CHAPTER 1
INTRODUCTION

1.1 GENERAL

Teaching is a very noble and challenging profession and teachers are the
kingpins of any educational system. Kothari Commission (1964-66) reported that
the destiny of the nation is shaped by the teachers in the classroom. Teachers need
to be professionals in their roles and responsibilities to meet the changing needs of
the society as teaching unfolds the world of knowledge and provides a variety of
experiences to learners for their better growth and development. The personality of
the teacher is also a very significant factor and is said that teachers affects eternity.
Nobody can tell where their influence stops. National Policy on Education (N.P.E)
1986 says that, “No Nation can rise above the level of its teachers”. Therefore,
teacher educational programs need to be planned to ensure high quality and
indigenousness in nature. In spite the systematic and conscious initiatives taken by
the Government of India from time to time, to bring quality in the teaching
profession, yet reaching this goal remains still a dream in teacher education.

The programs, mostly are asked on borrowed models from advanced
nations. Hence, they do not equip the teachers to deal with the changing classroom
requirements. Most of the students who are getting admission in B.Ed. One year
and two year course do not possess adequate aptitude for teaching. As reported by
various researchers the kind of teacher education programs offered in the country at
present do not produce competent and resourceful teachers, That is why all
Committees and Commission on Education have emphasized the importance of the
preparation of indigenous quality teachers for all stages of education.

Education Commission of 1964-66 stated that “A sound program of
professional education of teachers is essential investment to bring a quality change
which will further result in improving the quality of education of millions who are
enriched in the system”. According to National Curriculum Framework (2005), a teacher is a facilitator and a guide in the process of construction of knowledge. The teachers of modern high tech society need to provide directions for acquiring knowledge to their pupil according to their interest. A teacher who merely reproduces bookish knowledge mechanically what is in the textbook can never deliver the good sand inspire without proper inspiration, independent creative ability will never develop. Tagore further stated that the teacher must also understand the importance of the relationship of his knowledge with an actual life situation: only then he can guide his pupils in the right direction.

The teacher education program should make the student teachers realize the dignity of the teaching profession so that they can serve the society with greater accountability towards right change of society. “The true textbook for the pupil is his teacher” (M.K. Gandhi). The right kind of teacher is one who possesses a vivid awareness of his mission. He not only loves his subject but also loves those whom he teaches. According to Gandhiji “A teacher’s work lies more outside than inside the classroom. Let them fashion their heart rather than brains. In our social organization, we are searching for a guru who will give peace to our life, emancipate our mind for imprisonment”. According to American writer Van Duke “knowledge may be gained from books, but the love of knowledge is transmitted only by personal contact”. Hence it is expected from teacher educator that they would inspire universal and humanitarian values among students oriented towards scientific learning, rational inquiry, spiritual growth, sense of initiative and social justice. The teacher is regarded as the spiritual and intellectual father of his students. It is the function of the teacher to lead from the darkness of ignorance to the light of knowledge. “The lamp of learning was concealed under a cover and the teacher removed it and let out the light. The role of teacher in the emerging society will definitely change from what it is today. Teachers have to develop competence to help the learners to accomplish their own potentials. In the contemporary society teachers need to be through professionals and fully equipped with high academic standard pedagogical, practical skills and ethical values.
Competence in teaching is a must for teachers. How can we promote this competence is the major problem? If we produce incompetent teachers it is going to ruin the community and the nation as a whole. In the words of Anandamoorthy, “you can remove a bad Prime Minister after 5 years, but you cannot remove a bad teacher till he attains the age of 55”.

A proper teacher perception program should enable the trainees to acquire the basic skills and competence to become a good teacher. Improving the quality of teacher education to ensure effective teaching and learning for student is a world is a world agendum. The quality of school education is the top priority directly linked with the quality of teachers and teacher education system. Therefore quality improvement of our teacher education program is the indispensable need of the hour.

Education is a dynamic force in the life of every individual influencing his physical, mental, emotional, social and ethical development. Education implies experience, insight and adjustment on the part of the learner as he is stimulated towards growth and development. In the world of Pestalozzi. (1948) “ Education is a natural, progressive and harmonious development of the faculties of the individual-head, heart and hand”.

According to the Dictionary of Education “Education is the social process by which people are subjected to the influence of a selected and controlled environment so that they may obtain social competence and optimum individual development.

Mathew stated that, “No system of education, no syllabus, no methodology, no textbook can rise above the level of its teachers. Saiyidian observed that “The more I see of educational work good work and bad work, the more emphatically, I feel that the quality of the teacher in an educational system is more important factor than all the educational factors put together -syllabus, textbooks, equipments and buildings”. 
The UNESCO-ILO Document on Status of Teacher (1967) states that “It should be recognized that the advancement in education depends largely on the qualities and abilities of the teaching staff in general and the human, pedagogical and technical qualities of the individual teachers”.

In order to keep pace with the changing time, various theories of learning, techniques of instruction, psychological principles of learning and psychology of learners, experiments and research in learning and teaching, etc., should be needed. But if a teacher possesses all these things and if he/she has an unfavorable attitude towards teaching then all these things would go in vain. Hence teacher’s attitude may be a very influencing factor in teaching effectiveness.

In the words of, Rajput (2005), “Teachers are the most critical agents of change, responsible for growth, development and progress of societies and communities. They prepare the next generation, and the level of their commitment, devotion and dedication determines the future society. The role of teacher is changing in current times, characterized by globalization and liberalization and vast expansion of new information and communication technologies. It is essential that all issues critical to the preparation of competent, committed and willing to perform teacher to be examined, in depth, by all stakeholders in the field of education. Teacher education has to respond to the challenges of expansion, universalisation of elementary education and overall quality of school education. Changes in policies, practices, curriculum, research areas and priorities in teacher education need to be continuously examined. The induction training and recurrent in-service education of teachers, utilizing new techniques and technologies can be greater contributing factors”. In this context, it becomes very essential to explore the area of teaching competence needed for modern Indian teachers.

Education has become vital in the development of the individual and in the progress of a nation in particular and the world in general. The word ‘education’ has a very wide connotation. In its fundamental sense it is life itself. Liberty, equality, fraternity and justice constitute the core framework of a new social order. It is the work of a new social order envisaged as democratic socialism, promotion of
the dignity and worth or the individuals, social, economic and political justice, conscientious critical thinking, health for all scientific and rational outlook in life. Education has a very important role to play in preparing the path to bring about the patterned changes. And it is rightly pointed out by the Education Commission (1966) that “the very aim of education is no longer taken as concerned primarily with the imparting of knowledge or the preparation of a finished product, but with the awakening curiosity, the development of proper interests, attributes and values and the building up of such essential skills as independent study and the capacity to think and judge for oneself without which it is not possible to become a responsible member of a democratic society”.

An enlightened society consisting of able citizens is not something that can be created from nothing, but it is possible only through a carefully planned and implemented educational program. Education is a sub-system in the society created with specific purposes. The educational system revolves around the main pillars of the teacher and the pupil. So the qualities and abilities of a teacher have a crucial role in training the future citizens through a formal education system.

Torrance (1962) held the view that “the avowed purpose of education had long been the development of fully functioning minds with the expanding concept of human intellect which has become dramatically clear through research on learning and thinking style. The development of fully functioning must include the development of creative thinking abilities, which now received little attention in education”. This clearly indicates the kind of goal to be achieved as a result of education and high aptitude teachers with high teacher effectiveness are required to realize these goals.

Well defined effective teachers are sine-qua-non on the part of a teacher to maximize the output of any teaching-learning activity. The teachers have to be specially trained in these academic performance through well organized teacher training programmes.
According to Education Commission (1966), “The destiny of India is now being shaped in her classrooms. This, we believe, is no more rhetoric”. In this world based on science and technology, education determines the level of prosperity, welfare and security of the people. The number of quality persons coming out of our schools and colleges determines our success in the great enterprise of national reconstruction. The importance of teachers in influencing the quality of the educational process and its product is beyond question. It is in this context that the teachers are called upon to play their crucial role in the reconstruction of education generating innovations.

It is an accepted fact that a strong need is felt for teachers of high level of teacher effectiveness in all phases of education. Characteristics associated with good teaching are aligned with skills, techniques, abilities, aptitudes, knowledge and academic preferences. As these factors are very essential in teaching learning process, they are to be developed by the teachers through organized training programs and other means.

1.1.1 The Concept of Teacher

Mata Pita Guru Theivam (Mother, Father, Teacher, God) The teachers were given the equal status with God “Teachers are the back bone of any country, the pillar upon which the aspiration of students are reconverted into realities, The teachers must be perceptual seekers of intellectual integrity and universal compassion”. Dr. Abdul Kalam

“I believe there is no other profession in the world that is more important to society than of a teacher” – Dr. Abdul Kalam. The teacher performs multifaceted function. She/he guide, understand, inspires, clarifies, facilitates, shares, serves as a role model, and touches and transforms the life of a student with care and compassion. The teacher is conscious and aware of the reality around him/her. The teaching has to be contextualized and made contemporary. A teacher should have the courage and the commitment to be different.
According to Indian culture and tradition the teacher has assumed a position second none to God. As Aurobindo (1910) puts it, “The teacher is the Prophet of the True God and the users of the true kingdom of God”. According to Crow and Crow (1973) “A good teacher and the quality of his teaching has always been of paramount to a free man and to a free society”.

For being a good teacher, one must first be a learner. A learner should have an urge to keep on learning and wants to access the best study material from various sources such as senior teachers, library, internet, participate in seminars, conferences, group discussions and so on. For being an effective teacher, one has to be alive in the field by constant reading to update the subject knowledge and pedagogical issues. The subject mastery of a teacher is an inevitable quality in teaching effectiveness. The teacher should continuously enhance his own quality of teaching. For teaching social science, the teacher should not be a master of history, political science, economics, but also makes the topics relevant to the students by giving contextual examples. The teachers’ ability depends upon the mastery of the subject knowledge, understanding of the educational process that suits the needs of a variety of learners in a class.

The teaching process of interaction between the teachers and taught. A successful teacher needs certain qualities: he must be a master in his chosen subjects. Studies have reported that importance of subject knowledge plays a vital role to get desirable changes in the learners. National Curriculum Framework (2005) reiterated that the teacher should have mastery of the content along with pedagogy for making teaching more effective.

Arora et al. (2000) in their article “Training needs of Primary School Teachers”, concluded that inadequate knowledge of teachers in the content and pedagogy made it difficult to transact the curriculum effectively in a classroom situation.

Buch and Aggarwal (1969) in the article titled “Measurement and competence of teachers of primary school” has remarked that the teachers did not possess adequate knowledge of the subject to be able to teach competently.
The special function of teaching is to impart knowledge, develop understanding and skills. It is a relationship which is established among three focal points in education, which is the teacher, the student and the subject matter. In this process, the teacher should bring the subject matter and the students together. It is the complex art of guiding students through a variety of selected experiences towards the attainment of appropriate goals. The teachers’ immediate task is to communicate new information, to review the material to ensure that it is accessible to children’s knowledge. This is essential to keep children active, interested and engaged in learning. Leinhardt and Smith (1985, 1991) have suggested that whilst many knowledge systems exist, fundamental to teaching and learning are areas of knowledge of lesson structure, and knowledge of subject-matter. The subject-matter knowledge includes the basic fact concepts, principles and generalization and lesson structural knowledge involves knowledge for conducting lesson, general routines for interaction with children. Subject knowledge support lesson structural knowledge providing the content to be taught, accessed during planning and in the course of teaching.

1.1.2 Teacher and Education

Education is regarded as synonymous with learning as an acquired experience of any intellectual, emotional or sensory motor activity. Gandhi (1945) says education is drawing out the best of the man – body and mind. Dewey (1926) defines education as the development of all those capacities in an individual which will enable him to control his environment and fulfill his needs. Education means the exposition of man’s complete individuality.

A teacher is one who moulds the all round personality of the students and renders selfless service with deep devotion. A teacher is the backbone of a country’s development. The influence of a teacher is Vital in the student’s life. Any type of social development depends upon its educational system. So it is very important to give priority for teacher and education.

Good (1973) defines teacher education as formal and informal activities and its experiences that help a person to assume the responsibility as a member of
the educational profession or to discharge his responsibility very effectively. Teacher education is an important means of national development. It is irrelevant if it fails to do so. Teacher education should seek solutions to wipe out social evils like caste system, communalism, regionalism, child labor; untouchability and sex discrimination. Which is the weakening problem in the development of a nation. This has necessitated improvement in the system of teacher education so as to prepare quality teachers, which plays the key role in fulfilling the objectives of teacher education (Panda, 2004)

Pedagogical training must be geared to knowing and respecting the multiple aspects of human personality. A skillful teacher figures out what students know and believe about a topic and how learners are likely to “hook into” new idea. Teaching always connected with an understanding of students’ individual differences that arise from culture, family experience, style of thinking and learning, and academic performance. Student teachers need to build a foundation of pedagogical learner knowledge and identify the strengths and weaknesses of different learners.

For being an effective teacher, one has to be alive in the field by constant reading to update the subject knowledge and pedagogical issues. The subject mastery of a teacher is an inevitable quality in teaching effectiveness. Teacher should continuously enhance his own quality of teaching. The psychology learning and human development, Education for Emerging Indian society, Educational Innovation and Technology also make the topic relevant to the student teachers by giving contextual samples. The teacher depends upon the mastery of the subject knowledge, understanding of educational process needed for suiting to the needs of variety of learners in a class.

Teacher’s importance in the modern era has acquired a new dimension. They not only have to impart subject matter to the pupil, but also help him in the use of knowledge in developing the abilities and talents with which he is born. If we wish to bring a productive change, he raises the standard of education, it is
imperative to recruit teachers who not only have proficiency in their subject, but also have required positive attitude towards education and children.

The success of any education system depends on good teachers. We cannot replace the teachers with any other type of instructional material. It has been well said that teachers are the best educational system. So, in an educational system, the teacher is the basic factor for its success. A teacher is more than what is commonly talked about. His duties of profession have many other dimensions (Deen, 2000).

The effective learning depends upon the quality of teaching which requires individuals who are academically able and who care about the well being of children and youth. (Highland Council Education, Culture and Sport Service, 2007).

1.1.3 Importance of Teacher

Teacher's importance in the modern era has acquired new dimensions. They not only have to impart subject matter to the pupil, but also help him in the use of knowledge in developing the abilities and talents with which he is born. If we are committed to bring about really a productive change, to raise the standards of education, it is imperative to recruit teachers who not only have the subject matter proficiency, but also have required positive attitude towards education and children.

Teachers are the builders of our new generation. Unless we have the most dedicated, hard working and well trained teachers in our educational institution, we cannot educate good citizens for tomorrow. This in turn depends on the effectiveness with which they have been taught by their own teachers in the classrooms.

The success of any educational system depends upon good teachers. We cannot replace the teachers with any other type of instructional material. It has been well said that the teacher of a school are always better than the system of education, teacher is the basic factor for its success. A teacher is more than what is commonly
talked about him. His duties of profession have many dimensions. He helps students to learn things (Deen, 2000).

The teaching importance is a vital element in enhancing acquisition of knowledge in the school.

