CHAPTER I
INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The century we are living in has witnessed an unprecedented change in every aspect of life. The rapidity and extensiveness of change ensures that the society that we belong to needs to be forcefully dynamic and its close relationship with education naturally continues to pose new demands for excellence in the field of education. Advancement in Information and Communication Technology has opened up new vistas of knowledge, resulting modification in modes of teaching. The specific connection between education and technology has been of continual importance, ever since children were required to reproduce their thoughts, ideas and knowledge in some kind of permanent or semi-permanent form. When used appropriately, technology acts as a great catalyst for learning in the classroom. The path from chalk and slate through exercise book and pencil to word processor is not a particularly long one. However, the point is that some use of technology is invariably required in the execution of learning tasks.

Technology provides better and accurate tools for students to search for solutions than probe and manipulation. One of the greatest advantages offered by modern electronic technology is the ability to instruct without the presence of a teacher. We can 'time shift' instruction, experience
it at sometime after the live session and 'place shift' instruction, experience it at some place, away from the live teacher. The proliferation of new electronic technologies like on-line learning now makes it possible to experience, place-shift instruction with a stunning array of additional auditory and visual stimuli, far more rapidly and with a richer range of interaction, not only with the instructor, but also with other learners.

Technology has proved to accommodate learning styles and to be an effective motivator for students with specific learning needs. Furthermore, students working in collaborative-team-learning settings appear to function better when learning events are accompanied by technology use. In addition, technology is important when used to provide distance-learning opportunities to students who otherwise would not have access to course offerings.

Educators must be prepared for a technology-rich future and keep up with change by adopting effective strategies that infuse lessons with appropriate technologies. They should find efficient and effective ways of imparting the exploding knowledge to the learner. Some teachers - under trained and over stretched - see the use of technology as threatening and too demanding on their time and energy. In India, most pre-service teachers know very little about the effective use of technology in education and there is a pressing need to increase substantially, the effective quality of instruction that teachers receive about technology. The virtually universal conclusion is that teacher education, particularly in-service, is not preparing educators to
work in a technology-enriched classroom. Despite advances in information and communication technology, the potential of participants of teacher education remains untapped.

It is high time for teacher educators to employ more varied and effective teaching-learning strategies, supported by advanced electronic communication technologies which have revolutionised the very style of information accessing and processing for a very rapid explosion of knowledge. The teacher and books are not the only source of information, several alternative means of communication and information are available. A vast array of electronic media and several innovative teaching strategies like video-assisted instruction, computer-assisted instruction, online learning, web-based training, co-operative learning and multimedia approaches are to be developed and utilised successfully to improve the quality of teaching-learning process. In this context, every teacher educator needs to know varieties of advanced instructional strategies which can bring drastic changes in pedagogy and curriculum content. These are instrumental in enhancing academic productivity and teaching-learning effectiveness. The National Council of Teacher Education (NCTE) has taken various initiatives in this regard, for the regulation and maintenance of norms and standards in teacher education.

Recent interpretations of constructivism suggest that each learner constructs his or her own schemata, bits of knowledge, explanations or picture of reality according to their fit with the learner's individual goals.
previously existing concepts and new perception. Learning from that perspective is much more under the control of the learner. A paradigm shift from teacher-centred instruction to learner-centred instruction is needed to enable students acquire the knowledge and skills sufficient to make the learner fit in the present era. So the education rhetoric emphasises the need for learner-led, learner-centred, work-based, enquiry-driven and constructivist approaches.

Students appreciate the opportunity to be more actively involved instead of passively listening and writing notes. They might be allowed to investigate topics through activities through co-operative learning tasks. They might conduct a debate concerning a controversial issue, prepare some product as a result of a group project or conduct a survey in the class or beyond the classroom. Dialogue among peers should be encouraged as far as possible. Each individual must construct his or her own reality or knowledge, based on connections between previous knowledge and new experiences. Individuals must construct new adaptations of knowledge as a result of actions on the environment and interactions with others.

