# CHAPTER 1

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# INTRODUCTION

## 1.1. Education and Modernization

The imperative character of education for individual growth and social development is now accepted by every one. Investment in the education of its youth is considered as most vital by all developed countries. Such an investment understandably acquires top priority in developing countries. Education, in one sense or another, appears to be as old as the human race, though in course of time, its meaning and objectives have inevitably undergone certain changes. Education refers to any act or experience that has a formative effect on the personality of an individual. Such a view of education will include all life long experiences. In a technical sense, however education refers the process by which, society, through its different institutions, deliberately transmits its cultural heritage to its young - its accumulated values, knowledge and skills from one generation to another. Education is a product of experiences. Life involves a constant and continuous modification of experience. Ashby (1966) has identified four revolutions in education, the first revolution occurred when societies began to differentiate adults roles and task of educating the young was shifted, in part, from parents to teachers and from home to school. The second was 'the adoption of the written word as a tool of education.' Writing was permitted to coexist with the spoken word in the classroom. The third revolution came with the invention of printing and subsequent wide availability of books. The fourth revolution is the development in electronics, notably those involving the Radio, Television, Tape Recorder, Video and Computer.

Education is the process of helping the child to adjust to this changing world. Such an adjustment is not a 'somewhat' one but a superior adjustment. The best type of education is that which guides the immature child to live his life richly and abundantly, at the same time to contribute to social betterment.

Educational adjustment of the child is conditioned by the nature and demands of society to which the child should get adapted and attuned; so what could pass for superior adjustment a few centuries ago will be value less in the society of today. The most distinctive feature of modern society is its science-based technology. It is this which has helped modern societies to increase their production spectacularly. Science-based technology has other important implications for social and cultural life. The changes that occur as modernization. This modernization affects the educational system also. There has been a great explosion of knowledge during the last few decades. In a traditional society, the stock of knowledge was limited and grew slowly. The main aim of education was interpreted to be the preservation of this accumulated treasure. But in modern society, knowledge in every subject is cumulative so that as each year passes, there is more to be learnt. One of the main tasks of education in a modern society is to keep pace with this advancement in knowledge. In such a society, knowledge can not be received passively. It is something that is to be actively discovered. The main aim of education should be on the awakening of curiosity, the stimulation of creativity, the development of proper interests, attitudes and values and the building of essential skills such as independent study and capacity to think and judge for oneself. Report of the education commission (1964-66) observed that education must serve as a powerful instrument of social, economic and

cultural transformation necessary for the realization of the national goals. With the knowledge explosion that is found in developed countries, we see another factor namely population explosion, particularly in developing countries that is trying to change the pattern of life. Most countries in the world have faced, in some form or another, these problems and what is needed today is an education explosion. Curing illiteracy is the immediate problem in developing countries. It has been estimated that half of the world's population is totally illiterate and majority of them are from developing countries. To obliterate this problem, we need more number of teachers and yet this can not be a complete solution for the ever increasing problem of illiteracy.

### 1.1.1. Educational Technology and the Changing Role of Teacher:

The recent changes in the concept of education resulting from modernization have also led to the development of newer areas of educational endeavour. Education is interpreted not as referring to an initial period of training of youth only, but to a continual and life long process.

Education today aims at elevating itself to the level of a complete and comprehensive science with broads objectives. It does not attempt to relate itself merely to pedagogy but is conceived as Androyogy, which is the science of training man throughout his life span. Such an enlarged view of education would naturally involve greater and more sophisticated use of instructional technology.

In actual working process we find there are at least three aspects that are essential to the concept of education. The first of these, is the universally accepted notion that education implies modification of the education. The second element is that education and achievements of a complex society. The third essential quality is that the process of education must always imply the use of an instrument. There must be some means by which the deliberate modification may be accomplished. This instrument is knowledge in its various forms. Teaching is more than mere communication of knowledge.

'Educational Technology' implies a behavioural science approach to teaching and learning in that it makes use of pertinent scientific and technological methods and concepts developed in psychology, sociology, communications, linguistics and other related fields. It also attempts to incorporate the 'management principles of cost effectiveness and the efficient deployment and use of available resources in men and materials. Educational technology in its wide sense as understood today, includes 'the development, application and evaluation of systems, techniques and aids in the field of learning.' As such its scope encompasses educational objectives, media and their characteristics, criteria for selection of media and resources, management of resources as well as their evaluation.