1.1.4 Concept of Teacher Education

According to J.C. Aggarwal (1990) teacher education is that knowledge, skill and ability which is relevant to the life of “teacher as a teacher”. A course in teacher education should seek to reshape the attitude, remodel the habits and in a way to constitute the personality of a teacher.

L.W. Anderson and Minching (1980) have discussed the planning of a teacher education program. They stated that the goals must be considered well before starting the teacher-training program. These goals can be categorized in many ways. Quite frequently three classifications of goals are suggested; teacher knowledge, teaching skills (both pedagogical and interpersonal), and teacher feeling and self-awareness.

It is necessary that a person entering into the teaching profession is adequately trained so that he is able to competently perform the various functions expected of him. Various professions like law, medicine, and architecture require that their prospective recruits spend long years in training. In the teaching profession itself, a short duration one year professional course, like the B. Ed/M.Ed. Is considered to be a pre-requisite for entering the profession at the school level.

Herman. J Peters 1963, has stressed over a comprehensive long term training because the teacher will have to face a lot of challenges in the future. He has stated that the teacher of tomorrow will be a good-prepared person with a blend of the past, knowledge of the present, and an awareness of the future. The teacher of tomorrow will not only have to be a specialist, but also a generalist and a liberally educated person. The teacher of tomorrow must not only emphasize the heritage of the country but must also emphasize the responsibilities of tomorrow, which become
the concern of all the boys and girls they move toward maturity. The teacher of
tomorrow will focus on helping the individual to learn so that he may fit into a
society, which changes, not in a lifetime, but almost from day to day. He will be
teaching for the flexible use of knowledge in a rapidly changing world. The teacher
will be in a school, which performs more and different tasks and duties than any
school of the past. While the teacher’s primary concern is for the intellectual
development of his pupils he will also be a part of the larger school team, which
gives to each pupil a variety of pupil personnel services.

Burnett (1963) has expressed Samuel B. Gould’s dimensions in connection with the future teacher and responsibility of teacher training. Gould’s dimensions are:

1. The teacher of tomorrow must be a broadly educated person. The
range of the teacher’s influence narrows or expands depending on
the background of knowledge he draws upon to illuminate and
document his teaching.

2. The teacher of tomorrow must be scientific method. The broad
knowledge of the teacher must reach into the problems of the
scientific age in which we live.

3. The teacher of tomorrow must be uncompromising in his
consistence upon quality, although there is room in diversified
educational system for education and training at many levels and of
many types, there is no room at all for the superficiality of
approach or lack of self-discipline.

4. The teacher of tomorrow must be adventurous in technique.

5. The teacher of the future must show willingness to be bold in
discarding the methodologies he finds obsolete or valueless,
whether they be old or modern. He must come to terms with the
mass media of communication and give them their rightful place
among his tools.
6. The teacher must have the courage to be an innovator and something of a maverick. He must find and employ the methods that blend best with his own personality and the particular problems of his students. It he experiments more with the techniques of asking the right questions and less with those of supplying the right answers he will have made an important breakthrough of today’s traditional approaches.

7. The teacher of the future must be prepared in recognition of his new and more vital role, one that he must approach with a confidence born of his own training and his belief in the importance of his mission.

8. The teacher of tomorrow must be sympathetically attuned to the student. Teaching of the highest order can be achieved through an interweaving of personalities who respect intellectual power; their mutual sharing of knowledge coupled with sympathetic regard for one another’s differences can open pathways to wisdom.

9. The teacher of tomorrow must be infected with a sense of mission. The nobility of our calling occasions an awesome responsibility requiring selflessness and a dedication to truth and service.

10. The teacher of tomorrow must be spiritually alert. There is considerable doubt in some quarters that those elements which help to deepen spirituality, can be taught in the classroom.

To sum up, it is vital that teacher training must be effective and well equipped with facilities and expertise to fulfill the requirement of a future teacher. The output of teacher training institutions in the shape of teachers must be in accordance with the expectations of community members. To get fruitful results from the teacher training institutions, it will be worthwhile to state the purpose of secondary school teacher training program in different countries.
Purpose of secondary school teacher training program in India;

A researcher from India J.C. Aggarwal (1990, pp. 260-261) has stated the following main purposes of teacher education:

1. Development of the ability to take care of himself.
2. Development of the ability to be a child with children: an adult with the adults, a responsible citizen among the conglomeration of heterogeneous individuals and ‘groups’ (commonly mis-styled as the “community”) he has to deal with.
3. Development of a good command of the subject content of the assignment “given” to him in the school.
4. Development of a skill developed as an instinctive activity, to stimulate experience in the taught, under an artificially created environment, less with material resource and more by the creation of an emotional atmosphere.
5. Development of a capacity to do, observe, infer (experimentation) and to generalize.
6. Development of an eye on maximizing the achievements from the resources, both material and human, (human resources to include children, colleagues, parents etc.)
7. Development of an appreciation of the difficulties experienced by children and parents and sympathetic response, so as to be about new modes and methods of achieving the goals in consonance with the reactions of the children and parents.
8. Development of proper perception of the problems of universal enrollment, regular attendance, year to year promotion and holding capacity of the school till the end of the stage of education.
9. Development of the capacity to extend the resources of the school by means of improvisation and cooperation.
10. Development of the ability to give direct satisfaction to parents from the achievement of children in terms of
   a) Proper habits of taking care of the body
   b) Proper attitudes reflected in the behavior of the children at home, in the school in the streets, at the farms and fields etc. and
   c) Progress in the class.

1.1.5 Pedagogical Knowledge of Teachers

Teaching is an art and pertains to an act of producing behavioral changes among pupils. Learning takes place when behavioral changes are observed in the learners. In order to make children learn effectively, the teacher has to make use of the right method of teaching. There are some born teachers, yet a majority of teachers who have no inherent flair for teaching and are unable to arouse interest in the students to learn, can improve upon their teaching with practice and by following various methods of teaching. For choosing a right method for a given situation the teacher must acquaint himself with the different methods used in teaching.

In the teaching, learning program on a subject both content and pedagogy, play an important role. As a teacher of social science, a mastery over the content is first prime requisite. He should also use suitable pedagogy in order to make others understand those very content which he/she has already mastered. The teacher should be a master of pedagogy. Only an expert in both in the content and pedagogy (methods of teaching) can deliver the goods rightly in classroom situations. Every teacher is expected to develop certain skills, which are important for the effective teaching. He should be able to carry his duty well if he has acquired mastery himself the art of teaching.

Teachers' awareness of teaching methodologies and techniques of testing is vital not only for an effective transaction of curriculum in the classroom, but also for improving the standards of achievement of children. Bunnett (1993) did show that there was more improvement when subject knowledge associated with
pedagogical issues, although an enhanced understanding of subject knowledge, have about largely through enrichment and restructuring of knowledge already held.

Shulman (1986) provided a stimulus to both aspects of this research. From this work with beginning teachers, he argued that different kinds of subject matter knowledge were involved in teaching and he described his teachers' knowledge of subject matter and pedagogy. Pedagogical subject knowledge incorporates the content to be taught with the knowledge of what children think or know about the content, and knowledge about how the content can be presented to children in ways likely to effectively increase their knowledge and understanding. Whereas Brophy (1991) has noted, however pedagogical subject knowledge is also influenced by teachers’ belief and associated values and attitudes towards what is involved in teaching. No single strategy or methods is earmarked for ensuring these expected behavioural change in the global scenario especially in the realms of social studies learning. Hence, the need for combining many practices and approaches and live classroom methods which come under the umbrella of pedagogy is required. An insight into the blend of strategies is inevitable for redesigning instructions in social studies. It will help the students to develop a concept of learning excellence and thereby navigate an array of internal and mental events.

Various studies conducted by NCERT, NIEPA show that the learning achievement at elementary stage is poor in India. (Govind and Varghese, 1993; Shukla, 1994). This state of affairs can be attributed to a certain extent to the improvement of teachers’ awareness in pedagogy. Delors International Commission on Education for the 21st century has laid emphasis on this issue and considered it as one of the multirpronged strategies for the desired progress in the educational field. It stated in its report that “Improving the quality of education depends on first improving the recruitment, training, social status and conditions of work of teachers. They need appropriate knowledge and skills, personal, characteristics professional prospects and motivation if they are to meet the expectation placed upon them (Delors, 1996). Method implies an orderly way of doing something. It grows out of experience, by trial and error, by process of repetition activities, selection of
activities and the synthesis of desired ones. It is an organized way of doing a thing for elective control; it is an effective procedure of using experience”.

In performing knowledge acts for the students gaze we ought to be able to acknowledge what Deustscher (1994) calls. “The elating pleasure produced by the possibility of one’s own performance as empowered, subject knowledge, the deductive effect of instantaneously between teaching and learning body”.

1.1.6 knowledge of Subject Matter and knowledge about Teaching and Learning

The most frequently used analytical variables when attempting to explain why some teachers are more effective than others are their mastery of subject matter and pedagogical knowledge. In the most recent research literature an interactive construct, combining the two, namely “pedagogical content knowledge” appears to show promising results.

Darling-Hammond (1999) refers to studies which have correlated teachers’ courses in subject matter areas and scores on subject matter tests with student achievement. She concludes that the former show positive effects more frequently than the latter. Low variability in test scores is seen as the main reason for low and insignificant associations. Mastery of subject matter is seen as a basic requirement that is relatively uniformly addressed in initial stage teacher training. In this sense the explanation of the results in this area is the same as that for overall teacher education effects. Hawk, Cole and Swanson (1985) found that the relation between teachers’ training in science and student achievement was greater in higher-level science courses.

Darling-Hammond (1999) lists some ten studies indicating that pedagogical training generally has a stronger effect than subject matter mastery. It should be noted that most of the studies referred to look at teaching methods related to the subject matter. As suggested by Byrne (1983), subject matter mastery is likely to interact positively with knowledge on how to teach the subject. Wayne and Youngs, on the other hand, present results showing that pedagogical training in language teaching appeared to lower student achievement.
I.1.7 Pedagogical Content Knowledge

In the seminal article in the Educational Researcher, Lee Shulman (1986) criticized the sharp division between subject matter mastery and teachers’ pedagogical skills. He introduced the concept of pedagogical content knowledge, briefly described as “subject matter knowledge for teaching”. Pedagogical content knowledge is about selection of topics, useful forms of presentation, analogies, illustrations, examples, explanations and demonstrations. Pedagogical content knowledge also includes an understanding of what makes the learning of specific topics easy or difficult, including knowledge about conceptions and misconception that students bring to the subject. The assumption is that “deep knowledge” about the content and structure of a subject matter area is the crucial precondition for teachers’ reliance on pedagogical content knowledge in their teaching. Additional components sometimes included in the concept are knowledge of the appropriate use of teaching materials and media, as well as strategic knowledge on the application of teaching strategies.

Krauss et al. (2008) define three main components of pedagogical content knowledge:

- Knowledge of tasks
- Knowledge of students’ prior knowledge
- Knowledge of instructional methods

These authors measured pedagogical content knowledge by means of an assessment centre type of approach, in which teachers rated real-life teaching scenarios in mathematics classes. Their results gave a basis for the hypothesis that teachers with more pedagogical content knowledge display a broader repertoire of teaching strategies for creating cognitively stimulating learning situations. Another interesting outcome was that, particularly at higher levels in the German Gymnasium, pedagogical content knowledge was highly correlated with subject matter mastery, thus suggesting that deep knowledge of the subject matter is indeed the critical precondition for pedagogical content knowledge. Results from Baumert et al. (2005) show clear positive effects of pedagogical content knowledge on students’ mathematics achievement.
In two interpretations of pedagogical content knowledge Gess-Newsome and Lederman (1999) make an analytical distinction that seems to have implications for teacher training. In the first interpretation, which they call “the integration model”, pedagogical content knowledge is seen as the integrative results of three independent components: subject matter mastery, pedagogical knowledge and knowledge of the teaching context. The implication of this interpretation would be that training for these three components could be done separately, with integration taking place as a creative synthesis by a teaching teacher. According to the second interpretation, which they refer to as “transformational”, pedagogical content knowledge is seen as a new kind of knowledge developed on the basis of subject matter mastery, pedagogical knowledge and contextual knowledge. For the first interpretation, course work in each of the components would be the most likely form of training, whereas the second would call for training in situ, practice simulations and observation in real-life teaching situations. The two interpretations are depicted in following Figure Two interpretations of pedagogical content knowledge
Layers of analysis in identifying contents and forms of teachers’ professional development

Teacher effectiveness is a first layer in which teachers’ characteristics, including their beliefs and competencies, could be enhanced by training and professional development. Next, in the area of teaching effectiveness, the state of the art in instructional effectiveness research is discussed in order to identify the components of effective teaching repertoires. A further layer covers teachers, cooperating in work teams in the school context. At this level teachers’ impact appears in their contribution to effective structures and the climates of schooling. Finally, in characteristics of national educational systems that may influence professional development arrangements, such as the degree of autonomy and the operation of accountability and evaluation mechanisms, are considered.

1.1.8 Teacher Training a Means to Mass Education

The present institutionalized form of education has its roots in the British Empire. Though the British had a mercenary motive in establishing schools, the various study groups and committees appointed by them made valuable recommendations. The process of teaching-learning was made goal oriented. If the pre-independence efforts of the British were aimed at producing “a class of persons, Indian in blood and color, but English in tastes, in opinions, in morals and in intact, the post-independence Indian rulers’ efforts were in a different direction. “Education for all” became the conscience of the state and education was made free and compulsory. The constitution directed the state to provide within a period of ten
years from the commencement of this constitution, for free and compulsory education for all children until they complete the age of fourteen.

The state shall promote with social care the educational and economic interest of the weaker section of the people, and shall protect them from social injustice and all forms of social exploitation.

Thus, universal enrolment and universal retention became the sheet anchor of our educational policy.

While implementing these policy decisions, it was realized that the traditional teaching techniques were of little use in achieving the goals. In a public school system, a heterogeneous group of students with varied intelligence and with different socioeconomic background have to be taught. The educational system, in principle, has a common syllabus, prescribed text books and a uniform evaluation system. Thus, the teachers have to play a dual role in fulfilling the syllabus requirements on the one hand and on the other hand tacking the challenges bayed by the different levels of students during the course of instruction.

The importance of teacher education institutions has been felt at this juncture, and many training institutions were established. These institutions tried to provide the background information and study material to the prospective teachers, so that they could become effective teachers in real life situations.

Keeping the socio-economic factors of the students in mind, these teacher training programmes included the different schools of psychology and their educational values as part of the curriculum. Since the teaching techniques used at the preprimary/primary may different at the secondary level, separate courses for the teachers of primary and secondary level were evolved. Though the individual experiments and innovative ideas of the Europe and other advanced countries will hold water for any country, they need to be re-modified to suit countries like India, where poverty and ignorance rule the roost. To begin with we need to concentrate more on pre-service training programmes than on in-service programmes.
1.1.9 Different Ways of Training the Teachers

Among the various training programs available in our country for pre-service teachers, no institutionalized training program is given to teachers of higher education. The orientation and refresher courses are only for in-service college teachers. Training program for the primary school teachers is of two year duration. The B. Ed, course program which is a prerequisite condition for getting entry as teachers into secondary and higher secondary classes, is controlled and guided by the National Council for Teacher Education (NCTE), an apex body for teacher education programs. The overall framework is given by the NCTE, but the affiliating universities are free to modify the syllabus and design an evaluation system of their own.