Students are able to understand the learning material better, when its relationship to their own experiences and to prior knowledge is apparent and when new ideas are presented in an organised manner, using examples, explanations, summaries and activities. To bring students to the lesson and to promote cognitive engagement, the teacher should plan for
widespread participation through questions, feedback, activities, assignments and guided practice.

Information about multiple intelligences and brain hemisphericity can be used to plan various types of student involvement. Gardner (1983) believes that all people have multiple intelligences. He identified eight independent intelligences — linguistic, musical, logical-mathematical, spatial, bodily — kinaesthetic, interpersonal, intrapersonal and naturalistic. To address the various intelligences, activities that involve movement, student discussion, outlining, charting, organising and so on can be planned (Campbell, Campbell & Dickinson, 1999).

Brain hemisphericity is another aspect to consider while planning for student involvement. Research on the human brain indicates that there are hemisphere-specific skills. The left side of the brain helps people be more analytical in their orientation and deal with facts in a logical, concrete and sequential manner. The right side of the brain helps people be more holistic in their thinking and use their visual and spatial skills when learning (Burden, 2000). While planning for student involvement, tasks that require skills from both sides of the brain as an effort to maintain student interest and involvement are to be incorporated.

The group-learning aspect of educational technology began to be favoured in view of its potential to develop group skills. Piaget's theory suggests that cognitive development is more likely to occur when children work with peers than when they interact, either with older children or adults or
work by themselves (Piaget, 1956). While structured group work appears to be effective for cognitive gains, it can also lead to social and affective development and be used specifically to promote team work and co-operative attitudes (Slavin, 1990).

The co-operative learning environment which has been proven effective by many researchers incorporates the social contexts needed for learning that are implied by Vygotsky (1981). It supports or supplements the direct role of adult mediators with peer mediators. In the co-operative learning setting, peers can construct mutual zones of proximal development in a context of interactive discourse where social goals of affiliation (being part of the group) and personal goals (feeling that you can do something) may enhance the chances of new knowledge construction. Co-operative groups may be doing more, than transferring what each knows to the other. However, they learn new things together.

This new environment also involves a change in the roles of both teachers and students. The role of the teacher changes from a knowledge transmitter to that of a learning manager, learning facilitator, knowledge guide, knowledge navigator and co-learner. This would require an information base, models of teaching and learning, organisation of knowledge applicable to the design of educational experience and understanding of the needs of the students (Smith, 1995). Students will have greater responsibility for their own learning in this environment, as they seek out, find, synthesise and share their knowledge with others. The teacher education curriculum
should be upgraded considering the changes in the roles of both the teacher and the learner. This necessitates a transformation in the existing teaching-learning strategies.

Strategies are typically described as mental procedures that assist learning, but may also include overt activities. Learning strategies are methods or techniques that individuals use to improve their comprehension, learning, retention and retrieval of information (International Encyclopaedia of Education, 1994). Instructional strategies can include thoughts, emotions and behaviours that facilitate the acquisition of knowledge and skills or the reorganisation of one’s knowledge base.

The significance of learning strategies stems from the observation that learning is an active and dynamic process in which learners approach new tasks strategically, analyse task requirements, apply various mental processes appropriate to the task and reflect on the success of their attainments. The styles of teaching and learning now a days go far beyond traditional pedagogic comforts within the four walls of the classroom. Students in a given classroom may have a learning or communication disorder, have scotopic sensitivity, be a visual learner, be an auditory learner and so on. It is necessary to present a variety of strategies to maximise learning for all.

1.2 NEED AND SIGNIFICANCE OF THE STUDY

Children in the primary classes learn directly their immediate environment through exploration, using their senses; by attending to the world
around them through touching, listening tasting, smelling and looking; they begin to make generalisation (McShare, 1991). This provides the basis for the child-centred curriculum in primary classes manifested by discovery learning and problem-solving activities.

