CHAPTER - I

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1.1 Introduction

Education is a process, which involves planned efforts for human development. It is one of the most crucial inputs for socio economic development of individual, society and the nation. Education is the best investment for a better future. The Indian Education Commission (1964-66) has rightly observed that education must serve as a "powerful instrument of social economic and cultural transformation necessary for the realization of national goals."^1

1.2 Education : History and the Present

During its long history, education has undergone several revolutionary transformations. The major changes are, first there was a shift in educational responsibility from parents and elders of the society leading to the institutionalization of education. A second revolution occurred with the adoption of written materials as a tool of education that has freed the student from memorization. The invention of printing lead to the printing of books and it resulted in the creation of ocean of information accessible to the thirsty. The application of scientific technology to instruction that began just a half-century back is the beginning of the fourth revolution. The dawn of the fourth revolution was with the contribution of B.F. Skinner (1954), "the science
of learning and the art of teaching\textsuperscript{2} wherein he said, "we are in the thresholds of an exciting revolutionary period..."\textsuperscript{3}

The impact of developments in Psychology and its contributions are the major causes for the development in pedagogy. The rapid pace of development and change in technology has paved the way to new possibilities for how technology can be applied effectively in classroom under sound psychological principles. Several new devices like video, CCTV, DVD, CDs, computer, Internet and other audio visual aids are available to assist the teacher.

1.3 Technology in Classrooms

Sophisticated technology has become so pervasive and intertwined with our daily lives - the list of technology innovations we have accepted as common goes on and on. But technology seldom plays the same role in our classrooms that it does in other areas of our daily lives. Market Data Retrieval (1999), a recent survey in the USA reports that only one third of the teachers feel prepared to integrate technology in their classrooms when technology supported learning activities are likely useful to be productive and useful to their students. Using technology now we can provide effective learning experience to students and enable them to acquire the knowledge and skills of the content area included in the syllabi.

1.4 Educational Technology - The Concept

The move towards Educational Technology began with the seminar paper "Technology and Instructional Process" by Dr.James
Finn (1960). This paper examined the possible relations of technology with education wherein he argued that many areas of society were being transformed by technology and that it was inevitable that education would eventually undergo a similar transformation.

Educational technology connotes three meanings (Aggarwal, 1995). The first was proposed by James O. Finn and others and refers to "the application of physical science and engineering technology to provide mechanical or electromechanical tools, instrumentation or 'hardware' which can be used for instructional purposes."  

Skinner, Gagne and others proposed the second view, which refers to "the application of scientific principles to instruction."

The third and the modern view of Educational Technology as described by Davis and Hartley (1972) incorporate the above views and define educational technology as "the development and application of systems, techniques and aids to improve the process of human learning."  

In short educational technology, in its wide sense as understood today is the scientific application of psychology of learning, techniques and technology suitably to the process of education in an educational environment.
1.5 Meaning of Educational Technology

The word Educational Technology is derived from two words - ‘education’ and ‘technology’.

The word ‘education’ is derived from the word ‘educare’, ‘educere’ and educo’ meaning ‘to bring up’ ‘to bring forth’ and ‘to lead out of’ respectively. ‘Education’ thus means ‘helping to draw the best out of’. This would involve the process of socialization, acculturation, adjustment, all round development etc. ‘Education’ may thus be taken to mean development of the required abilities, skills, competencies and attitudes by providing information, knowledge, experience etc. to the individual to enable him to live successfully in the modern scientific and technological society.

1.6 Technology of Education

The word ‘technology’ is derived from the Greek work ‘Tekhnologia’ meaning systematic diagnosis and treatment. Technology is that branch of advanced scientific study involving highly designed sophisticated engineering of hardware and the software. It may be defined as the application of that branch of knowledge that deals with industrial art, applied science and engineering for the practical ends in different fields.

Educational technology is the application of technological assistance in instructional situations with pedagogical and psychological theories.
According to the Encyclopedia of Education (1971, Vol.a, page 22) Educational Technology is the purposeful combination or separately, of objects, techniques, devices, events and relationships to increase the effectiveness of educational process.

1.7 Educational Technology and Curricular application

Educational technology stresses upon developing methods, techniques and materials for effective learning and ensuring learning outcomes. So it is not just a matter of using sophisticated equipments in the class but providing learning experiments that are based on sound pedagogical principles. So educational technology has two components - the hardware and the software. Hardware refers to instruments or apparatus or equipments used in the process of transaction and software indicates the application of psychological principles of learning in the teaching learning programmes and the resultant programmes or modes.