Since the Secondary education is the passport to further studies, more stress is laid on improving the quality of Education at the Secondary/Higher Secondary levels. A uniform policy of education at 10+2 is being insisted on by academicians all over the country. Moreover, students who take up these secondary and higher secondary courses, have to cross a period of “stress” and “storm”. These students who are otherwise known as ‘adolescents’ have a lot of adjustment problems viz., Educational problems, gender related problems, economic and social problems. The growth and development theory of educational psychology predicts that adolescent need didn't be a period of stress and storm alone, but could be a period of stability and happiness too, provided the adolescent is given a sympathetic corseting. Hence, the teachers should have a fresh thought and a new outlook towards the special problems of the students.

1.1.10 Importance of Pre-service Programs at the B, Ed Level

Above all, the peculiar ethos of our country made education dearer to a vast majority. The division of people in the name of caste, religion, gender, elite and masses have been the stumbling blocks in the realization of educational and social rights. The democratic principles laid down by the farsighted framers of our constitution, unlocked the doors of knowledge to millions of under privileged young
men and women. The first generation learners of these downtrodden groups may find it difficult to cope up with the secondary school syllabus. In such a situation, providing guidance and counseling to the adolescent, disadvantaged students, become the onerous responsibility of secondary, school teachers. Hence the teachers should be well aware of their social responsibilities in “shaping the destiny of future India”.

Keeping these points in view, the training programmes should include, above all, the moral and social obligations of “prospective” teachers of the twenty first century. Efforts are made earnestly in this direction to revamp the present teacher education programmes at the B.Ed. level by the National Council for Educational Research and Training (NCERT), National Council for Teacher Education (NCTE), and other institutes of advanced studies. Accordingly several changes have been brought into B.Ed. course.

A bird’s eye view of the general syllabus framework of the new B.Ed. The course reveals that the division of core courses and optional courses, uniform practice teaching and other components like internal evaluation and external evaluation are more or less the same all over the country. The shift from teacher-centeredness to learner-centeredness has been strongly felt in the syllabus design.

However, in-spite of the efforts made at the pre-service programs, it seems, the teachers fail to transform their training to actual practice. Once they become teachers, the B.Ed. Graduates are supposed to realize the syllabus objectives as outlined in their school curriculum. In other words, with the training they had at the colleges of Education, they should be in a position to introduce new techniques and innovative ideas in their classroom. The practice they had at their training program should lead them to take up leaner-centered activities viz. Role-play, dramatization, group work and project work.

Language teachers should help the students to acquire communicative skills as stated in the syllabus outline. Teachers of science and other subjects should guide their students to perform application oriented activities.
I.1.11 Inadequacies of B.Ed. Training Programmes

It is not uncommon that students who pass the examination with more than ninety percent could not perform well if they are asked to apply in real life situations, what they have learnt in classrooms. They are unable to collect information from peers and work in groups. They lack creativity. But the textbooks contain a lot of activities like group work, pair work, project work etc. The B.Ed. Course program also suggests various activities which are learner-centered in nature, to be adopted in classrooms once they become teachers. Thus, the inclusion and adoption of learner-centered syllabus do not automatically imply that those activities would be carried out in classrooms.

It could be placed on record by producing evidence that the innovative techniques and new trends in teaching were not properly taken care of in classrooms. Here is an extract of the group interview conducted by the trainees of a college of Education. An elaborate explanation of the differences among approach, method and design are given in textbooks and in training classes. The structural approach, aural-oral method, differences between formal and functional English and communicative approach are explained in detail in methodology classes of English, but in actual practice they cling to ‘translation method’.

The teaching of mathematics or science or any other subject is in no way different from English. Rote-learning and parrot-like repetition is quite common with all types of students. Those who score 100 out of 100, in school subjects are unable to secure seats in IIT or IIMS. Students miserably fail to get placements where selections are through proficiency tests. The success story of IIT entrants may be attributed to “coaching classes” specially designed for these purposes.

Thus, there exists no positive correlation between the syllabus objectives and the real happening in classrooms. The teachers of these students should have created opportunities in their actual class rooms for realizing these objectives. The syllabus, the material and the methodology given at the training college should be on par with the objectives and the syllabuses of the schools so that the trained teachers
may be well prepared to meet the challenges of the classroom situation. But the fact remains that the theory components learnt at the B.Ed., Course were not transformed into realities in actual practice.

"The main problem with most teacher training is that it is short-sighted. It is short-sighted because.....It ignores the personal qualities without which those personal attributes are meaningless" (Grath, 1996).

The development of positive attitude towards teaching-learning is very essential in developing the ‘self’ of the teachers. Peer learning, collaborative learning, reflective learning and learner-autonomy are some of the ideals to be practiced by teacher trainees and students in order to develop the “self” of the learners. But in the existing teacher training programmes, the students do not get exposure to any of these ideals as a result of which they do not become self-reliant teachers.

"A considerable amount of the discontent with teacher training procedures expressed by teachers, students and teacher trainers themselves stems from their dislike of the apparent gulf between theory and practice" (Wragg, 1974).

The information about philosophical, psychological, and sociological foundations of Education, followed by an "intensive burst" of teaching practice do not actually help them to become a better teacher. It only bewilders them.

It is true that the recommendations of the various Committees were instructed in trying out innovations at all levels of teacher education. Institutions of higher education were provided guidance, regarding curricula and methods suitable for teacher education programs. But it is equally true that the application of all such innovations is inadequate in a world of knowledge explosion. As the time between discovery and application is shortening every day. The suitability of a technique or an innovation should be decided in relation to the social needs. Teacher Education Programmes should be extended from more prescribing of DOS DONTS to describing of learner outcome as a result of inputs received by them in such a situation the need for making teacher education a research orientated activity is of paramount importance.
It is no secret that in spite of many innovative trends and practices that are available in the field of teacher education all our training programmers’ remained static and rigid. The professional education of teacher education has been neglected body as a result of which the training college teaches their trainees only at the cursory level. While the society adopted new concept of education for its betterment, its agencies like teachers, teacher education and training institution which are tools for such transformation remained like a stagnant pool.

“The Concepts like poly valiant Schools, integrated schools, multi valiant class drop in high schools, workers, universities, open universities, parallel schools, modular scheduling, free studies and individually prescribed instruction have shown the dimension of the wave of innovation in the field of education. These innovations aim of evolving more effective and more flexible forms of education and their focus is significantly more so, the modern technology of education has changed the techniques and methodology of teaching learning process. Therefore the teachers have to be abreast with enumerated innovation and new concepts of education. For those we have to overhaul the prevailing system of teacher education” (Bhushan 1988). The above observation drive home to an important conclusion that there is an urgent need to bring changes in all areas of teacher education including staffing and management of teacher education.

Further more new Educational policy has strongly felt that our training programmes are not well planned and organized, so as to develop the spirit of inquiring and scientific temper. The effect of science and technology could be observed by the abundant knowledge stored in all field of education. This new knowledge has its influence on deciding the teaching points, selecting the method of teaching, evaluation the learner outcomes using proper tools.

But-we are still beating the old drum in our teacher training Institution. There is a need that the old methods be replaced by the novel and creative method with the use of modern technology. We should ponder and reflect over the whole programe to give new ways. Hence a through change in the whole programme is urgently felt, needed and required (Bengalee 1988).
The dissatisfaction over these years with the teacher training programs arises out of genuine frustration of academicians who are interested in the welfare of the society in general and the teaching community in particular. The deterioration in the quality of teaching-learning may be attributed mainly to the mismanagement of classrooms by the ill-equipped teachers who are not in the know about things of the modern society.

As stated by Mishra “(2008) training is an important component of human resource development and it is because of component human resource that organization's service in the world of excellence and competition”.

Needs analysis, objective formulations, training design/content planning materials, production are some of the factors that make the design of a teacher training curriculum. Above all the significance of professional practice in training will make the individual understand his role as a teacher and there of knowledge his abilities. Strength and style within a domain of training practice teaching has been highly valued as it is the training ground for budding teachers. But the real situation of classroom warrants an immediate program of action through which teacher becomes aware of the changing concepts in teaching-learning.

Doler’s reports (1996) on Education for the twenty first century submitted to the UNESCO reiterates then points under the four main heading:

(1) Learning to know: The learner should know how to know and must lay formulation for lifelong learning.

(2) Learning to do: Acquisition of competence and skills necessary to do a job and also learn to face a new situation with a team spirit.

(3) Learning to live together: To become aware of the dependence and the interdependence of each other and the need for working together.

(4) Learning to be: “greater self knowledge” which means more opportunities to exhibit the hidden talents of the individuals.
Though the idea of “Learning to be” was first introduced in the UNESCO report (1972) Doler’s finds its relevance even in the 21st century (Muthumanikam 2004).

The broad-based aims of education have been accepted by various Countries and hence a review of related literature not only from India but also from other countries would bring into focus the different aspects of classroom teaching. Further, such a review of the literature would help the practitioners to know the defects of the exiting teacher development programs all over the world. The problems with Teacher education programs may be solved to a great extent, through research based studies, the gathering of evidence regarding the quality of teaching and classroom techniques in the light of the guideline given by the syllabus-frames would help decision-makers to take appropriate steps in restructuring the present teacher education activities. It is possible to arrive a conclusion by collating the outcome of research studies so far conducted and by putting them to test in real classroom conditions. Hence, in the next part of this chapter an attempt has been made to list some of the research carried out in teacher development programs with particular reference to practice teaching.

1.1.12 Effectiveness of Teaching

Defining effectiveness

The concept ‘effectiveness’ can be defined in a number of ways. But before attempting a definition of some selected concepts of effectiveness’ with reference to teaching. Let us note the following hints for developing a perspective in this regard.

- The effectiveness of teaching may be examined with reference to the practice, interactive and post active stage of the teaching act. It may, however, be observed that our consideration of effectiveness is restricted usually to the analysis of acts or operation to the interactive stage.

- The idea of effectiveness may vary for each type of learning Thus, criteria of evaluating effectiveness of the acquisition of verbal
knowledge, skill learning, concept learning, rule learning and problem solving are distinctively different from one another.

- The definable focus and frame of reference adopted by the various models of teaching determine the nature and scope of effectiveness in a teaching transaction.

- A theory of teaching which a teacher may choose to adopt, also influences the conceptual orientation of effectiveness. Thus a teacher following the ‘maieutic Theory may consider effectiveness in term of his instrumentality for arousing recall of knowledge: the teacher adhering to the communication theory may construe effectiveness in terms of the stable give and take pattern of behaviour available in an instructional situation; the teacher advocating ‘molding theory’ may regard effectiveness in terms of the extent of manipulation effected and the extent of shaping or forming of responses or behavior achieved as a result of the arrangement of stimulus-response or response-stimulus contingencies; and the teacher following the lead of ‘mutual-enquiry’ theory of teaching may judge effectiveness of teaching in terms of the amount of challenge created and critical thinking reflected in the pupil’s approach to situation of life.

1.1.13 The Nature of the Concept –‘Teaching Effectiveness’

From the foregoing observations, it is quite obvious that ‘teaching effectiveness’ as a concept is patently multi-dimensional. It may convey a different import to different persons and even to the same person its meaning may alter because the context changes. There are a variety of connotations attached to the word ‘teaching effectiveness’ it would be logical to mean that the phenomenon remains basically indeterminate in nature.

1.1.14 Some Problems in Defining the Effectiveness of Teaching

J.C. Flanagan stated that it may be ‘impossible to study the requirement for success in an activity without defining the activity. According to him ‘a complete
definition of what is meant by success in the activity is practically identical with a statement of the procedure for obtaining a criterion.’ Thus, it appears that if we can satisfactorily define ‘teaching’, ‘teaching efficiency’, teaching competency’ or ‘teaching effectiveness’ we will be able at the same time to lay our hands on the criteria in terms of which teaching effectiveness may be assessed.

But we have noted that a lot of confusion still persists with regard to the defining of the word ‘teaching’ or ‘teaching effectiveness’ and hence the commonly agreed upon criterion of effectiveness is difficult to find. It may, however, be observed that a criterion is first and foremost a matter of decision and consensus, There is no higher authority to which one can appeal, nor is there any way to escape the judgments origin of the criterion. Thus, effectiveness as an attribute or quality does not inhere in teaching. But it is imposed upon it from without. D.E. scates therefore, rightly asserted that ‘the particular statements of what constitutes a good teacher in any particular locality are in the nature of policy statements-emphasizing those qualities which are deemed to be acceptable to the person or group whose thinking has dominant force.

The ‘policy statement’ referred to here are reflected in the goals of teaching. We may, therefore, aver that the establishment of an ultimate criterion of teaching effectiveness is contingent on the goals of education. Consequently, it may be maintained that a teacher may be said to be effective only in so far as he facilitates the achievement of the goals of teaching viz., learning of skills, verbal knowledge, concepts, rules, problem-solving, creative thinking and discovery learning.

From what has been stated so far it is evident that ‘expressed goals in education’ become the seminal point in the evolution of criteria of teaching effectiveness. The goals of education influence the organization of teaching learning activities is a specific scheme and considering the role of a teacher in so many ways-as a director of learning. As a friend and counselor of pupils, as a member of a group of professional persons, and a citizen participating in various community activities-local, state, national, and international (Barr, 1950)
In defining teaching effectiveness two trends manifest now. First is concerned with considering the effectiveness of teaching in terms of ‘pupil growth’-acquisition of immediate and long range goals exhibited through their knowledge’s, skills, attitudes and appreciation. The second is related to the handling of ‘process variables’ involved in teaching. Such variable consist of manipulating of skills like presenting, asking, responding, reacting, structuring, providing feedback and evaluating. Adopting this approach, the effectiveness of a teacher is appraised in terms of the facility, fluency and appropriateness shown by him in actually operating these skills.

1.1.15 Measuring Effectiveness of Teaching

The measurement of teaching effectiveness is linked with about a hundred year old history of measuring teacher performance and teacher efficiency. Elliot (1915), Boyce (1915) and Buediger and Strager (1910) were among the first to use rating scale as means of evaluating teacher efficiency. Elliot developed a score card consisting of physical efficiency, projected efficiency, achieved efficiency, moral-native efficiency, administrative efficiency and social efficiency. According to him, the score card could be used by teachers for their own guidance.

By the year 1930, the study of teacher effectiveness became a subject of considerable interest to the group of educational researchers who were well versed in research techniques and educational measurement. The efforts of these ‘researchers’ widened the avenues of search for important variable. The chief modus operandi of these investigators was the correlation study in a field setting. Typically, data relevant to two or more variable was collected and correlated. According to Biddle and Ellena (1964).

“Investigators have looked at teacher training traits, behaviors’, attitudes, values, abilities, sex, weight, voice quality, and many other characteristics. Teacher effects have been judged by investigator themselves, by pupils, by administrators and parents, by master teachers, by practicing teachers, and by teachers themselves. The apparent results of teaching have been studied, including pupil learning, adjustment, classroom performance, social metric status, attitudes, looking for schools, and later achievement.”