The primary school curriculum should be taught in terms of activity and experience rather than knowledge to be required and facts to be stored. It should provide experience-rich environments that promote opportunities for students to learn with understanding as active participants, rather than environments that rely on passive students and teacher telling. Each learner must construct his or her own reality or knowledge based on connections between previous knowledge and new experiences.

Currently, there is growing consensus among researchers and educators that knowledge cannot be transmitted directly to the learner. The most effective way to promote the effective involvement of dynamic activity is to put a lot of effort into the creation of powerful sensory learning environment.

Technology offers the teacher an opportunity to provide and assess a varying level of experiences and easily accessed alternatives. Technology and manipulatives should be employed to provide the richest possible active environment. It facilitates inquiry and invention, discovery and exploration of relationships as patterns (Solomon, 2003).

Teachers have to be equipped with the skills and abilities from time to time to handle the latest technology as the quality and competence of teachers affect instruction with a strong impact on students' learning.
In order to optimise the instructional help to students, small group study sessions based on co-operative learning, personalised tutorial attention from the teacher to the student and alternative textbooks may be adopted. For students who need smaller steps, more practice and drill, more frequent reinforcement, study guides and work books may prove immensely useful.

The teacher training institutes are providing the teachers of the future and have to conscience teachers their future role. Depending on the nature of the subject, teachers may combine different strategies and instructional aids, utilise media supported teaching, organise fieldtrips and other enriching activities. The prospective teachers are to be prepared so as to enable them to perform successfully in the pre-instructional, instructional and post-instructional phases of teaching.

As a teacher educator for more than two decades, the investigator strongly feels that an awareness of modern instructional strategies is an essential component for the professional development of student teachers. She is under the impression that the use of modern instructional strategies will impart better student monitoring and better student achievement. Though a few studies have been conducted in connection with the effectiveness of modern instructional strategies, primary teacher education has not been given adequate attention. Hence, the investigator felt the need to study the awareness of primary level student teachers in using
modern instructional strategies and their academic achievement after the use of modern instructional strategies. Hence the importance of the study.

1.3 STATEMENT OF THE PROBLEM

Envisaging the importance of modern instructional strategies in primary teacher education programme, the investigator has designed the present study to find out the awareness and achievement of student teachers at primary level with respect to the use of modern instructional strategies. The study is entitled as

"USE OF MODERN INSTRUCTIONAL STRATEGIES: AWARENESS AND ACHIEVEMENT OF STUDENT TEACHERS AT PRIMARY LEVEL."

1.4 EXPLANATION OF KEY TERMS

Instruction

According to International Dictionary of Education (1978), the term 'instruction' is often used synonymously with teaching, but often specific teaching akin to skill training rather than to education in a broader sense.

In English educational terminology, instruction is to training as teaching is to education.

Strategy

According to the International Encyclopaedia of Education (1994), the term 'strategy' has been used synonymously with the terms 'method' or 'procedure'.

The word 'strategy' comes from the Greek 'strategia'. It is defined as the art of devising or employing plans towards a goal.

According to Webster’s Third New International Dictionary (2002), in the systematic approach to teaching and learning, strategy is concerned with the way in which the content is presented in the instructional environment. It includes the nature, scope and sequence of events which provide the educational experience.

**Instructional Strategies**

According to International Encyclopaedia of Education (1980), instructional strategies are methods or techniques that individuals use to improve their comprehension, bearing, retention and retrieval of information.

**Modern Instructional Strategies**

In the present study, modern instructional strategies refer to teaching/learning patterns designed to provide reliable effective instruction to each learner based on behavioural, cognitive, social-psychological and technological perspectives.

**Awareness**

A Student’s Dictionary of Psychology (1997) defines awareness as a systematic state of being alert or conscious; cognisant of information received from the immediate environment.

Achievement

According to the New Lexicon Webster's Dictionary (1990), achievement is something carried out successfully, the act of achieving. In the present study, achievement denotes academic achievement of primary level student teachers.

Student Teachers at Primary Level

Student teachers studying in Trained Teacher Certificate (TTC) course, conducted by the Government of Kerala.

