find out a place in the work-a-day world. It is the kind of occupation which in by gone times, was termed as "vocation" a "calling" (Cook, C.A. and Cook, E.P., 1930).

There is much difference between a profession and an occupation. An occupation in any type of activity which a number of persons give themselves to and accept regular payments for, here, there is a sort of bargain for the amounts of work the individual turns and there is no selection or prescribed qualification. But a profession is a specialized type of occupation which requires training and
for admission, a formal standards of achievement and a certain code of ethics are to be maintained.

It is needless to mention that attitude of a teacher, or any worker for that matter, towards his profession is an important aspect that helps one to feel well in his job. For example, a Zealous teacher may ignore many negative aspects of his job as trifles, though they may cause intense dissatisfaction to an ordinary teacher. A favourable attitude towards teaching is likely to prove helpful to teachers in maintaining harmonious relations with their pupils, characterised by mutual affection and sympathetic understanding.

Though teaching is considered to be the noblest of all professions, it requires keenness, intelligence, practical skill and a high sense of duty and integrity. Therefore drawing in the right type of persons for the profession, is of utmost importance for the progress of the educational system. Only right type of persons can perform the right type of work.

According to Best (1948) persons who choose teaching as a profession believed teaching to be more secure, the profession to be less over crowded, that there was less physical strain, more opportunity for proper home life, more adequate life time income, that it was easier to gain the needed education and that there was less opposition from parents and relatives than with certain other profession.
The whole question of teachers selection, role, status, quality and teaching has gone in to depth in the two teachers commission set up by the Government of India (Teachers and Teacher Education, 1985). Proper selection and training of teachers is now a universally accepted idea and is considered to be essential for improving teacher effectiveness (Adawal, S.B., 1973). Hence, it is realised that only those people who have a favourable or positive attitude to acquire admission in to the college of education. Therefore it is felt extremely necessary to measure the attitude score of those students who seek admission in to college of education. The Secondary Education Commission (1952-53) rightly remarked "the programme of teachers training can engender the knowledge, skills and attitudes which will enable the teacher to begin his task with a reasonable degree of confidence and with the minimum amount of experience" So it is found necessary that at least attitude of student teachers undergoing the B.Ed. programme should be measured so that in cases where a negative attitude towards teaching profession has been found in the training programmes and activities in the college of education could be so changed and so modified that a positive attitude towards teaching profession can be cultivated in them.
1.8 Personality Factors of Science Teaching

It is a popular belief in our country that much of the indiscipline and frustrations among youth are partly due to the fact that our educational institutions have failed to produce the right kind of teachers. The teacher is a pivot around which the whole endeavour revolves. Teachers are the real architects of the nation who provide the mould in which the nation's character is cast. It is they who, by their character and conduct leave an indelible impression on the students of today who are the citizens of tomorrow.

In schools teachers are engaged in a modifying the personality of their students. Teachers own personality and attitudes affect the children's behaviour patterns and thus ultimately shape their personality (Hurlock, 1986). It can be said that the personality traits of the teachers and the characteristics which a teacher has, may be obtained by him through inheritance or later acquisition.

The task before the teachers in modern society is very formidable and complex. The teacher has not only to equip the child with the tools of learning but has also to impart various skills as well as qualities so that the child is able to adjust himself in the rapidly transforming society. Further, the teacher has also to play a role by which he is able to help the child actively and intelligently participate in the cultural revolution of today. For this reason the teacher's personality to which one could refer: But one can conjecture and point out
certain personality traits which the teacher should have, so that those traits of his personality help him to play important and helpful role in his professional task.

Personality is defined by different psychologists as follows.

Cattell (1962): Personality is that which permits a prediction of what a person will do in a given situation.

Eysenck (1970): Personality is the more or less stable and enduring organisation of a person's character, temperament, intellect, and physique which determines his unique adjustment to the environment.

Guilford (1959): An individual personality then is his unique pattern of traits. A trait is any distinguishable relatively enduring way in which one individual differs from another.

In order to understand personality and its proper connotation, it is to be taken up from biology, sociology, psychology and allied sciences. In fact, personality is formed out of biological, sociological and psychological elements and so all these sciences contribute to the proper assessment of the meaning of personality. What is the attitude of a person towards society, what is the shape of physical, psychological, moral and emotional development of an individual as the integration of all traits which determine the role of the status of the person in society.
Personality might be therefore, described as social effectiveness.