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During the nineteen fifties and sixties, a more sophisticated attempt to evaluate teacher behavior was made. The shift of emphasis was from considering ‘effectiveness’ as a ‘judgmental’ concept to regarding it as ‘descriptive’ term. Thus, a teacher can be described rather than judging as effective or ineffective in terms of his performance during the pre-active, interactive and post-active stage of a teaching act. During the seventies, the focus was on describing the teaching behaviors with respect of classroom instructional settings. A trend is now perceptible to evaluate effectiveness also with reference to the handing of operation by the teacher during the pre-active and post-active stage of teaching.

The researchers in teaching effectiveness in the last one decade have been conducted with the hope that systematic classroom observation and interaction analysis will provide the key that is needed to unlock the mysteries of teaching. It has also been assumed that vague generalizations about teaching methods and their effectiveness can be replaced by precisely quantified descriptions. And that the new observational category system with their emphasis on understanding both teacher and pupil talk will play the same role in the development of a science teachings as the telescope and the microscope have played in the development of physical and biological science (Graham Nuthal and John Church, 1973

1.1.16 The ‘Criterion’ or ‘Criteria’ for Measuring Teaching Effectiveness

The measurement of teaching effectiveness, thus, boils, down to one very crucial matter determining the criterion of effectiveness. We have noted that teaching effectiveness is multi-dimensional rather than one-dimensional and therefore, the issue may be safely forestalled by stating that for measuring teaching effectiveness, we are concerned with a plurality of standards or criteria rather than a single criterion.

The consideration of ‘criteria’ of teaching effectiveness implies four things; relevance, reliability, freedom from bias and practicality, (Mitzel, 1960). Of these four characteristics, the two most important are relevance and freedom from bias. According to Mitzel, ‘relevance is the product of a rational analysis of the job
functions and the job objectives. In so far as the criterion measure reflects the behaviors required in the achievement of job objectives, it is relevant.’

In this connection we may agree with Marvin Taylor (1966) who observes that “the difficulty in defining relevant criteria stems from the complexity of the teaching-learning process. The unknown relationship between particular teacher behavior and their consequences (for example, pupil learning), and from a lack of agreement among educators on a hierarchy of desired goals and objectives.”

1.1.17 Relationship between ‘Effectiveness’ ‘Successfulness’ and ‘Popularity’ as Concepts of Teaching:

The three concepts of effectiveness, successfulness and popularity are interrelated and as such they are often confused. We have noted that effectiveness is basically a judgmental quality. A teacher may or may not be effective with reference to a school system, a class, or a particular need system. Thus, a teacher ‘X’ may be effective in the public schools but not necessarily so in the Government managed school: likewise a teacher ‘X’ may be effective with pupils (Y) of senior grade, but may not be with those of junior grades; or a teacher X may be effective for promoting insights and critical thinking but not so for serving the examination needs of students.

The concept of ‘successfulness’ is goal linked. Whether a teacher is successful or not, may be seen in terms of the results achieved by him in respect of either short term or long term or both types of pupil learning and pupil growth. Thus, our goal is to enable students to pass a particular examination or a course of instruction. The ‘successfulness’ of teaching may be established quantitatively or qualitatively by finding out how many pupils have passed the final examination and how many of them have obtained ‘A’ or ‘B’ grade.

The concept of ‘popularity’ or that of a popular teacher is a vexed one. A teacher may be popular in the eyes of his pupils and he may even know it, but he may not be popular with his professional counterparts or the bosses or the administrators even without being conscious of it. Popularity is, thus, an impressionistic matter and arises from the specific consideration of a particular
group in respect of a specific individual. It has its own peculiar dynamic and those of us who are running after ‘the ceremonial teacher awards’ from the Government, learn the art or method of being popular overnight.

Stated briefly, then, a person may become a popular teacher without being successful or effective or he may be successful or effective without being popular. The successfulness and effectiveness are, however, closely connected. Thus, a teacher is said to be effective in term of his success achieving the intended goals. The successfulness in this frame of reference becomes the yardstick of adjudging one’s effectiveness in the performance of teaching tasks.

I.1.18 The Teacher in the Vedic and Post Vedic Period

In the Vedic and post Vedic Period, the place of the teacher was second to that of God. He commanded more respect than the king in the society. The Guru was the guide and used to bring light whenever there was darkness. The teachers of ancient India were ready to sacrifice their time, energy and resources in educating people. They considered their work either as an honorable activity or as useful actionable. They worked with a sense of self fulfillment and a sense of self realization. In the ancient period, pupils considered teachers as divine along with their mother and father. The teachers were men of high caliber with a spiritual vision and received great respect from the society.

The role of a teacher in shaping the destiny of mankind has been recognized from time immemorial. Alexander the great once said “I owe my birth to my father, but my life to my teacher”. The great poet Tulasi Das comparing Guru and Govinda preferred to give more respect to Guru since it was he who had shown him the way to see Govinda. In this connection, the following quotation is apt.

“Guru Brahma Guru Vishnu
Guru Devo Maheswarah
Guru Sakshath Parabrahma
Thasmai Sree GuruVenamaha”
In the West, the teacher has been described as the architect of the nation, the makers of man and maker of history. The Commission of Teacher Education of America (1962) has observed that “The quality of a nation depends upon the quality of its citizens, that the quality of its citizens depend upon the quality of its education and the quality of education depends upon the quality of teachers”.

1.1.19 Role of Teacher in the Educational Process

The importance of teacher in influencing the quality of the education process and its product is unquestionable. The entire edifice of education is shaky, if the teacher is weak and ineffective. An effective teacher, therefore is a must for educational improvement. A teacher has a crucial role to play. Teachers can act as trail blazers in the lives of learners and in the process of education for development. If the teacher acquires professional competencies and commitment and if they are enabled and empowered to perform their multiple tasks in the classroom as well as in the school and the community in a genuinely professional manner, then a chain reaction can begin starting with a sound teacher performance and culminating into a high quality learning among increasingly more students in cognitive, affective and psychomotor areas of human development.

Modern life is full of stress and strain and it is needless to emphasize that the teachers in any culture face considerable number of problems in their day to day life. The role of the present day teacher has become very challenging, complex and multi-faceted on account of the following reasons.

1. There is an explosion of knowledge and radical changes which are occurring in the content areas of all disciplines.

2. The teacher has to keep in view the new concepts like individualized instruction, micro teaching, programmed learning-teaching machines and team-teaching etc.
I.1.20 Educational Objectives for Effective Teaching

Rajput (1998), the then chairman, National Council for Teacher Education, states that “enlightened, emancipated and empowered teachers lead communities and nations in their march towards better and higher quality of life. They reveal and elaborate secrets of attaining higher values in life and nurture empathy for fellow beings. Teachers are the torchbearers in creating social cohesion, national integration and learning society. They not only disseminate knowledge, but also create and operate new knowledge”. The above observation clearly reveals the importance of teachers and their preparation for the benefit of the human society, which has already changed into a knowledge society. Many research studies are undertaken all over the world to understand the concept of effective or successful teaching.

One should realize that telling is not teaching and listening is not learning. Teachers should set a good example for the students. In order to judge the effectiveness of instruction or effectiveness of a teacher, evaluation becomes an essential part.

Teaching is a universal activity which is found in all societies and in all historical periods. The transfer of knowledge takes place only through teaching and civilization becomes possible only through teaching. To teach effectively, one should possess knowledge, understanding, skill, patience, caring and commitment. Unless a teacher understands the classroom, students and context in which he/she teaches, one cannot become an effective teacher.

1.1.20.1 Learning: According to Marx (1971) defines ‘Learning is a relatively enduring change in behavior which is a function of prior behavior (usually called practice). Learning means a change in the behavior of the students, Psychologists have developed many theories of learning’s. Learning cannot be directly observed, but it can be inferred from the behavior of the students.

1.1.20.2 Teaching: The conventional teachers considered disseminating information to the learners in the classroom as teaching. Teaching includes the behavior of the teachers and the students. It gives the cause and effect relationship.
The behavior of the teacher affects the behavior of the student. Teaching facilitates the learning of the students. A good teaching is more than communication. Burton has stated that teaching is the stimulation, guidance, direction and encouragement of learning. In the words of Chauhan (1981) defines “teaching is the communication between two or more persons who influence each other by their ideas and learn something in the process of interaction”. Gage (1964) states ‘a theory of teaching should answer three questions (i) how does the teacher behave? (ii) Why do they behave as they do? (iii) What is the effect?

1.1.20.3 Principles of Teaching

1. Teaching is more than communication.
2. Teaching is guidance and direction.
3. Teaching influences and facilitates learning.
4. Teaching includes the behavior of the teacher and students.
5. It uses the experiences already acquired.
6. It uses the knowledge and skills in the learning process.
7. It provides for individual differences.
8. Teaching should suit to the individual differences of the learners.
9. In teaching, the instructional objectives should be specifically defined.
10. Teaching should proceed from the psychological principles
    a) Proceed from simple to complex,
    b) Proceed from concrete to abstract,
    c) Proceed from known to unknown, and
    d) Proceed from induction to deduction and dedication to induction
11. It should provide suitable learning experiences.
12. It should contribute to the realization of the overall objectives of the school.
13. Teaching is a scientific process.
14. Teaching should be child-based, experience-based, activity-based and evaluation-based.
1.1.20.4 Observing Teaching

The reasons to make field observations in classrooms and schools are:

- To cultivate understanding of the complexities and significance of teaching
- To develop awareness of good teaching
- To appreciate diversity in many unique situations.

1.1.20.5 Practice Teaching

Field observation alone however, will not provide all required knowledge, skills, and insight. One should understand practice teaching. Further, one should need to weigh what he/she observes and what he/she experiences during practice teaching against the wisdom and observations of others. Teaching and learning are far too complex, even to be fully comprehended by any single person.

1.1.20.6 Effective Teaching

Good (1945) states teaching success as “the extent of realization of instructional objectives as measured by pupils’ growth and achievement and by the mental, physical, and emotional adjustments of the pupil to the teacher, to school, and to society”.

- Effective teaching must be flexible enough to handle a variety of circumstances, expectations, ability levels and subject matter.

- These qualities will enhance one’s effectiveness as a teacher.

Effectiveness may differ from teacher to teacher and for a same teacher from time to time. The effective teaching may depend upon three factors (i) the input (ii) the process and (iii) the output of teaching.

(i) The input – It includes the qualities of the teachers and learners and other facilities used for teaching-learning process
(ii) The process-includes learning experiences, methods, techniques and other learning activities

(iii) The (product) output-may be in the form of students’ growth in respect of their physical, mental, social and spiritual aspects. It may be both quantitative and qualitative aspects of students’ development.

1.1.20.7 Effective Learning

In this high-tech environment the learners should take a deep approach rather than a surface approach. An effective learner can communicate his/her learning in oral, written and other forms and can think critically and solve real life problems. He/She may have a lifelong learning attitude and may appreciate the subjects in the global context. Today, technology helps the learners for effective learning.

1.1.20.8 Characteristics of an Effective Teacher

One who helps in achieving the objectives of education is an effective teacher who generally possesses the following characteristics.

1. Knowledge of subject

An effective teacher can deliver a clearer presentation. The clarity in teaching is one of the factors for effective teaching.

2. Knowledge of methods

An effective teacher makes use of more effective teaching strategies.

3. Class management

One who manages the class can prove to be an effective teacher.

4. Positive attitude towards students

One who feels that students are (i) the best judges and (ii) they can differentiate the effective and ineffective teachers.
5. Warmth and enthusiasm

The teacher’s enthusiasm and friendliness may make the students more attentive and involved.

Collin (1978) reports “enthusiasm includes rapid, varied and excited vocal delivery, lively eyes, demonstrative gestures, use of descriptive words, and easy going acceptance of students’ ideas and questions and a high energy level”.

An effective teacher knows not only what to do, but when, where, with whom, and for how long.

1.1.20.9 An Effective Teacher

(i) Begins the lesson with a short statement of objectives;
(ii) Begins the lesson with a short review of the previous lesson;
(iii) Presents new materials in small steps;
(iv) Gives clear and detailed instruction and evaluation;
(v) Provides opportunity for all the students to practice;
(vi) Asks many questions and checks for the student’s achievement of objectives;
(vii) Guides the students
(viii) Provides systematic feedback and correction;
(ix) Provides opportunities for independent students' work;
(x) Has a very high student success rate; and
(xi) Provides many examples.

The some of the above behaviors are used by all the teachers some of the time. But the most effective teachers use most of them all the time. Effective teacher must be flexible enough to handle a variety of circumstances, expectations, ability levels and subject matter. Effective and wise planning is the basis of successful teaching. Planning refers to anticipation and imagination of various exigencies and taught on alternative procedures and activities.
A teacher occupies the position of total importance in the educative process. Good curriculum and syllabi, excellent instructional materials, physical facilities and other facilities are of no use if the teacher fails to plan. Teaching is a complex activity which can be effectively carried on by the teacher with specific objectives. The National Policy on Education (1986) states, “the status of teachers reflects the socio-cultural ethos of a society. It is said that no people can rise above the level of its teachers”.

1.1.21 Research on Effective Teaching/Instruction

The focus of research on effective teaching has been shifted from teacher’s behavior to a wide range of variables involved in effective instruction. Many researchers have identified teachers’ knowledge, clarity, organization, and enthusiasm as important characteristics of effective teaching.

Rosenshine and Stevens (1986) identified a list of six teaching functions based on the research studies on effective instruction. They developed a model of Effective Instruction with the following list of six fundamental instructional functions.

i) Review and check the previous day work (and re-teach if necessary).
ii) Present new concepts and skills
iii) Guide student practice (check for understanding).
iv) Feedback and – correctives (and re-teach if necessary)
v) Independent student practice.
vi) Weekly and monthly review.

Researchers have revealed that one of the steps in effective teaching is clear presentation of materials to be learned by the students. The following are the aspects of clear presentation.

i) Clarity of goals, objectives and main points
ii) Step by step presentation
iii) Specific and concrete procedures
iv) Checking for students’ understanding.
Teaching effectiveness is very important for a teacher to achieve “academic excellence”. The personal characteristics, intelligence, creativity, task-commitment and other factors may also be the factors for academic excellence. A teacher is expected to be an effective teacher to be successful in his/her professional career. In measured effectiveness the success of any program is measured by comparing the criteria for success based on the objectives. Therefore, the instructional objectives are becoming basics of effective teaching.

1.2 TEACHING APTITUDE

Besides the general intellectual ability, teaching aptitude helps the individual to acquire a required degree of proficiency or achievement in the teaching profession. Academic qualification, interview or a combination of the two are used for the selection of candidate for B.Ed admission. Some time teaching experience and co-curricular activities are also given some weight age in some institutions.

1.2.1 Teacher aptitude and student teachers

Aptitude refers to “quality of being fit for a purpose or position” (Douglas, 2007). If so, Teacher Aptitude is the quality of the fitted for the teaching profession. That is why, Teacher Aptitude is considered as the determinant factor of effective teaching. If the teachers are empowered with the necessary skills and competencies, they can inculcate the skill in other persons and mainly on pupils (Dutt&Rao, 2001).