1.5 OBJECTIVES OF THE STUDY

1. To assess the infrastructural facilities and instructional resources available in primary teacher training institutes for using modern instructional strategies.

2. To understand the awareness of primary level student teachers about the use of modern instructional strategies.

3. To understand the opinion of primary level student teachers about the use of modern instructional strategies.

4. To analyse the views and opinion of primary teacher educators about their use of modern instructional strategies.

5. To understand the academic achievement of primary level student teachers who learnt through modern instructional strategies.

6. To compare the academic achievement of primary level student teachers who learnt through modern instructional strategies and those who learnt through the conventional lecture method.
7. To compare the delayed memory achievement of primary level student teachers who learnt through modern instructional strategies and those who learnt through the conventional lecture method.

1.6 HYPOTHESES OF THE STUDY

The hypotheses formulated for the present study are the following:

1. Primary teacher education institutions do not have adequate infrastructural facilities and instructional resources required for adopting modern instructional strategies.

2. Primary level student teachers do not have adequate awareness about modern instructional strategies.

3. Primary level student teachers are in favour of using modern instructional strategies.

4. The academic achievement of student teachers using modern instructional strategies is better than the academic achievement of student teachers using the conventional lecture method.

5. The delayed memory achievement of student teachers using modern instructional strategies is better than the delayed memory achievement of student teachers using the conventional lecture method.

1.7 METHODOLOGY IN BRIEF

Survey and experimental methods were found to be appropriate for the present study.
Major tools and techniques used for the collection of data are the following:

1. Checklist
2. Awareness Test
3. Opinionnaire
4. Interview Schedule
5. Raven's Standard Progressive Matrices – A, B, C, D, & E
6. Achievement Test
7. Computer-assisted Instructional Software
8. Co-operative Learning Package
9. Delayed Memory Achievement Test.

The sample for the survey comprised of 530 student teachers belonging to government, DIET, aided and unaided primary teacher training institutes (TTIs) in Kottayam District. The student teachers studying in all the TTIs and the teacher educators teaching in these institutions were selected as sample for the study.

Infrastructural facilities and instructional resources available in primary teacher training institutions were collected using the prepared checklist. An awareness test on modern instructional strategies to measure the awareness of student teachers and an opinionnaire to find out their opinions in using modern instructional strategies were prepared and administered. Views and opinions of teacher educators on the use of modern
strategies of instruction were collected by conducting personal interview with them.

For the experimental study, three TTIs were selected, one TTI each from aided, government and DIET sectors. The sample for the experiment comprised of a total of 105 student teachers with 35 from each of these TTIs. In each TTI, the sample comprised of two experimental groups and one control group. The independent variables and dependent variables of the study are the instructional strategy and the achievement of student teachers, respectively. The experimental study was conducted in the three TTIs separately. For understanding the intelligence, Raven’s Progressive Matrices was administered to the experimental and control groups before starting the experiment. In the beginning of the experiment, a pre-test using the achievement test was administered to student teachers in experimental groups and the control group. In each teacher training institute, student teachers of experimental group I and experimental group II were taught using the co-operative learning package and the computer-assisted instructional software respectively, prepared by the investigator. In the control group, student teachers were taught in the conventional lecture method. At the end of the experiment, the same achievement test was administered as the post-test. In order to measure the delayed memory achievement of student teachers, a post-delayed test was administered, three weeks after the conduct of the post-test.
Appropriate statistical techniques were used to analyse the data collected. The major statistical techniques used are 't' test, chi-square test and Analysis of Covariance.

1.8 SCOPE OF THE STUDY

The present study aims to measure the awareness of student teachers at primary level regarding the use of modern instructional strategies and to assess their achievement in using them.

The study points out the state of infrastructural facilities and instructional resources available in primary teacher training institutes and the pressing need for enhancing and updating them. It also indicates the extent of awareness and opinion of student teachers about the various dimensions of modern instructional strategies like E-learning, web-based learning, self-learning strategies, group learning strategies, strategies based on information and communication technology and so on. The study aims to identify the areas where more awareness on modern instructional strategies is to be developed.