Learning experiences are provided by the use of various combinations of stimulus modes and presentation media. A mode is a kind of stimulus presented to the student like human interaction, pictures, written symbols and recorded sounds. The vehicle that carries the stimulus mode to the student is the medium. A variety of media can be used for presenting any given mode such as books, pictures, models, films, CDs and so on. (Dave, Mulick 1977). So mode and media are employed to provide the content to the student. For the success of instructional process, Ramsey (1975) recommends the use of multivariate activities in learning. Johnson (1974)
recommends project activities, discussion, supervised study, study guide, assignment programme, programmed learning material, computer-assisted learning. Lumsdaine (1963) lists audiovisuals, slide transparencies and tapes in the array of stimulus materials. Nakayama (1980) includes the usage of still and motion picture projections, tape recorders, TV, teaching machines as hardware in educational technology. But the intelligent application of appropriate media to the teaching-learning situations will improve its efficacy. Klaus (1968) and UNESCO (1977) recommended that scarcity of suitable software can be best supplemented from local resources. So technological devices are used to maximize learning. When a combination of media is incorporated into learning process learning occurs more easily, quickly and effectively. The greater the number of senses involved in acquiring knowledge, higher the retention likely to be. Becker (1979) argues that no single method is a panacea to the problems of teaching learning.

1.8 Trends in Educational Technology

There are two trends in educational technology - Mass Instructional Technology and Individualized Instructional Technology. Television is the most obvious example of Mass Instructional Technology and Multimedia PCs are examples of Individualized Instructional Technology. Competence in the art and craft of classroom instruction requires mastery of many methods and modes of communicating information and influencing student behaviour and management of learning situations and assessment of learning.
Educational Technology involves adoption of technological innovations and inventions to educational situations based on sound psychological principles. It helps

- to afford better adjustment to the ever-changing world of technology
- modify the traditional conservative methods of instruction and to adopt the scientific and technological methods of instruction.
- promote the development of proper technical and technological skills, scientific thinking and attitudes in learning.
- reduce the expenditure in education at all levels by a systematic understanding of the problem.
- bring about effective changes within minimum time by using different media.
- the teachers to use multisensory teaching aids (audio, video, graphics, slides, transparencies etc.)

1.9 Educational Technology and Instruction

In an era of knowledge explosion the student can no longer remain passive or see the teacher alone as the dispenser of knowledge. "Teaching is not talking and learning is not listening" (Davis, 1976). General Education is now undergoing a revolutionary transformation based on the application of scientific technology to
instruction (Kulik and Bangert, 1984). "Technology fits comfortably with the teachers instructional plans and philosophy and represents more an extension of them than an alternative or addition to them."\(^5\) (Mark and Cindy, 2001). "The effectiveness of education and its levels in terms of quantity and quality are determined by the extent to which the process of education itself employs the new findings in Science and Technology."\(^6\) (Purushothaman, S. 1998).

Technology can play various instructional roles. Students can apply software as tools for learning various topics or can use software developed specially to teach particular topic and the software manipulation can be applied to new content very efficiently. It provides an active role for the students. When the students play a more active role in learning, the role of the teacher shifts from "dispenser of knowledge" to "facilitator of learning."

1.10 Educational Technology and the teacher

The role of technology in education is always under the control of the teacher and he facilitates it suitably in learning situations and enables students' access to technology.

Following tasks are to be accomplished by the teacher in employing educational technology in the classroom.

- motivating the students
- designing and redesigning the instructions in terms of the students' need and feed back obtained and to suit the renewed goals and objectives of instruction.
• diagnosing learning difficulties.

• using the Video Assisted Instructionable media judiciously and effectively.

• identifying, collecting and generating resources.

• maintaining material resources.

• improving teaching with alternative strategies.

• trying out and implementing innovative techniques in instruction using educational technology.

• evaluating cost benefit analysis of learning material.

• harnessing of educational technology to win the esteem of future generations of students and to maintain the credibility of the teaching community.