An effective teacher can focus on making connections between facts and fostering new understanding in students. They can tailor their teaching strategies to student responses and encourage them to analyze, interpret, and predict information. Instead of spending time memorizing material, filling in the blanks. On work sheets, and repeating a large number of similar problems, students need to learn to solve novel problems, integrate information, and create knowledge for themselves.

A constructivist teacher’s role is to foster and direct his work on the part of students. A teacher with teaching aptitude encourages students to use active techniques to create more knowledge and then to reflect on and talk about; what they are doing and how their understanding is changing. Effective teaching requires a large repertoire of skills and the ability to put these skills to use in different situations. Good teachers improvise. The better teachers, however, are proactive; that is, they are active information processors and decision-makers. They are strongly committed to the importance of content delivery and tend to be task-
oriented. They understand the demands of teaching the content, the characteristics of their students, and the importance of decision making in keeping students on task. Researchers suggest that teacher’s knowledge of subject matter, student’s learning and teaching methods are important elements of effective teaching, which are very much related to Teacher Aptitude.

The dynamic and complex nature of teaching warrants that teachers be prepared to be self monitoring individuals. They are capable of self analysis and making systematic observations for patterns and trends in teaching-learning behaviour. Effective teachers can inquire into students experiences and build an understanding of learners capacity to analyse what occurs in classrooms and in the lives of their students. The teacher can change the orientation from a view of teaching as ‘static’, to teaching as ‘dynamic’ and ever-changing. Then the teacher becomes a reflective teacher. Reflective teachers learn all they can about teaching from both theory and practical. They teach and reflect on the teaching. Such teaching requires that they are sensitive to the diversity of student’s needs. Reflective teacher often asks basic questions about the appropriateness and success of their teaching.

Effective teachers know that good teaching is more than simply explaining, lecturing and discussing. To be effective, teachers must be well organized. Effective teaching is a complex occupation requiring the development of knowledge and essential teaching skills, as well as continuous professional growth. Danielson (1996) suggested four main skill areas for effective teaching. Effective teachers (1) engage in quality planning and preparation, (2) prepare a positive classroom environment (3) Use proven instructional techniques, and (4) Exhibit professional behavior.

Is teaching an art or a science? Today, most educators are in agreement with Gagne (1985), who argues that there is a scientific basis for the art of teaching. Experienced teachers know it is not simply a matter of sharing what they know with their students; a good teacher must be able to transform knowledge into learning activities that motivate students to learn. This teaching can be viewed as having both artistic and scientific elements.
In the field of primary education, which is the base of life long experiences, the quality of the teacher is very much criticized. Educational commissions and policies have emphasized the importance of primary education and stressed on the enhancement of the capacity of primary teachers for a better generation. In any educational system, teachers are the source of existence, energy and enrichment. All policies gave due importance to pre-service education, that they are the tomorrow’s stake holders. A better understanding of the determinants of effective teaching should enable education professionals, curriculum developers, and policy makers adapt suitable changes in the field of pre-service teacher education and they can think of the measures that can be taken for improving the quality of pre-service training.

1.2.2 Teaching aptitude and Teaching Effectiveness

Teaching aptitude; Williams Cooley and Paul Lohnes argued that ‘Yesterday’s achievement is today ability and tomorrow’s aptitude. Teachers need three qualities, knowledge is the first, communication skill is the second, aptitude is the third (the Hindu 2002 Sep. 3)

A poor teacher tells,  A good teacher teaches;
An excellent teacher demonstrates; An outstanding teacher motivated

A teacher with good teacher aptitude must be aware of the following essentials of teaching viz; plan a lesson, motivate student, curricular statement related, Teaching –learning strategies, learning material, essential of the content, consolidation multi-gratin, group activities, continuous and comprehensive evaluation, discipline, multi-level and multi-grade activities effective communication and interaction.

1.3 BRAIN HEMISPHERICITY

The right brain / left brain Theory has it that the brain has two hemispheres (commonly called the right brain and the left brain) which think in different ways. The right brain is visual and processes information by looking first
at the whole picture then the detail. The left brain is verbal and processes information by looking at the pieces then putting them together to get the whole. The right brain is more intuitive; the left is analytical and sequential (Evans, 2010).

The human brain is a very complex structure and so one has to be highly ingenious if he wants to study and find out how it really functions. It is not very easy to decide which part of the brain is responsible for a particular behaviour. People in the past have made several attempts to unravel the question of localization of brain function. Some people tried to locate the neural centers of the brain that control specific functions such as speaking, recognizing, spoken words, printed word etc. Thus, they also tried to construct a map of the brain. Broca (1861) Frosch and Hitzig (1870) and Hinshelwood (1900) even went to the extent of saying that different brain areas are specific for reading different languages. There are others who were of the opinion that areas of the brain are equipotential and that the brain acts as a total mass with very few localized functions.

Thanks to the advancement made in medical technology in recent years, the functioning of the brain has been studied more accurately than ever before. It has now been proved beyond doubt that some functions such as speech, recognition of spoken words and the production of motor responses are localized in certain specific brain areas. All areas of the brain are not equipotential. There are specified areas of the brain responsible for higher mental processes such as reasoning, problem solving etc. The functional asymmetry of the human brain has been explained by the researchers especially during the sixties. It is in line with the views of Hippocrates – “the human brain as in the case of all other animals, is double”. (Bogen 1969) Plato also had the same opinion that the mind remains divided into two separate entities, “one partaking of reason and the other devoid of it”, as accounted by Cicero (Rather, (1965). Hemisphericity may be defined as the tendency of individuals to rely more on one cerebral hemisphere for information processing than the other.

Many other researchers have also tried to explain the duality of human brains, but in their own ways. The two halves of the brain out Wardle appear to be
the mirror images of each other. But certain asymmetries can be noticed in a closer examination. Bogen (1977) concludes on the basis of a review that there are lots of evidence to prove that one half of the cerebrum can sub serve the functions of a mind and that the split brain phenomena show than an individual with two hemispheres can at times have two minds.

**Left Hemisphere**

The two hemispheres of the brain do not function the same way all the time. Each cerebral hemisphere is capable of independent functioning of the two hemispheres, the left one is considered dominant in which speech is localized. It was believed that the left hemisphere was mainly responsible for the processing of language and planning, the two functions that clearly distinguished man from animals (Bronowski 1973). It is found to be anatomically larger than the right hemisphere (Geschwind 1972)

In adults, the left hemisphere is found to be more active than the right hemisphere. The extent of specialization in the minor hemisphere has been extensively studied only in the last decade. So far, adequate methodological attention has not been given to the right cerebral hemisphere. It is mainly because of the fact that all reading, writing, calculating and conventional thinking are done only by the left hemisphere. We have got enough empirical evidence to prove that the left hemisphere alone is involved in such language processing. The reasons for this according to Krashen (1975) are as follows:

1. Loss of speech due to brain damage very often occurs from left sided lesions rather than from right sided lesions. (Russell and Espir 1988).

2. Loss and speech do not occur when the right hemisphere is temporarily anesthetized but it does when the left hemisphere is. (Wada and Runussen 1960).

3. A right ear advantage is found in response accuracy and reaction time when we present competing verbal material to the two ears
simultaneously. It is most probably because of better right ear connection to the left hemisphere-(Kunusa, 1961, 1967, Springer 1971).

4. A right visual field superiority is most often shown in response accuracy or reaction time when verbal material is presented to right and left visual fields. It is quite evident that it is due to better right field connections to the left hemisphere.

5. Increased alpha wave suppression and a greater evoked response is found over the left hemisphere during verbal tasks, whether performed overtly or covertly. (Robbins and MC Adam, 1974).

At the same time we cannot assume that the left hemisphere alone processes verbal information. We cannot also conclude that the functions of the left hemisphere are limited to language or that all aspects of language are processed by the left hemispheres for it is not that simple. The findings of Good Glass and Goad Fusal (1977) are worth mentioning in this regard.

They found out that out of 123 left handed subjects only 53% were left hemisphere dominant for language processing whereas in the remaining 47% the right hemisphere was predominantly utilized for language processing. It has also been found out from various studies that the left hemisphere is involved in comprehension and retention of language which means that short term memory that enables one to converse in a language freely through retention of what is being said in the immediate conversation is mainly in the domain of the left hemisphere. There is evidence to believe that oral expression is exclusively processed in the left hemisphere (Burkland and Smith 1977; Eceles 1973; Sperry 1974; Nebes 1974).

As far as writing is concerned, there appears to be a transference from left hemisphere processing to the right hemisphere processing. The verbal aspect of writing mainly is a function of the left hemisphere but the visual motor aspects of writing appears to be within the realm of the right hemisphere. (Bromelucin and Orastein 1977).
The learning of the 3 R’s is mainly in the realm of the left hemisphere. Reading is mostly considered to be a left hemisphere function (Munter 1976; Spessy 1974) Mathematical functions, particularly calculations (Duma, and Olson 1977) and algebra (Hunter 1976) are also considered to be left hemisphere functions. But writing papers require co-operation from both hemispheres. (Smith 1972). The left hemisphere is considered to be a rational, linear mind specializing in sequential processing, logical, analytical thinking (Brandwein and Ornstein 1977; Sulk 1973) and verbalization. The left hemisphere is far more “constrained” and sifts through inputs and reduces functions to logical-rational reforms and acts more like a digital computer (Samples 1975). This is the mind that requires structure and order. It processes, perception and sensory input in logical and linear modes. The left hemisphere is also responsible for the acquisition of new habit formation (May 1977). It is well suited for “educational of relations” – the ability to analyze the common aspects of a task. It also formulates systematic relationships among these tasks. So far, only linguistic considerations were attributed to the left hemisphere. But the knowledge of this is increasing so fast that it promises to make further contributions to the whole range of human behaviour (Krashen, 1975). Related the following.

1) Verbal: using words to name, describe, define
2) Analytic: figuring things out step by step and part by part
3) Symbolic: using a symbol to stand for something
4) Abstract: taking a small bit of information and using it to represent the whole thing
5) Rational: drawing conclusions based on reason and fact
6) Digital: using numbers, as in counting
7) Logical: drawing conclusions based on logic, one thing following another
8) Linear: thinking in terms of linked ideas, one thought following another, often leading to a convergent conclusion.

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Right hemisphere

The right hemisphere of the cerebrum controls the left side of the body. It cannot verbalize what it knows and hence is called the minor, subordinate or mute side. Geschwind (1970) found it to be anatomically smaller than the dominant left hemisphere. Though most neurophysiologists feel that the right hemisphere is a mere unconscious automation and that we live mainly in the left hemisphere, we come to know of the underestimation of the right hemisphere from recent researches.

The right hemisphere is not totally silent. In fact, language function is somewhat more equally shared between the hemispheres up to the age of five (Rubenzer 1978). If the discriminations are not complicated as in the case of a positive statement from a negative one, the right hemisphere is capable of processing language. The rise and fall in the pitch of the voice is an integral component of language and it appears to be a function of the right hemisphere (van Lankker, 1975). The primary expressive mode of the right hemisphere is speculated to be metaphorical in nature (Eccles, 1973); However the general ability of the right hemisphere to communicate verbally is dependent on the left hemisphere and is relatively limited.

Several investigations show that the right hemisphere is predominantly responsible for the interpretation of complex visual patterns. While it is concerned more with the recognition of faces, the left hemisphere helps us to remember the names that go with the faces. The retention of visual patterns such as geometric designs and graphs is believed to be in the domain of the right hemisphere (Hines, Sutker, and Altman 1976). The “graphic presentation of information” (e.g. Graphic displays, diagrams, flow charts, etc.) Is believed to facilitate both the comprehension and retention of information. It is also contended that iconic memory is primarily a function of the right hemisphere (Taylor 1976). Complex nonverbal auditory patterns such as music or Morse code are perceived and retained in the right hemisphere. Similarly, awareness of time and gross motor activities, body position and spatial orientation comes within the realm of the right hemisphere (Brandwein
and Ornstein 1977) Kimura (1973) consider haptic and tactile perception to be a right hemisphere function. Though functional inferences are made based on structural characteristics, two hypothetical cognitive consequences are made plausible by a review of the differential neuro-anatomy of the two hemispheres. (Goldberg and Costa, 1981).

1. The right hemisphere has a great neuronal capacity to deal with informational complexity.

2. The right hemisphere has a greater ability to process many modes of representation within a single cognitive task, while the left hemisphere is superior in tasks which require fixation upon a single mode of representation or execution.

Mirror scientific creativity is speculated to be mainly left hemisphere cognitive excitation. But major scientific creativity possible involves the excitation and intercommunication of both right and left hemispheres. In short, some kind of altered state of awareness might be needed for creativity. The case of some specially gifted individuals, creativity depends partly on the dominance of the right hemisphere though it might not be permanent.

All innovators decide to forget some serious problem or difficulty after prolonged thought or hard work. This does not mean forgetting it totally. The right hemisphere, which is the unconscious side of human thought process takes it over. When the right occasion arises next, they realize that they have arrived at the solution to the problem quite unexpectedly. This is made possible by the right standards of thought of the left hemisphere.

The right hemisphere characteristics were described by Edwards (1979) as:

1) Nonverbal: awareness of things, but minimal connection with words

2) Concrete: relating to things as they are at the present moment

3) Synthetic: putting together to form wholes
4) Analogies: seeing similarities between things; understanding metaphoric relationships

5) Nontemporal: without a sense of time

6) Nonrational: not requiring a basis of reason or facts; willingness to suspend judgment

7) Spatial: seeing things in relation to other things, and how parts go together to form a Whole

8) Intuitive: making leaps of insight, often based on incomplete patterns, hunches, feelings, or visual images

9) Holistic: seeing whole things all at once; perceiving the over all patterns and structures, often leading to divergent conclusions

**Integration of hemispheric differences:**

A study of the hemispheric differences shows that they can be considered in terms of process specificity and that they are not contradictory but only complementary in promoting a specific behaviour in an individual. The human cerebral cortex and its varied hemispheric functions only from an integrated whole (Nebes 1975).

Six forms of inter hemispheric organization that are functionally different have been listed by Piercy (1976). This demonstrates the cerebral organization as the basis for processing information and hence constructing expressive behaviour is not merely a simple lateralization of hemisphere functions. Bogen et al (1972) have interpreted cerebral organization in terms of inter hemispheric integration and they call it cerebral complementarily. The right hemisphere is responsible for latter recognition and other such factors that are perceptual in nature. These are necessary in the processing of verbal and non verbal information. Levy’s (1976) views of the existence of a left ward perceptual bias also confirm this. From this we understand that hemispheric contributions as well as the unique functions derived from hemispheric asymmetry are important for the successful and complete processing of information (Zalma, Roynolds and Kanfman 1977). So it is necessary that both the
hemispheres should be stimulated. If equal emphasis is not given to the attainment of talents in a child’s life, it might have permanent effects on her development that might be emotional or cognitive. Man’s highest and most creative visions can be realized only by integrating the two hemispheric functions. **Hemispheric dominance in learning**

An important aspect in understanding learning styles is understanding the brain functioning. Our brain seems to be designed to govern actions. The action always seems to be practical and successful goal-oriented. It organizes information from our sense organs to provide in an orderly manner for our perception of the world affairs to us. It learns from our experiences and stores our memories. It retains appropriate memories. Plans for the future, thinks and reasons creatively. It is divided into two hemispheres, the right and the left hemisphere. The functions of the right hemisphere have been described as creative, divergently productive, deductive, intuitive, holistic, concrete and Analogic. The left hemisphere is considered to be a rational, linear mind specializing in sequential processing, logical, analytical thinking, inductive and convergent in the production of ideas.