It is difficult to summarise the studies involving personality because it is difficult to compare the variable, and the instruments for measuring personality except in a crude way. There is however, some evidence in the researches that certain personality mal-adjustments such as social introversion and fear have a negative relationship with teaching success. There are also indications that some of the common measuring devices do not efficiently differentiate the performance of the teachers. Therefore personality is also one of the variable to measure the teaching effectiveness.

Teaching effectiveness is being multi-dimensional it can be determined with the help of above psychological variables i.e., attitude, aptitude and personality factors. It may also depend upon personal and demographic variables and institutional and situational factors.

1.9 The Area of Present Study

The search for effectiveness in teaching has been a focal point in educational research for decades. There is as yet no comprehensive theory of teaching and no generally accepted criteria for evaluating teaching effectiveness in general and effectiveness of science teacher in particular - R.S. Adams (1970).
But still so much of research work is being carried out on teacher effectiveness to find out the solutions for various problems in teaching-learning process.

Morsh and Wilder (1954) concluded after receiving research on teaching effectiveness published between 1900 and 1952 that "No single specific observable teacher act has yet been found whose frequency or percent of occurrence is invariably significantly correlated with student achievement.

In other study by Lomax (1972) who quoted Mitzel as "although we have seen more than half a century research in the field of teacher training, no standards yet exist which are generally agreed to be the criteria of teaching success. He declared that the task of identifying effective teaching was crucial to teacher education, certification, selection and promotion. Barr (1949) pointed out that evaluation of teachers was, is, and always will be carried on. It is an incumbent on us to improve the process.

The famous study of characteristics of teachers by Ryans (1960) is a classic example of criterion approach of research on teaching. In a number of studies, teacher effectiveness is sought to be predicted by means of multiple regression equations involving the use of variables such as teacher's personality traits and environmental factors. Charters (1964), after stating that the teaching learning process is affected and shaped by a tremendous variety of forces originating in the social environment, concludes,
"Decades of empirical research have failed to identify unequivocally the behaviours which define effective teaching much less to establish an association between such behaviours and enduring personal attributes of teachers."

Early researches on teacher effectiveness tended to focus on the relationship between presage variables and product variables, so called 'black box' research (Mc Namara 1980). However, the last decade has seen an overwhelming emphasis on classroom process as the focus of attention, with a vast number of studies exploring the relationship between process variables and product variables (Bonch, 1979).

Members of Selection Boards, Educational departments and faculty members are worried about the selection of good candidates and elimination of bad teaching staff of various subjects because the success of any system of education depends upon effective teachers. But to achieve it no proper and adequate means of evaluating student teachers prior to the completion of the course are available. The problem is complicated more by the fact that those concerned with the actual selection of the candidates, do not have adequate tools and techniques to select suitable for the teaching profession.

In view of the above observations there is a great need for improving the standards in the school. Therefore the present study "Impact of Certain Socio-Psychological Factors on Teaching Effectiveness of Science Teachers" is
proposed to analyse the different aspects of science teachers - his aptitude, his attitude towards teaching profession, his personality and his teaching effectiveness. By studying these factors it may be possible to establish the pre-requisite characteristics of an effective science teacher. As it has been already reported that an effective science teacher can do his work more efficiently. His effectiveness depends upon many variables namely, his personal demographic and psychological variables and his personality characteristics. Hence the purpose of the present study is to develop a tool to measure teaching effectiveness of science teachers and also to understand the type of relationship between the effectiveness, aptitude for teaching, attitude towards teaching and their personality characteristics. Further the study aims at providing some mathematical models with which it can be predict the teaching effectiveness of science teachers. Such models may be used in selecting the candidates to science and providing them the suitable training which may help them to become effective science teachers.

1.10 Resume of the Succeeding Chapters

Chapter II deals with a brief review of research work done in this field. Chapter III gives an account of the statement of the problem, and a little description of the variables that are considered in this investigation and the different hypotheses to be tested.
Chapter IV gives an account of methods of investigation, development of the data gathering instruments, pilot study, item analysis, reliability and the validity of the instruments, final study and the sample of investigation.

Chapter V deals with the results and discussion. It includes (1) Description of the distribution, (2) Influence of personal and demographic variables on teaching effectiveness, (3) Influence of attitude and aptitude in teaching on teaching effectiveness, (4) Influence of personality factors on teaching effectiveness, (5) Personality, personal, characteristics of less and more effectiveness and (6) Prediction of teaching effectiveness.

Chapter VI deals with summary of the investigation, major conclusions arrived at. Chapter VII gives the educational implications of the study and the suggestions for the further research.