The new media are giving students greater control over their learning and greater interaction and get feedback on their performance. This is a most significant pedagogic development. The new media gives more opportunity for human interaction. It provides greater opportunities for revision, in-depth thinking and integration through an increased level of structural interaction between the student and learning materials. This means that audio-visual media should in theory become more effective in developing learning. But in turn this raises the question of what likely effect the use of different technologies will have on cognitive thinking.
1.11 A Historic Review of the Rise and Development of Educational Technology in India

Audio Visual education began to be used with a limited objective in India from 1947 to raise the general standard of education. The term Educational Technology began to be used in India during 1960s. It was in 1968 that the Indian Association for Programmed Learning had organized the first All India Conference on the theme “Towards Educational Technology” and this year is marked as the beginning of educational technology movement in India. During the decade 1970 research and practice in educational technology began to prosper. The Ministry of Education established the Centre for Educational Technology in the NCERT in 1973 as a part of the Educational Technology programme launched in 1972. With a view to initiate research, training and development in educational technology, Educational Technology cells or State Institute of Educational Technology were started in various states in India during the decade. Radio and TV programmes began to be produced and aired and in Feb. 1980. Ministry of Information and Broadcasting set up a working committee to draw up detailed software plan for INSAT TV utilization. The Asian Games (1982) and Non-Alignment meet (1983) held in New Delhi had given a boost to the countrywide use of TV and computers. This has given a momentum to the Video Assisted Instruction and Computer Assisted Instruction. At the academic level, a pilot project called Computer Literacy And Studies in Schools (CLASS) launched by NCERT in June 1984, was the first step in promoting the use of microcomputers in Indian Secondary Schools. At the Government
level, National Policy on Education, 1986 acknowledged the potential of modern communication technology in Education. The Revised Policy Formulations and the Programme of Action, POA (1992) have reiterated the provision of NPE, 1986 relating to media and Educational Technology. Increasing the output of Central Institute of Educational Technology (CIET) and State Institute of Educational Technology (SIET) has given priority in the 8th Plan. Commissioning of INSAT series satellites and a Video Assisted Instruction facility of more transmission capability has facilitated the transmission facility for educational TV programmes. The Countrywide Classroom Programme of the UGC is still continuing. In higher education the IGNOU has been provided a half hour slot on national TV network. Even regional centers have been provided this facility of transmitting programmes at regional level. The UGC has created 15 Educational Media Research Center (EMRCs) and Audio Visual Research Center (AVRCs) through which video programmes are produced indigenously for transmission. The UGC has also set up an Inter University Consortium for Educational Communication (IUCEC). It provides co-ordination and leadership in EMRC, AVRC and acts as a forum to bring Government, Universities, NGOs and other professionals together. Now in 2004, India has launched a satellite –EDUSAT, exclusively for transmitting educational programmes round the clock.

Computer Assisted Instruction (CAI) has also gained momentum. Computer application with adequate facilities of computers in schools is now being encouraged at various levels. So at present Educational Technology at our doorsteps gained its
momentum. Through the supply of TV, VCR, VCP and Multimedia computers the infrastructure at schools are also gradually improving. What we now lack is adequate number of scientifically prepared educational programmes.

1.12 Developments in Educational Technology and Methods of teaching

An instructional medium is a means of transmitting instruction. It serves as a channel for instruction. Developments in technology have lead to new trends in education by providing a wider range of media, for use. Now there is a greater diversity of access to new media and their costs are coming down. Video Assisted Instruction (VIDEO ASSISTED INSTRUCTION) and Computer Assisted Instruction (CAI) are new media. The teacher has now a vast repertoire of media for selection. He is puzzled when he is introduced to newer media. But a novice in the art of teaching considers the hardware as a convenient support for his professional planning. But its effectiveness depends not only on the materials provided but also on the techniques used. The ability and resourcefulness of the teacher is still important as it was in the traditional classroom. The chalkboard will suffice with certain instructional objectives but for certain others the OHP, the Programmed learning material, the ETV or the computer makes the task easy and efficient. It is the teacher to decide what is the best for realizing a set of objectives in a set of students in a given learning situation. Each device serves his needs in a unique manner.
The art and craft of classroom instruction depends on competence. This demands the mastery of a set of teaching skills and abilities. This includes special methods and techniques associated with teaching of specific subjects and the general organizational strategies need for facilitating, managing and evaluating the class. New instructional techniques evolve and develop from various sources like psychological and social researches, pedagogical theories, academic disciplines, offshoot of teachers' innovative ideas, experiences etc. Experiences show that any media cannot substitute a teacher but can supplement his effort.

1.13 Educational Television

Educational Television is a powerful medium for communication as it has diverse uses. It can be used to entertain, inform and instruct the viewers. It shows events and activities instantly or they occur or can reproduce from a video recording or film.