**Wittrock, M.C, (1978)** inferred that the right hemisphere may be more intuitive, imaginative, insightful, has a rudimentary verbal conceptual scheme, aesthetic experiences, produces visual imagery, sees things in a broader perspective, uses the information from the left hemisphere to elaborate, to form new combinations, to attribute new meanings to it.

**Ornstein (1973)** found that the left hemisphere apparently specialized in sequential, logical, verbal, symbolic, convergent production and logic functioning.

**Samples, R.E., (1975)** observes that the left hemisphere is far more constrained and it shifts through inputs and reduces functions to logical rational forms, acts more like a digital computer. This is the mind that requires structure and order, which processes perception and sensory input in logical and linear modes.

**Torrance (1980)** lists the following characteristics of left and right brain dominance.
<table>
<thead>
<tr>
<th><strong>Left Brain Dominance</strong></th>
<th><strong>Right Brain Dominance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual</td>
<td>Intuitive</td>
</tr>
<tr>
<td>Remembers name</td>
<td>Remembers faces</td>
</tr>
<tr>
<td>Responds to verbal</td>
<td>Responds to demonstrated, illustrated or symbolic instruction</td>
</tr>
<tr>
<td>instructions and</td>
<td></td>
</tr>
<tr>
<td>explanations</td>
<td></td>
</tr>
<tr>
<td>Experiments systematically and with control</td>
<td>Experiments randomly and with less restraint</td>
</tr>
<tr>
<td>Makes objective</td>
<td>Makes subjective judgement</td>
</tr>
<tr>
<td>judgements</td>
<td></td>
</tr>
<tr>
<td>Planned and structured</td>
<td>Fluid and spontaneous</td>
</tr>
<tr>
<td>Prefers established</td>
<td>Prefers elusive uncertain information</td>
</tr>
<tr>
<td>certain information</td>
<td></td>
</tr>
<tr>
<td>Analytic reader</td>
<td>Synthesizing reader’</td>
</tr>
<tr>
<td>Relies on images in</td>
<td>Relies on languages in</td>
</tr>
<tr>
<td>thinking</td>
<td>thinking and remembering</td>
</tr>
<tr>
<td>Prefers talking and</td>
<td>Prefers drawing and</td>
</tr>
<tr>
<td>writing</td>
<td>manipulating objects</td>
</tr>
<tr>
<td>Prefers multiple choice</td>
<td>Prefers open ended</td>
</tr>
<tr>
<td>tests</td>
<td>questions</td>
</tr>
<tr>
<td>Controls feeling</td>
<td>More free with feeling</td>
</tr>
<tr>
<td>Not good at interpreting</td>
<td>Frequently uses</td>
</tr>
<tr>
<td>body language</td>
<td>metaphors</td>
</tr>
<tr>
<td>Favours logical problem</td>
<td>Favours intuitive problem solving</td>
</tr>
<tr>
<td>solving</td>
<td></td>
</tr>
</tbody>
</table>

The brain is divided into left and right hemispheres. Each hemisphere controls its own unique set of activities or tasks. The right side of the brain tends to be more dominant in creative activities, while the left side of the brain tends to be more dominant in logical or analytical activities. These hemispheres communicate with each other through a large bundle of nerve fibers called the corpus callosum, and through several smaller nerve pathways.

The right side of the brain is more visually oriented, involved in activities such as visual imagery and face recognition. The right side of the brain tends to view information as a whole, rather than as individual details. It also tends to process information more intuitively or randomly. The right side of the brain is involved in spacial abilities, such as judging the position of things in space, and knowing your body position.

The left side of the brain processes information more logically or sequentially. The left side of the brain is dominant in understanding and using
language, including listening, reading, speaking and writing. It is involved in the memory for spoken and written messages, and plays a major role in the analysis of information.

The right side of the brain controls muscles on the left side of the body. It also receives sensory information from the left side of the body. The left side of the brain controls muscles on the right side of the body, and receives sensory information from the right side of the body. The following table summarizes key differences between the left and right sides of the brain.

<table>
<thead>
<tr>
<th>Right Brain</th>
<th>Left Brain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holistic, big-picture oriented</td>
<td>Linear, details oriented</td>
</tr>
<tr>
<td>Random processing oriented</td>
<td>Sequential or list oriented</td>
</tr>
<tr>
<td>Concrete processing oriented</td>
<td>Symbolic processing oriented</td>
</tr>
<tr>
<td>Intuitive decision making</td>
<td>Logical decision making</td>
</tr>
<tr>
<td>Non-verbal processing oriented</td>
<td>Verbal processing oriented</td>
</tr>
<tr>
<td>Fantasy-oriented</td>
<td>Reality-oriented</td>
</tr>
</tbody>
</table>

Most people tend to have a dominant side of their brain, and they tend to process information using their dominant side. This doesn't mean that individuals only uses half of their brain. It just reflects a matter of right versus left brain balance in processing information and performing activities. However, learning and thinking are enhanced when both sides of the brain are used in a balanced manner.

**Left Brain versus Right Brain Students, and Learning**

How does right brain or left brain dominance affect how a student performs in the classroom? Most classroom teaching styles use left brain strategies. This tends to favor left brain dominant students, and can make learning difficult for right brain dominant students. Left brain students are good at linear and sequential processing, such as involved in language and math. Left brain students are also good at planning and following directions. These students easily learn information in lecture-style, teaching approach. Right brain students process information more holistically. They learn by understanding the big-picture, not the details. They tend
to be visual, not language oriented. This means they have more difficulty following a lecture-style teaching approach. Right brain students need to know why they are doing something. Right brain students can benefit from reviewing material before class to understand the bigger picture, and to understand the context for details that will be taught in class.

Left brain students can easily express themselves in words. This is a large part of what is expected in class participation and in assignments. Right brain students may know what they want to say, but often have trouble finding the right words. A left brain student tends to be good with symbolic language and mathematics, and can easily memorize vocabulary words or math formulas. A right brain student needs to see, feel, or touch the real object. Right brain students prefer hands-on activities, and need to draw out a math or other problem to understand it. They also need diagrams or illustrations to help visualize the problem or the solution. Right brain students learn visually, not by listening to a lecture-style class. They must take extensive notes, and use diagrams and drawings to make information more visual, to facilitate learning the information. They also need to make a mental images of things they hear or read in order to remember the information.

Left brain students are good note takers and list makers. They are also good at planning and scheduling. This means they are good at completing assignments. Right brain students tend to approach things randomly. They tend to not make study schedules, and jump around from one task to another without regard to priorities. Right brain students may be late with an assignment, not because they weren't working hard, but because they were working on a lower priority assignment. Right brain students need extra effort in reading instructions to ensure they understand the assignment. They also require extra effort in making assignment lists and study schedules.

Left brain students are better at writing and spelling, since it involves sequencing and organizing of letters and words. Right brain students require more time to write a paper, and require more revisions to get it to say what they want to
say. Right brain students must also rely more on spell checkers and proof reading for their assignments. Right brain students tend to be more creative, but have more trouble than left brain students with the mechanics of writing and communicating.

**Style of Learning-Thinking Style**

“Styles depend upon cerebral dominance of an individual in retaining & processing different modes of information in his own style of learning and thinking”. Style indicates the hemisphericity function of the brain and students' learning strategy and information processing are based on the preferences of the brain area (Venkataraman 1990). Styles are propensities rather than abilities. They are the ways of directing the intellect which an individual finds comfortable. The style of learning thinking are as important as levels of ability and we ignore to identify the thinking styles at their earlier and appropriate stage. It is foremost important for the teachers to focus their attention on students favorite thinking styles before imparting the subject matter. If they fail to do so, the consequences may be serious, because the teachers may tend to confuse styles of students mind. Since the method of teaching adopted by teachers often reflects their personal thinking style, the students who have the same thinking style of the teachers are only benefited and rewarded. Since any subject can be taught in any way that is compatible with any style, both teachers and students tend to exploit their preferred styles, which may or may not match.

**Auditory:** Auditory learners receive information best by listening; they tend to learn best through lectures & audio-based instruction.

**Visual:** Visual learners tend to learn better when a variety of visual aids, such as blackboards, overhead projectors and films are used during instruction. They often use imagery to learn complex subjects.

**Kinesthetic:** Kinesthetic learners (also known as “Tactile Learners”) prefer to learn by doing. They usually learn best when they are allowed to use their hands and sense of touch to learn new information and apply new skills. A thinking style is how you process information more efficiently (and naturally).
Linear (Left Brain-Dominant)

Linear thinking prefers a very structured approach to learning. If a learning process involves progression (Step A, Step B, Step C, etc.) Linear thinkers will feel more comfortable starting Step B only after Step A has been completed. Mathematics and accounting are considered linear subject since they involve a process-oriented presentation of information.

Global (Right Brain-Dominant)

Global thinkers (or “strategic thinkers”) are more comfortable with new information if they can put it into context with the big picture. They also tend to be impatient with linear subjects and linear-oriented instruction – they prefer access to all the information (early on) so they can relate it to their overall goals.

Of course, it would be nearly impossible for a person to possess only one learning style, or be strictly a linear or a global thinker, and still be able to function adequately in our complex world. Most of us tend to incorporate a variety of styles to complete a task. For example, when determining how much to tip a waiter or waitress, you must use linear skills (to calculate the percentage for the tip), and global skills (to judge the quality of service and the amount of money needed for additional purchases that day).

1.4 COGNITIVE STYLES: THE DEVELOPMENT OF FIELD INDEPENDENCE – DEPENDENCE

Field independence – dependence, a cognitive variable, is defined as “the extent to which a person perceives part of a field as discrete from surrounding fields as a whole, rather than embedded, or... the extent to which a person perceives analytically” (Witkin, Moore, Goodenough & Cox, 1977). According to Ramirez and Castaneda (1974), the phrases “field – independent” and “field – dependent” originated from psychological research on perception and were first described by Witkin et al. (1962). The research on perception was to assess subjects’ performance in a specific perceptual task concerning the upright in space.
These researchers differentiated field independent persons from field dependent persons by whether they “reflect preferred modes of relating to, classifying, assimilating and organizing the environment” (Witkin et al., 1962). Witkin et al.’s (2002) bipolar construct of field independence and field dependence measured the degree to which learners relied upon internal or external referents as they process information and interact with the surrounding field. In general, field independent individuals viewed objects apart from the background, but field dependent individuals were distracted by the surrounding field. In other words, field independent individuals could easily ignore disassociated parts, while field dependent individuals were easily affected by irrelevant details.

To make the characteristics of field independence- dependence clearer and more specific, Saracho and Spodek (1981) and Jonassen Grabowski (1993) provided useful outlines comparing the two cognitive styles (see Table 1 and Table 2).

Table 1 Comparison between Field Independent Individuals and Field Dependent Individuals

<table>
<thead>
<tr>
<th>Field independent individuals</th>
<th>Field dependent individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perceive objects as separate from the field</td>
<td>1. Rely on the surrounding perceptual field</td>
</tr>
<tr>
<td>2. Can abstract an item from the surrounding field recognized in different contexts</td>
<td>2. Experience their environment in a relatively global fashion by conforming to the efforts of the prevailing field or context</td>
</tr>
<tr>
<td>3. Experience and independence from authority, which leads them to depend on their own standards and values</td>
<td>3. Are dependent on authority</td>
</tr>
<tr>
<td>4. Are oriented towards active striving</td>
<td>4. Search for facial cues in those around them as a source of information</td>
</tr>
<tr>
<td>5. Appear to be cold and distant</td>
<td>5. Are strongly interested in people</td>
</tr>
<tr>
<td>6. Are socially detached but have analytic skills</td>
<td>6. Get closer to the person with whom they are interacting</td>
</tr>
<tr>
<td>7. Are insensitive to others, lacking social skills</td>
<td>7. Have a sensitivity to others that helps them to acquire social skills</td>
</tr>
<tr>
<td>8. Prefer occupations that allow them to work by themselves</td>
<td>8. Prefer occupations that require involvement with others</td>
</tr>
</tbody>
</table>

(From Saracho & Spodek, 1981)
Table 2 Differences between Field Independence and Field Dependence

<table>
<thead>
<tr>
<th>Field independence</th>
<th>Field dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytic</td>
<td>Global</td>
</tr>
<tr>
<td>Generates structure</td>
<td>Accepts structure</td>
</tr>
<tr>
<td>Internal directed</td>
<td>Externally directed</td>
</tr>
<tr>
<td>Inattentive to social cues</td>
<td>Attentive to social information</td>
</tr>
<tr>
<td>Philosophical, cognitive</td>
<td>Conflict resolution</td>
</tr>
<tr>
<td>Individualistic</td>
<td>Sociable and gregarious</td>
</tr>
<tr>
<td>Distant in social relations</td>
<td>Affiliation oriented</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>Interpersonal</td>
</tr>
<tr>
<td>Reserved, aloof</td>
<td>Needs friendship</td>
</tr>
<tr>
<td>Experimental</td>
<td>Conventional, traditional</td>
</tr>
<tr>
<td>Generates own hypotheses</td>
<td>Influenced by the salient features</td>
</tr>
<tr>
<td>Conceptually oriented</td>
<td>Factually oriented</td>
</tr>
<tr>
<td>Acquires information to fit conceptual scheme</td>
<td>Acquires unrelated facts</td>
</tr>
<tr>
<td>Represents concepts through analysis</td>
<td>Accepts ideas as presented</td>
</tr>
<tr>
<td>Less affected by format/structure</td>
<td>Influenced by format/structure</td>
</tr>
<tr>
<td>Impersonal orientation</td>
<td>Gets feelings/decisions from others</td>
</tr>
<tr>
<td>Insensitive to social undercurrents</td>
<td>Sensitive to others</td>
</tr>
<tr>
<td>Ignores external stress</td>
<td>Affected by stress</td>
</tr>
</tbody>
</table>

(From Jonassen & Grabowski, 1993).

Cognitive styles: Ways of thinking or reasoning, interacting with world, solving problems. Assumes learners display consistent patterns in how they operate cognitively, there is a general learning/thinking you and that this can be mapped into words.