The study highlights the effectiveness of co-operative learning and computer-assisted instruction for bringing out academic achievement. The study can be of much use for policy makers, educational planners, curriculum framers, textbook writers and research scholars. It would also be helpful for teacher educators and trainers who are giving pre-service and in-service training to primary teachers. The prepared computer-assisted instructional software can be used for individualised study and the prepared
co-operative learning package proves to be effective for cognitive gains through structured group work. The prepared instructional materials can make learning interactive, avoid monotony, enhance the enjoyment of learning and can inspire researchers, teacher educators, aspiring teachers and classroom teachers to prepare and use instructional materials.

It is presumed that the findings of the study will promote the use of instructional strategies based on information and communication technology, E-learning, web-based technology as well as group learning strategies. The study highlights that teacher educators and student teachers in teacher training institutes should get proper encouragement, training and support in mastering and practising them. Teachers and student teachers need to update their knowledge and skills as the school curriculum and technologies change. Thus, it will help to enhance their professional development. The study aims to point out that teacher education institutions should adopt innovative strategies and plans to enhance the teaching-learning process. It is imperative that all future teachers are well prepared to utilise the new tools for teaching and learning in the fast developing technological society. The investigator hopes that the study would be helpful to improve the curriculum transaction and evaluation at the primary teacher education level.

1.9 LIMITATIONS OF THE STUDY

All possible efforts have been taken to make the study a perfect one. The constraints of time, resources and small population might have reduced the size of the sample and the variables selected for the study and
thus the study is confined to Kottayam district in Kerala. But all the primary teacher training institutes in Kottayam district (under Government, DIET, Aided and Unaided sectors) were selected for the study. More generalised results would have been obtained, if regional considerations were made in the sample.

Due to time limitation, only three instructional strategies – computer-assisted instruction, co-operative learning and the conventional lecture method were used. Lack of adequate number of personal computers in the teacher training institutes was also a limiting factor. But the investigator hired computers for the conduct of the experimental study wherever needed.

Despite the above mentioned facts, all possible efforts have been taken to make the study as reliable and objective as possible. It is hoped that the results of the present study would be helpful in giving deeper insights in the field of education.

1.10 ORGANISATION OF THE REPORT

The report of the study is structured into six chapters. **Chapter One**: The first chapter, the introductory chapter, encompasses the background of the study, need and significance of the study, statement of the problem, explanation of key terms, objectives of the study, hypotheses formulated for the study, scope and limitations of the study and organisation of the report.
Chapter Two: This chapter presents a detailed description of theoretical overview of various modern instructional strategies based on behavioural, cognitive, socio-psychological and technological perspectives.

Chapter Three: The third chapter presents a detailed review of selected literature from modern instructional strategies in general and co-operative learning and computer-assisted instruction in particular.

Chapter Four: This chapter describes the methodology. The details relating to the methods adopted, tools used, sample for the study, the procedure for data collection and the statistical techniques adopted are given in this chapter.

Chapter Five: The analysis of the data taken up for the study and its interpretation are detailed in the fifth chapter.

Chapter Six: This chapter presents the major conclusions and suggestions emerged out of the study and suggestions for further research in this area.
MODERN INSTRUCTIONAL STRATEGIES - AN OVERVIEW

- INTRODUCTION
- PSYCHOLOGICAL BASES OF INSTRUCTIONAL STRATEGIES
- TECHNOLOGICAL BASES OF INSTRUCTIONAL STRATEGIES
- STRATEGIES OF INSTRUCTION THAT EMPHASISE REINFORCEMENT OR FEEDBACK AND INDIVIDUAL PACING
- STRATEGIES OF INSTRUCTION BASED ON INFORMATION AND COMMUNICATION TECHNOLOGY
- STRATEGIES OF INSTRUCTION BASED ON CO-OPERATIVE GROUPS
- TECHNOLOGIES OF INSTRUCTION THAT EMPHASISE REALISTIC CONTEXTS