1.14 Advantages of ETV

1. Students can learn from TV presentation as much as they do in normal classroom.

2. Sometimes a complete course can be done through ETV.

3. It assists for longer retention.

4. It serves time, effort and cost of setting up classroom projection equipments.

5. It helps to have the service of best teachers to teach a larger group.
6. It helps to bring demonstration to large number classes that are sometimes difficult to perform in a classroom or each classroom.

7. It imparts a uniform experience to larger groups with out transmission loss.

8. It helps slow students as they get a multi sensory experience.

9. It helps the teachers to get how certain things are done effectively in the class by experts or innovative teachers and can broaden their perception related to the techniques, methods and content in the discipline.

1.15 Educational Technology and Video

For most children learning is generally acquired through a combination of perceptual exposures that are frequently repeated in different sequences and with appropriate timing and intensity (Dunn and Dunn 1972).

Video is an effective and proper combination of different modes - verbal, visual, sound etc. The media effectively engage the students' motivation, assists them in recalling previous experiences, provide new learning stimuli, activate students' response give rapid feed back and encourage appropriate practices.

1.16 Video

Video refers to pre recorded video recordings on flexible plastic tapes housed in a special case which when inserted into VCR/VCP displays the picture on a TV connected to it. Pre recorded video recordings on compact discs or digital videodiscs when inserted
into a VCD/DVD player connected to a TV or Multimedia PC with CD/DVD drive are also referred as video.

'Video' (adjective) is a term applied to all visual aspects of television signals, equipments etc.

'Video' (Noun) is a loose term for video recording or for any machine that can be used to record and/or play back such recordings (video cassette recorders, video tape recorders etc.)

Cassettes give students more control over their learning. This enables the students to be more flexible in their study patterns and more effective in their learning through review, analysis, and reflection.

1.17 Video Assisted Instruction (VAI)

New technology is removing many of the inconveniences and limitations previously associated with studying through audio-visual media. TV broadcast and non-broadcast videos are one successfully and extensively used media in education and training. The TV experience is a combination of picture and sound, motion, colour etc. received instantaneously on the TV screen comes closer to reality than any other contrived experience. Now compact disc and multimedia computer can serve the purpose.

1.17.1 Educational value of video

It can:

- broaden and enrich learning experiences.
- create genuine interest in the topic or subject that is being taught.
• provide a wide variety of experience that are quite different from classroom experience.

• elevate the quality of classroom teaching process.

• stimulate the less passive slow students.

• combine and employ the effectiveness of all other Audio Visual media.

• provide easy access and control over the presentation.

• used at almost all occasions in an instructional process

• be used for enrichment and remedial purpose.

• save the time and effort of the teacher and student.

• be both instructional and enjoyable.

1.18 Science Instruction and Taxonomy

The explosion of scientific knowledge and consequent changes in the science curricula and methods of teaching necessitated in adopting new techniques and employing suitable media in the transaction to make it more economic and effective in realizing the set goals.

In 1989 M.E.Cormack and Yager developed a new “Taxonomy for Science Education” that broaden the view of science education beyond the two domains of content and process into five domains that should be considered crucial for any good science curriculum. The domains of taxonomy of science education are:
1. Knowing and understanding (concept domain)
2. Exploring and discovering (process domain)
3. Imagining and creating (creativity domain)
4. Feeling and valuing (attitudinal domain)
5. Using and applying (applications and connections domain)

1.18.1 The Instructional objectives of teaching Biology at High School level

1. The student acquires knowledge of terms, facts, concepts, definitions, fundamental laws, principles and processes in the field of Biology.

2. The student develops understanding of terms, facts, concepts, definitions, fundamental laws, principles and processes in the field of Biology.