Approaches to analyzing cognitive style: Two types have been used

- Analyzing differences in how learners operate cognitively, in accuracy and time taken.
- Difference in what learners believe about their general approach to learning and thinking
A type of cognitive style: Over 30 labels have been used. These may be grouped into two principal styles and a number of learning strategies (Riding & Cheema, 1991) The style are represented as bipolar dimension

- An information processing or manipulating dimension and
- An information coding or representing dimension

The processing or manipulating dimension

Those more frequently noted include

<table>
<thead>
<tr>
<th>Analytic</th>
<th>Independence</th>
<th>Reflectivity</th>
<th>Convergent</th>
<th>Sharpener</th>
<th>Serial</th>
<th>sequential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholistic</td>
<td>Field</td>
<td>Impulsivity</td>
<td>Divergent</td>
<td>Leveler</td>
<td>Wholistic</td>
<td>random</td>
</tr>
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<td></td>
<td>dependence</td>
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</tr>
</tbody>
</table>

Some of these distinctions have not been well –inter correlated. The characteristics of each;

- The field dependence versus independence measures the ability to see a shape as separate from its surrounding field. That is, to disassembled in perceptual, cognitive and affective context (sense of self, self-concept) and is referred to as ‘global-articulated dimension or differentiation’ (Witkin & Goodenough,1981). Field independent learners in cognitive restructuring are more able to

1. Break up an organized field into its basic elements,
2. Provide a structure for an ambiguous stimulus complex
3. Provide a different organization to a field than that suggested by the inherent structure of the stimulus complex. Teachers who score high field-dependence prefer frequent interactions with students, encourage active involvement of students in the management of learning. Create positive attitudes towards learning. Teachers who score high field-independence prefer more formal approaches to teaching. Emphasizing their own
standard and seeing their role as transmitting known factual information

- The impulsive versus reflectivity distinction (Kagan 1965) refers to differences in the speed of individuals to make decisions in situations of uncertainty.
- Convergent versus divergent distinction (Hudson, 1966) refers to differences in the ability solve problems requiring a single solution as opposed to the more open-ended solution.
- Leveler versus sharpener distinction (Holzman & Klein, 1954) refers to the differences in which individuals perceive a visual task.
- The wholistic versus serial distention (Pask).
- The random reuses sequential processing distinction (Gregorc 1979)

1.4.1 Definition of Cognitive Style

It is interesting to note that there are many definitions of cognitive style and there is no universally accepted definition. The word cognitive style is defined differently by different psychologists according to their own understanding of the concept of cognitive style. In the world of Messick (1976) cognitive style is one’s preferred and typical modes of perceiving, remembering, thinking and problem solving. According to Witkin et al. (1962) cognitive style is the characteristic, self-consistent mode of function which individual show on their perceptions and intellectual activities. Cognitive style refers to an individual’s preferred mode of problem solving, thinking or learning. Such preference may be specific to many or only a few tasks.

Kagan, Moss and Sigel (1963) state that cognitive style is a term that refers to stable individual preferences in the mode of perceptual organization and conceptual categorization of the external environment. Coop and Sigel (1971) define cognitive style as the consistency in an individual’s mode of functioning in a
variety of behavioural situations. **Ausubel (1968)** describe cognitive style as the self-consistent and enduring individual difference in cognitive organization and functioning.

### 1.4.2 Origin and Development of Cognitive Style

The study of cognitive styles began following World War II. Interest in cognitive style first appeared most prominently in the work of George Kelein (Cited by Reynolds Mann, 1987) and others. The original cognitive work was conceptualized in term of perceptual attitudes. In which perceptual tests were being used to assess cognitive styles. Later researches emphasized the cognitive aspect to determine how personality factors interact with cognitive skill. A considerable number of different types of cognitive styles have been distinguished through research (Reynolds and Mann, 1987).

### 1.4.3 Concept of Cognitive Style

Cognitive style may be described as information-processing habits and which is acquired rather than innate (Floyd, 1979). Cognitive styles are constructs that are helpful to explain the ways in which the personality variables affect cognition. The individual variations include modes of attending, perceiving, remembering and thinking. Cognitive style refers to the mode in which a person organizes and classifies his perceptions of the environment in order to impose order upon a confusing series of events.

Cognitive style denotes the different ways in which children and adults perceive and categorize their environment in particular situations. The term cognitive style implies a habitual pattern or preferred strategy of information processing. In education, cognitive styles are the different ways in which a pupil processes information in the course of learning.

Cognitive style is not concerned with how much is learned, but rather with how information is received and organized cognitively by the learner. The cognitive style of an individual affects the way in which the individual approaches
the learning task he performs, how he takes his place among the students of the
class, feels and behaves in situations while engaging himself in learning activities.
Cognitive styles have obvious, implications for the management of learning in the
classroom.

1.4.4 Characteristics of Cognitive Style

Cognitive styles are concerned with “forms” of the cognitive activity. It
deals with how we perceive, think, solve problems and learn. They are primarily
concerned with how we deal with information about the world. Cognitive styles are
pervasive dimensions. It is a feature of personality, and not of Cognitive alone, in
the narrow sense. Individual likes to be particularly attentive to what others say and
do, and takes account of information from others in defining his own beliefs and
sentiments. Cognitive styles are stable overtime. But it does not imply that they are
unchangeable. In the formal course of events, we can predict with some accuracy
that a person who has a particular style on some other occasion also.

With regard to value judgements, cognitive styles are bipolar while
intelligence and other ability dimensions are unipolar. To have more of an ability is
better than to have less of it. In contrast, cognitive style dimension poles have
adaptive values under some specified conditions. Cognitive styles can be measured
by non verbal tests and by adapting perceptual methods. Cognitive styles can also be
measured in a laboratory situation.

1.4.5 Different Approaches to the Study of Cognitive Style

Different approaches have been used to study the thinking process and to
identify the different ways in which human beings perceive and categorize their
environment in particular situation. The response patterns for various types of
situations are given different names by different psychologists.

Tolerance for unrealistic Experiences: The cognitive dimension of tolerance for
unrealistic experience approach refers to the individual differences in the tendency
to feel comfortable in different degrees of experiences that are not real or ordinary.
Cognitive reflects versus Impulsiveness: The reflects-impulsiveness approach to the study of cognitive style was introduced by Kagan et al. (1964). The approach refers to the individual differences in the speed to react to situations or making decisions, under conditions of uncertainty. Under reflective tendency individuals react to situations slowly, while under impulsive conditions there is a tendency to react to situations rapidly.

Convergent and Divergent Thinking Guilford (1967) has identified 400 intellectual operations and classified them as convergent and divergent thinking. Convergent thinking is thinking that ‘Converges’ on to a single correct answer. The essential aspect of it is concerned with taking information and producing the right answer or possibly a limited number of right answers. Divergent thinking is quite different and it emphasizes the ability to generate answers for the problems which has no one correct answer. Questions demanding this kind of response are often called “open – ended” as well as divergent.

Dogmatism: Rokeach (1960) used the world dogmatic to refer to individuals who were close-minded. According to him such people are unwilling to examine new evidence once an opinion is formed. Cognitive style dogmatism mediates between external stimuli and the individual’s responses to be the stimuli.

Cognitive control: Gardner, Jackson and messick (1960) state that the cognitive control refers to the specific dimension investigated as part of perception project and include leveling, sharpening, Field articulation, conceptual differentiation and constricted flexible control, while cognitive style refers to the organization of these dimensions within an individual.

Cognitive complexity –Simplicity: During 1961, Bieri developed the concepts of cognitive complexity and Simplicity dimension. Cognitive complexity refers to the psychological dimensions that individuals use to structure their environment. Cognitive simplicity refers to the sensitive nature of individuals to new information and they are thus more likely to change initial impression (Vannoy, 1965).

Serialists and Holists: The concept of serialist and holist was framed by Pask (cited by Floyed, 1979) by considering the theory that there are two ways in which
people learn. The two ways are named as serialist and holist. They are very different approaches to learning and problem-solving and two different modes of intellectual functioning.

**Field Approach:** The most popular and widely used approach to study individual difference in psychological differentiation as stated by Witkin et al (1962) is analytical-global field approach. This approach involves at one extreme a tendency to experience items as discrete from an organized content and at the other extreme a tendency to experience items as fused with on text.

**Dimension of cognitive style: Field –dependent and Field –Independent cognitive style**

Among the cognitive styles identified so far, the field dependence – independence dimension has been the most extensively studied and has the widest application to educational problems. Cognitive style is a dimension of personal functioning and it is a part in perception and this is called field dependence – independence. In a field dependent mode of perceiving, perception is strongly dominated by the over-all organization of the field, and parts of the field are experienced as ‘fused’. In a field – independent mode of perceiving, part of the field are experienced as discrete from organized background. From the field dependence – independence dimension has emerged a variety of perceptual tests for evaluating individual differences. In all the tests the issue is whether or not the person is able to keep an object separate from organized field in perception.

The Body Adjustment Test, (Goldstein and Blackman, 1977) is concerned with perception of the position of the body in space. The test evaluates the person's ability to perceive his body apart from the surrounding visual field, through reference to sensation of body position. The apparatus for this test consists of a small room, which can be tilted left or right, within which is a chair, which can also be tilted left or right, The subject task is to make his body straight, while the room around him is titled. Some persons in carrying out this task, move their bodies into alignment with the tiled room. And in that position, report that they are straight, though the room is objectively titled as much as thirty-five degree, or even
more. Field dependent is the perception of body position dictated by the relation
between the body and the surrounding world. And there seems to be a fusion
between the body and field of experience. The field independent persons, are alike
to bring their bodies close to the true upright, regardless of the position of the
surrounding room, have an unmediated sense of separateness of their bodies from
the surrounding world.

The apparatus for the Rod and Frame Test consists of a luminous rod and
frame. The only object visible to the subject is the completely darkened room. With
the frame titled, the subject is required to adjust the rod to the upright. Some subject
perceives the rod as straight, only when it is fully aligned with the tilted frame
around it. In these fields-dependent person, perception of the position of the rod is
dictated by the context provided by the axes of the surrounding frame, They cannot
keep the rod separate from frames; in this sense their perception is global. The field
independent persons at the opposite extreme, are able to adjust the rod more or less
to the tree upright, independently of frame position and to perceive a part of the field
as discrete from the field. In the sense, their perception is analytical.

The embedded – figures test, required the subject to locate a simple
figure in a complex design which is so organized as to conceal the simple figure for
some persons the simple figure almost “pops out” of the complex design. Their
perception is field-independent. Others are unable to the locate simple figure with
the short period of five minutes allowed. Their perception is field-dependent
(Longman, 1971).

Dimensions of Cognitive Style

1. **Systematic Style** – An individual who typically operates with a
systematic style uses a well defined step-by-step approach when
solving a problem; looks for an overall method or pragmatic
approach; and then makes an overall plan for solving the problem.

2. **Intuitive Style** – The individual whose style in intuitive, uses an
unpredictable ordering of analytical steps when solving a problem,
relies on experience patterns characterized by unverbalized area or hunches and explores and abandons alternatives quickly.

3. **Integrated Style** – A person with an integrated style is able to change styles quickly and easily. Such style changes seem to be unconscious and take place in a matter of seconds. The result of this “rapid fire” ability is that it appears to generate an energy and a proactive approach to problem-solving. In fact, integrated people are often referred to as “problem-seekers” because they consistently attempt to identify potential problems as well as opportunities in order to find better ways of doing things.

4. **Undifferentiated Style** – A person with such a style appears not to distinguish or differentiate between the two style extremes; i.e.; systematic and intuitive, and therefore appears not to display a style. In a problem solving situation, he will exhibit a receptivity to instructions or guidelines from outside sources. Undifferentiated individuals tend to be withdrawn, passive and reflective and often look to others for problem-solving strategies.

5. **Split-style** – An individual with split styles shows fairly equal degrees of systematic and intuitive specialization. However, people with a split style do not possess an integrated behavioural response; instead, they exhibit each separate dimension in completely different settings; using only one style at a time based on nature of their tasks. In other words, they consciously respond to problem-solving by selecting the most appropriate style.

### 1.5 ACADEMIC PERFORMANCE

#### 1.5.1 Definition of Academic Performance

Dictionary of Education (Good, 1959), defines academic achievement as “the knowledge attained or skills developed in the school subjects, usually determined by test or by marks assigned by teachers or both”.

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In the words of Chaplin (1965) “academic achievement is specified level of attainment or proficiency in academic work as evaluated by the teachers by standardized tests by a combination of both”.

I.5.2 Criteria of Academic Performance

A number of investigators in India have used the marks obtained by the students in their final examinations in a particular course study as a valid index of academic performance (Kanungo et al. 1965; Shinha 1966; Muthaya and Rajeswari, 1968; Ramamurthi and Mallamma, 1972; singal 1974,; sinha and Sharma, 1975; Dubey, 1976; Hussain 1977; Singh and Kumar, 1977; Qumarhasan, 1978; and Vijayalakshmi, 1980)

Grade point average (GPA) has also been used as the measure of achievement by a number of research workers from other countries (Halpin et al, 1973; Packwood, 1973; Banreti Fuchs, 1975; Banreti Fuches and Meadows, 1976). In the light of the references, cited above, the present investigator has considered the marks of core papers of B. Ed curriculum of Tamilnadu Teachers’ Education, University syllabus to arrive at the academic performance.

I.5.3 Factors Facilitating Academic Performance

What a student learns depends upon his learning methods (Smith, 1961). Ambition is also an important factor which facilitates academic performance (Gebhart and Hoyt, 1958). Shailer (1964) has reported that academic performance of students could be improved by the enhancement of their self-concept. Educational investigators have given reports indicative of factors such as motivation, attitude, interest and intelligence, constantly influencing and facilitating academic progress and attainment. Academic performance has been shown to be dependent on a number of factors such as students’ attitudes, interest, personality characteristics and social class in addition to learning (Laving, 1965). General satisfaction of pupils regarding school is found to be more closely related to pupil’s success than any other factors (Smith, 1961).
1.5.4 Hindrance to Academic Achievement

Indian education needs a drastic reconstruction. The educational system in our country is in fact too subject-centered and not sufficiently pupil-centered; and no deliberate attempt is made to change the situation. In this connection, Kothari Education Commission (1966) has pointed out the following reasons.

I. Lack of research in developing teaching

II. Rigidity of educational system

III. Failure of administration in applying new teaching methods and techniques and

iv. Desirability of average teachers.

Students suffer from frustration and they are unable to involve themselves in educational programs. Kolesnick (1970) has expressed that the existence of emotional problems can severely inhibit academic achievement. Martin (1983) has stated that factors like lack of motivation, poor study techniques, personal maladjustment, lack of preparation, absenteeism, difficulty of instructional methods and other similar factors lead to failure at school level.

Srivastava (1974) has proved in his study that poor environment is one of the major factors responsible for failure in the case of students who failed. In addition to these, other factors like under-nourishment, crowded living conditions, low level of parental education and inadequate training by parents are also responsible for low academic performance.

1.5.5 Teacher and Academic Performance

Teachers play a vital role in the improvement of the academic achievement of pupils. Teachers are fully aware of the importance and significance of academic achievement in the overall development of school children. It is the responsibility of the teacher to make the child highly achievement-oriented and also help him in the overall development of personality. Teachers should shoulder
the responsibility of making the pupil become academically and socially useful citizens.

1.5.6 Multi-Dimensional Activity of Academic Performance

In fact, academic performance is considered to be a composite criterion and not a unitary one. Gupta and Kapoor (1969) have stated that academic performance, like performance in other fields, is not a uni-dimensional, but a multi-dimensional activity, involving a number of phases. Krishnan (1960) has expressed that the success or failure of a student in an examination cannot be attributed to a single causative factor as more than one factor may contribute towards his success or failure.