3. The student applies his knowledge and understanding of Biology to unfamiliar situation

4. The student acquires process skills related to science

5. The student develops interest in the world of biological science

6. The student develops scientific attitude through the study of Biology

7. The student appreciates the contribution of Science to human happiness.
1.19 Need for the Study

When we think of the qualitative and quantitative improvement in education we have to accept Educational television, as it is most flexible and most powerful handy and versatile. It helps to maintain interest, attention and motivation, solves the problem of time consuming verbalism and is a good substitute for direct experience. It provides for adequate impression of images and better clarity of subject matter. It helps to provide reinforcement to students. It is less cost effective when used over large numbers. In an over crowded classroom where there is less individual attention, it is felt that Teacher Controlled Video Assisted Instruction (Video Assisted Instruction) should be introduced and the students from the socially and economically deprived sections of the society will be benefited much than at present. Non-a Video Assisted Instructionlability of suitable syllabus based software in various subjects or areas in education is an inhibiting factor in widening the use of video assisted instruction in the classroom instruction. The topics selected for making Video films will be of such nature that other instructional materials if employed could not help the students much in forming certain science concepts. When the latest developments in the field of Science and technology have ensured scope for improved practices in terms of use of appropriate technology for Science Education at all levels, dearth of suitable materials should not refrain the teachers from using it in classroom transaction. Most of our schools are deprived of facilities available to teach Biological science and adoption of innovation is slow. Studies of the present nature are
needed to establish the effectiveness of the handy media-video, in a
teacher controlled manner in the instruction is to be validated and
research is needed. Hence the present study was undertaken.

Use of suitable video in instruction is an important area of
research to assess the effectiveness of teacher controlled video
assisted instruction in terms of accomplishments expected to follow
from its use before the planners and policy makers step into the
purchase of TV and VCR/VCP and in video produced commercially
that costs thousands of rupees. Thus the technological feasibility
needs to be studied and hence the study was attempted.

1.20 Statement of the problem.

The following factors led the investigator to select the
problem. The investigator had been teaching Biology for twelve years
since 1978 and thereafter in the field of curriculum development,
evaluation and training and got opportunities to research and produce
educational films for creating awareness and for training. The
researcher also received many opportunities to use films in teaching
and training. His academic and professional background had directed
his mind that if film were produced and used based on a preconceived
mode and the target group, the effect of the films among the viewers
would have been much greater. During many occasions the school
science teachers, expressed the same view.

Educational technology provides the necessary conceptual
framework and helps to ameliorate the problems stemming from the
needs of an institutional system. Recent researches related to media had revealed fascinating results.

Students learn best in different ways and at different times. According to psychologists, children learn best if they use their own senses in acquiring knowledge. As they grow older, they may able to do it in a more abstract manner.

The aim of the science teacher is not just to impart scientific information but also to create an interest in science and develop scientific thinking and temper. If they are to develop these qualities in the student, the teachers are to change their mode of presenting facts and concepts. But a new technique a innovation is welcomed and prepared to use it by the teachers only if it proved better, less sophisticated and handy.

To a Biology teacher, experiences from outside the classroom and observations that cannot be made in a classroom are needed for developing a conceptual basis. The usual chalk and talk method will not cater the needs of such learning situations. Hence suitable technological support is necessary.

In order to make the educational system responsive to the emerging needs of the Indian society in 21st century a new design of structure, content and process in education is to be envisioned and coordinated and modernize the efforts in all the three areas.

Taking the points into consideration, the investigator had arrived at the area of the problem for investigation that carried the suggestive title.
“EFFECTIVENESS OF TEACHER CONTROLLED VIDEO ASSISTED INSTRUCTION ON THE ACHIEVEMENT IN BIOLOGY AMONG VIII STANDARD STUDENTS”.

1.21 Definition of key terms

1.21.1 Operational Definition of Key Terms

Effectiveness: Capacity to bring about the intended result. Generally, effectiveness of an instruction is assessed on comparison by its outcomes with other methods (in this study - traditional method) and more commonly by the achievement test that the instructor employs to gauge the individual performance on one hand and instruction on the other.

Teacher Controlled Video Assisted Instruction: It is an instructional technique where a prepared and recorded video programme (lesson) enables the teacher to mediate and manage the flow of information from the pre-recorded CD-ROM to the students through a Multimedia PC in the learning process.

VIII Standard Students: The students studying in standard VIII of Government/aided/unaided recognized schools following the school syllabus of General Education Department, Government of Kerala.

Achievement: The gain reached by effort; the students gain in knowledge, comprehension and application objectives after undergoing an instruction.
1.22 Objectives of the study

The objectives of the study are:

1. to develop and validate the Teacher Controlled Video Assisted Instruction package (software) in Biology for VIII standard students.

2. to construct and validate Achievement Tests in Biology for Standard VIII students.

3. to find out the effect of the Teacher Controlled Video Assisted Instruction on the achievement in Biology among VIII standard students.

4. to find out the effect of Traditional Method on the achievement in biology among VIII Standard students.

5. to find out the effect of Teacher Controlled Video Assisted Instruction on the achievement among VIII standard students in the area of knowledge, comprehension and application objectives.