Gupta (1973) has classified the factors which influence academic performance into three groups as follows:

a. Abilities : Intelligence and Scholastic aptitude
b. Effort : Drive, achievement motivation and aspiration
c. Environment : Social and economic condition of house and school

Academic performance is always affected by multi-dimensional correlates. The most accurate and reliable prediction of academic performance is possible only when all the achievement related variables are studied at a time. This necessitates that the different correlation of achievement should be studied together at a time, at different educational level on different samples at varied places. Such an attempt will be of great help in arriving at worthy, conclusions in respect of high level of academic performance.

1.6 NEED FOR THE PROBLEM

There is always a need to evaluate the efforts which are being made by the training institutions to achieve the desired goals. It is highly recognized that the teacher effectiveness, the aptitude of the student teachers, a healthy learning style and cognitive style towards the world of work and academic performance contribute
a low in successful teaching. Hence the investigator tried to find out the has attempted teaching effectiveness of B.Ed student teacher in relation to teaching aptitude, hemispheric dominance in learning style, cognitive style and academic proficiency to joining programme to teacher education. Teaching effectiveness is very important for the quality education. In fact, this was one of the first problems even to be studied by educational researchers. As a result, research in teaching effectiveness has been going on almost a century. In educational research teaching effectiveness is a complex variable, it is difficult to define very specifically the term ‘teaching effectiveness’ teaching aptitude, teaching performance, teaching thinking style, teaching ability are some of the other terms used to indicate teaching effectiveness. Students will be able to taste the joy of knowledge and thrill of understanding only when there is critical and creative learning. Insight and intuition are given due importance in the process of teaching and learning. The importance of this study, is to evaluate and enquire the change in drive, thought, belief and behaviour of the student-teachers as a result of the training programme consisting the whole curriculum i.e. foundation course, optional subjects, practical, curricular and co-curricular activities, learning resources, teaching practice, observation techniques, evaluative techniques, and the methods and techniques employed at different stages of the programme.

The present study will stimulate the academic bodies to plan the teacher education program in a more effective way, and also will definitely provide databases to bring changes in the current syllabi, duration of training period, theory or practical hours, teaching practice, teaching methodology, work experience and methods of evaluation, etc. Finding of this study will also help the administrators and the faculty of the B. Ed colleges in providing the rationale of dissemination of teacher education programs and if necessary to bring changes in the teacher education program in the light of feedback received. Government and other organizations engaged in teacher education may extract the benefit from the conclusion of the study of the development of a healthy teaching effective, teacher effectiveness, teaching aptitude, style of learning and thinking, academic performance of B. Ed student-teachers. Findings will be useful for policy makers, especially NCTE and Tamilnadu teachers’ education university and other national level organizations to bring desired changes in the B. Ed program.

After considering various previous research work, it was thought desirable variable to have hope independent variables in order to fulfill the objectives of this research work. A lot of theory has already been developed with a specific direction and universal acceptance, lot of research efforts have been put forth on teaching effectiveness, teaching aptitude, style of learning and thinking, academic performance. The chosen independent variables are more relevant than any other variables for this study.
1.7 STATEMENT OF THE PROBLEM

The present study is an attempt to find out the psychological and sociological factors, which are related to the Teaching effectiveness of the graduate student teachers. Hence, the study is titled “A STUDY OF TEACHING EFFECTIVENESS OF B. ED STUDENT TEACHERS IN RELATION TO TEACHING APTITUDE, HEMISPHERICITY, COGNITIVE STYLE, AND ACADEMIC PROFICIENCY”.

1.8 OPERATIONAL DEFINITIONS

The following definitions are considered to be relevant for the present study.

1.8.1 Teaching Effectiveness

“Effectiveness refers to the extent to which the objectives are achieved. Teaching effectiveness of B. Ed student teachers are assessed in terms of their preparing and planning of teaching, classroom management, knowledge of subject matter, personal Characteristics, interpersonal relationships. A teacher is perceived by his students to be successful and effective or otherwise. Only in the terms of the quality of his classroom teaching. In the present study, both the terms “teacher effectiveness” and “teaching effectiveness” are considered to be synonymous, though some researchers view them differently.

1.8.2 Teaching Aptitude

Besides the general intellectual ability, teaching aptitude predisposes the individual to acquire a required degree of proficiency or achievement in the teaching profession.

Teaching aptitude is responsible in shaping proper attitude towards the teaching profession, interest and care of the students. Need for the maintaining high level of social conduct, interest in the innovation attempted in schools activities,
need for professional ethics, and teaching potentiality and the urge to due up to date in current affairs.

Teaching aptitude refers to we clear the meaning of aptitude – “as a condition symptomatic in his readiness to acquire proficiency his potential ability and another is his readiness to development an interest in exercising his ability

“Teaching aptitude is a specific ability, potentiality, interest, satisfaction and fitness in teaching profession”.

1.8.3 Hemisphericity

Hemispheric dominance is also considered in the present study using the tool (SOLAT) – style of learning and thinking as indicated below

High, Average, low hemispheric dominance

Brain hemisphericity-one of the two principal parts of the brain, each roughly hemispherical; the left or right cerebral hemispheres (http://www.wordiq 2010). In this study, brain hemisphericity refers to the brain dominance of the respondents assessed by using the Hemisphere Dominance Questionnaire to classify them into left brain, right brain or whole brain dominance In this study the tool, SOLAT is used to find the hemispheric dominance scores of graduate student teachers and classify them as High, Average, and low. The obtained scores are converted into Sten scores. The Sten of 4-7 indicates average score, Sten 8-10 indicates high and extremely high score and Sten 1-3 indicates low and extremely low scores.

1.8.4. Cognitive style

1.8.4.1 Field dependent and field independent style

According to Witkin et al “Cognitive style is the characteristically, self-consistent mode of functioning which individuals show on their perceptual and intellectual activities. In the present study Witkin’s Field independent and field dependent test has been used to find the cognitive style of the subject.
1.8.4.2 **Systematic and intuitive style:** Cognitive style of the thinking of subjects has also been studied in terms of 'systematic style' and 'intuitive style' using cognitive style inventory developed by Praveen Kumar Sha: **Systematic Style**—An individual who typically operates with a systematic style uses a well-defined step-by-step approach when solving a problem; looks for an overall method or pragmatic approach; and then makes an overall plan for solving the problem. **Intuitive Style**—The individual, whose style is intuitive, uses an unpredictable ordering of analytical steps when solving a problem, relies on experience patterns characterized by a verbalized area or hunches and explores and abandons alternatives quickly.

1.8.5 **Academic Proficiency:** Academic proficiency refers to the accomplishment or performance of achievement in school or college education. In the present study Academic proficiency of graduate teacher training refers to the percentage of marks secured by them in the core subjects of the B.Ed curriculum under Tamilnadu Teachers’ Education University (TNTEU) syllabus based on Academic proficiency test. Academic proficiency test developed by the investigators used to find the academic of B.Ed teacher trainers.

1.8.6 **B.Ed Student Teacher:** B.Ed students are students who are undergoing B.Ed course after their undergraduate or postgraduate degree in India.

1.9 **OBJECTIVES OF THE STUDY**

The following broad objectives have been set forth for the present study.

1. To study the level of Teaching Effectiveness of B.Ed student–teachers.
2. To study the level of Teaching Aptitude of B.Ed student –teachers.

3. To study the level and Style of Learning and thinking (SOLAT) of B.Ed student –teachers.

4. To study the Cognitive style of B.Ed student –teachers with respect to Field Independence and Field Dependence.

5. To study the Cognitive style of B.Ed student –teachers with respect to styles of learning i.e., Systematic style/Intuitive style.

6. To study the level of Academic proficiency of B.Ed student –teachers.

7. To study the nature of the relationship between the teaching effectiveness (dependent variable) with respect to four Independent variables taken up in the study viz.,

   (i) Teaching Aptitude (ii) Hemisphericity (iii) Cognitive style (iv) Academic proficiency.

8. To study the relative influence of Independent variables on the dependent variable (Teaching Effectiveness) for the whole sample.

9. To study the variables which discriminate significantly the levels of Teaching Effectiveness of B.Ed student –teachers.
The following objectives have been formulated by the investigator for the present study.

1. To study the level of teaching effectiveness and teaching aptitude as well as kind and style of learning and thinking of B.Ed student teachers.

2. To study the nature and level of relationship between the major variables taken for the study.

3. The interaction effect of the independent variables taken up for the study viz., (i) Teaching aptitude (ii) Hemisphericity (iii) Cognitive style (iv) Academic proficiency. on the dependent variable- Teaching effectiveness.
1.10 HYPOTHESSES

The hypothesis formulation is an important stage in any scientific research. In the present study, the following hypotheses were formulated by the investigator after a careful and intensive study of the literature related to the correlates of achievement and also keeping in mind the objectives and the needs of the present study.

1. B.Ed student – teachers display differential levels of Teaching Effectiveness.

2. B.Ed student – teachers exhibit differential levels of Teaching Aptitude.

3. B.Ed student – teachers exhibit different kinds and levels of thinking as revealed by Hemisphericity.

4. B.Ed student – teachers display different kinds of learning with respect to Field dependence.

5. B.Ed student – teachers display different kinds of learning style viz., systematic style and Intuitive style.

6. The Academic performance of the B.Ed student – teachers falls in different categories i.e., High, Average and low.
7. There is no difference if any between the various categories of sub-samples divided on the bases of (i) Gender, (ii) Educational qualification, (iii) Place of residence, (iv) Nature of Institution, (v) Place of locality, (vi) Medium of Instruction, (vii) Marital status and (ix) Type of Family in respect of their
   a. Teaching effectiveness
   b. Teaching aptitude
   c. Style of learning and thinking
   d. Cognitive style
   e. Cognitive style- systematic style
   f. Cognitive style – intuitive style
   g. Academic performance

8. There is no difference if any between the various categories of sub-samples divided on the bases of (i) Types of management, (ii) Types of college, (iii) different subject of specialization, (iv) Birth order, (v) Father’s occupation, (vi) Father’s Income, (vii) Father’s Education, (viii) Mother’s Education, (ix) Age groups, (x) Student community, (xi) Religion, in respect of their
   a. Teaching effectiveness
   b. Teaching aptitude
   c. Style of learning and thinking
   d. Cognitive style
   e. Cognitive style- systematic style
   f. Cognitive style – intuitive style
   g. Academic performance

9. There is a significant relationship between the following variables
   a. Teaching effectiveness and teaching aptitude
   b. Teaching effectiveness and style of learning and thinking
   c. Teaching effectiveness and cognitive style
   d. Teaching effectiveness and systematic style
   e. Teaching effectiveness and intuitive style
   f. Teaching effectiveness and Academic performance
10. There is a significant relationship between the following variables
   a. Teaching aptitude and level of style of learning and thinking
   b. Teaching aptitude and cognitive style
   c. Teaching aptitude and systematic style
   d. Teaching aptitude and intuitive style
   e. Teaching aptitude and Academic performance

11. There is a significant relationship between the following variables
   a. Style of learning and thinking and cognitive style
   b. Style of learning and thinking and systematic style
   c. Style of learning and thinking and intuitive style
   d. Style of learning and thinking and Academic performance.

12. There is a significant relationship between the following variables
   a. Cognitive style (Group embedded figure test) and systematic style
   b. Cognitive style (Group embedded figure test) and Intuitive style
   c. Cognitive style (Group embedded figure test) and Academic performance.

13. a. There is a significant relationship between systematic style and academic performance
   
   b. There is a significant relationship between Intuitive style and academic performance.

14. A linear combination of all independent variables significantly predicts the whole sample of teacher effectiveness.

15. The independent variables selected are the important discriminate variables to differentiate the teaching effectiveness level of the B.Ed student teachers.
1.11 THE METHOD

The present investigation has been undertaken by using the normative survey method. The survey method gathers data from a large number of cases at a particular time.

1.12 STATISTICAL TECHNIQUES

In this present investigation the following statistical techniques have been used.

**Descriptive analysis:** Measure of central tendency (Mean) and Measure of variability (Standard deviation)

**Differential analysis:** Independent sample (‘t’ test and ‘F’ test)

**Correlation Analysis:** Co-efficient of Correlation (‘r’).

**Regression Analysis:**

\[ X = \tau \times \sigma_y \times (Y - My) + Mx \] (identifying the teaching effectiveness).

Multiple regression analysis ( R and R^2)

**Discriminate function analysis:** Standardized Canonical discriminant function coefficient Group centroids And Classification results.

1.13 DELIMITATIONS OF THE STUDY

1. In the present study, only B.Ed Student teachers studying in the B.Ed colleges affiliated to under Tamilnadu Teacher’s Education University college of education were selected as of the sample.

2. This study is confined to only 2 districts of Tamilnadu namely, Chennai and Kanchipuram.

3. Among the several dimensions of cognitive style, viz systematic style, intuitive style, integrated style, on a different style, split style, the present study focused only on systematic style and intuitive style leaving other three styles.

1.1.14 SELECTION OF THE SAMPLE

The present study was conducted with 820 B.Ed student teachers studying in Chennai city and kanchipuram district of tamilnadu. The sample was selected by using simple random sampling technique. The sample forms a representative sample of the entire population. Due proportionate weightages were given to various sub-samples. These student teachers constituted the population and 32.9 percent of this population was selected for the sample. Out of 40 colleges, 22 colleges of educations (55 percent) were selected for the present investigations. Out of the total population 2489 were chosen 820 B. Ed student teachers for the present investigation

1.1.15 TOOLS USED IN THE PRESENT STUDY

The present study is an attempt to investigate the teaching effectiveness in relation to teaching aptitude, hemisphericity, cognitive style, and academic performance among student teachers. The following tools have been used to collect the data regarding the above variables.

1. Teaching effectiveness inventory constructed and standardized by Kulsum (2000)

2. Teaching aptitude inventory constructed and standardized by Dr. S.C. Gakkar and Dr. Rajinish (2010)

3. Style of learning and thinking style inventory constructed and standardized by (Venkatraman and Paul Torrance (1988)

4. Cognitive style (group embedded figure test) constructed and standardized by Witkin (1969)
5. Cognitive style inventory (systematic style and intuitive style) constructed and standardized by Dr. Praveen Kumar Sha (1994)

6. Academic performance, inventory constructed and standardized by the investigator (2012)

1.1.16 A BRIEF RESUME OF THE SUCCEEDING CHAPTERS

The introductory chapter (Chapter I) brings out the need for the study of the present problems and also deals with its significance. Further, it gives the operational definitions of the key terms used in the study. The objectives as well as the hypothesis developed are also given along with delimitations of the study.

Chapter 2 contains a brief review of related studies carried out.

Chapter 3 describes the design of the study under different heads such as method, tools and sample, the construction and administration of the various tools used in the study.

Chapter 4 describes the analysis and the interpretation of the data obtained by administering the tools.

Chapter 5 the major findings of the present investigation together with describe the recommendations and suggestions for further research.

The bibliography follows chapter 5.