6. to compare the effectiveness between Teacher Controlled Video Assisted Instruction and Traditional Method on the achievement in Biology among VIII standard students.

7. to find out the effect of Teacher Controlled Video Assisted Instruction on the achievement among VIII standard students in Biology keeping their intelligence as a co-variance.
8. to find out the effect of Teacher Controlled Video Assisted Instruction on achievement among VIII standard students in Biology keeping their socioeconomic status as a co-variance.

9. to find out the effect of Teacher Controlled Video Assisted Instruction on the achievement among VIII standard students in Biology keeping sex as a co-variance.

10. to find out the correlation among the pre test and post test scores in total as well as learning objectives 'Knowledge', 'Comprehension' and 'Application' of TM and TCVAI.

1.23 Scope of the study

In the present investigation, the scope of the study is restricted to select areas in Biology syllabus in standard VIII, following the syllabus of General Education Department, Government of Kerala. Geographically, the study was delimited to the select Biology students of selected school in Trivandrum district only.

Further, conceptual understanding may be observed in all the disciplines but in the present study, only the cognitive attainment of some of the concepts of biology (pollution, the cell & the excretory system) after the treatment was studied.

The study was confined to the development of video materials on select topics in Biology of Std VIII and testing the effectiveness of teacher-controlled instruction using the video. The effectiveness was assessed based on the Achievement tests.
For the purpose of Teacher Controlled Video Assisted Instruction, three programmes—Pollution, The Cell and The Excretory System—were developed.

Furthermore, in the present study, the variables, sex, intelligence and socio-economic background have been treated as independent variables.

Experiments of this kind will motivate in the production of quality software based on sound learning theories and according to the needs of the target group.

1.24 Hypothesis

In the proposed study following null-hypotheses are formulated for testing.

1. There is no significant difference between the achievement in Biology among VIII standard students when they are subjected to Teacher Controlled Video Assisted Instruction and Traditional Method.

2. There is no significant difference between the total achievement in Biology of VIII Standard students in the area of Knowledge, Comprehension and Application objectives when they are subjected to Teacher Controlled Video Assisted Instruction and Traditional Method.

3. There is no significant difference between the total achievement in Biology among VIII standard students when
they are subjected to Teacher Controlled Video Assisted Instruction keeping intelligence as co-variance.

4. There is no significant difference between the total achievement of VIII standard students in Biology when they are subjected to Teacher Controlled Video Assisted Instruction keeping their Socio economic status is kept as co-variance.

5. There is no significant difference between the total achievements of VIII standard students in Biology when they are subjected to Teacher Controlled Video Assisted Instruction keeping sex as co-variance.

6. There is no correlation among the pre-test and post test scores in total as well as learning objectives of Traditional Methods and TCVAI

1.25 Procedure for realizing the objectives

After making consultation with curriculum experts and subject specialists, topics that require video support were identified from among the topics of Biology syllabus of Std VIII. Instructional design was developed and suitable video materials and achievement tests were developed and validated. Suitable hypotheses were framed and the validated materials were used in the experimentation. Experimental and control group techniques were used and the level of achievement was compared find effectiveness. The nature of the study was pre-test, post-test, equivalent group design.
1.26 Delimitations of the study

The study was confined only to the select chapters in Biology of Standard VIII based on the syllabus of General Education Department, Government of Kerala. Since it was a highly time consuming and laborious process to prepare video on all chapters in Biology, only selected areas were attempted. Moreover, the production of video films to teach all chapters in Biology of Standard VIII in the video assisted instruction mode is highly expensive and could not be afforded by a single investigator.

The present study was only confined to English medium division of Standard VIII as the production of English and Malayalam version of the video films are also time consuming, laborious and highly expensive. The study is also confined only to the urban students of Standard VIII and where hardware facilities are available. Sanction of time slots by the school authorities for longer duration was another limitation to extent the study. The constraint related to the production of video films, time, finance and physical facilities for testing for longer duration forced the investigator to limit the study to three select areas and testing only in a select school.

1.27 Resume of the succeeding chapters

The thesis has been organized in six chapters. The first chapter deals with the introduction to the study and the second one on conceptual framework. The third chapter deals with review of related literature. The fourth chapter deals with the methodology of the study
and the fifth chapter deals with the detailed analysis of the data and their findings. An overview of the study with relevant recommendations or suggestions is given in the sixth chapter.