Educational Technology is being developed with the aim of not only making education more widely available but also of improving the quality of education which is already available. The nature of these emerging educational techniques has been influenced by modern psychology. Piaget (1981) worked on behaviour and capabilities of children with orientation towards the learner and his needs and emphasis on the importance of

maturational factors has been felt every where. Skinner (1981), worked on learning and his emphasis on the importance of 'reinforcement' in the learning situation has created a revolution in the field of educational technology. The relationship between the objectives of education and instructional technology appears to be reciprocal. Developments in technology bring about changes and shift in educational goal which in their turn, stimulate the emergence of newer techniques.

The growing use of educational technology in today's schools has helped to release the teacher from the routine role of 'information giving' so that he can devote his time and effort to the more important task of planning, arranging and evaluating learning experiences and outcomes and to encourage, enthuse, guide and counsel students. The various technological media are used to communicate the needed factual information to students and they are capable of doing this perhaps more accurately and efficiently than the teacher. So today students acquire knowledge through the various media and behavioural changes via the teacher. Another noticeable trend is the creation of multi-media learning environments in the classroom which involve the use of a variety of interrelated learning experiences. This implies 'the selection and use of appropriate sequences of inter linked audio visual or instructional media learning experiences which reinforce and strengthen one another in furthering the process of the learner.'

The changing role of teacher in education has been the result of a plurality of intertwining influences, philosophical, psychological, social, technological and educational. The basic shift in emphasis from the subject of instruction to the nature and needs of the learner in a complex society

had led to the stress on what is referred to as the mathematics principle. The shift in emphasis from the teacher to the pupil as the central figure in the process of education and the dovetailing of instructional activities with the realization of specific and clear-cut learning outcomes has inevitably led to a reassessment of the teacher's role in the classroom. The teacher considers each child as akin to a plant and helps the child to grow according to its abilities and aptitudes. He helps the child to learn. He realizes that "to teach is to nourish or cultivate the growing child or to give him intellectual exercise or to train him in the horizontal sense of directing or guiding his growth." The modern teacher sees education as a process of interaction between the child and his environment. Efforts are directed to motivate children to experience, to search out facts for themselves and to undertake projects in small groups. Activity and experience are the keynotes in his scheme of teaching. Children learn by doing and learn how to learn in groups and also individually.

## 1.2. Media and Methods of Teaching

The teacher practitioner is often puzzled when he is introduced to the many types of audiovisual aids available to him. Too often the novice in the art of teaching looks upon the hardware of educational technology as a convenient substitute for professional planning and competency. So, even at the outset, it should be made clear to the young teacher (i) that different media and methods are suitable for realizing different learning outcomes; (ii) that the effectiveness of aids depends not only on the materials provided but also on the techniques used and the ability; and (iii) resourcefulness of the teacher is as important in the classroom of today as

they were in the traditional classrooms. For some instructional objectives the chalkboard will suffice; for some others a brief lecture correlated to a suitable and simple demonstration will be enough; while for realizing certain other learning outcomes the overhead projector or sound film projector may be apt. As new devices are developed it is quite common for each to be heralded as the panacea for educational ills. The fact remains that the teacher must determine how device can uniquely serve his specific teaching needs.

New instructional methods develop from different sources such as, psychological research, pedagogical theory, academic disciplines, outgrowth of teacher's ideas and experiences, impressions of how learning ought to occur. Whatever be the source and whatever be the nature of instructional method adopted A. V. media help to support and supplement the teacher's work. In N.P.E. (1986), it is mentioned that the media have a profound influence on the minds of the children as well as adults. All sections of the people may take benefit of the countrywide economical and technological advancement.

### 1.2.1. Broad Classification of Teaching Aids

Audio Visual technology refers to the systematic use of a category of instructional materials. All the teaching aids can be broadly categorized under two heads, viz., projected and non-projected.

Educationists categories the concept of educational technology into two approaches viz., the hardware approach and the software approach. The

hardware approach is based on the application of engineering principles for developing electro-mechanical equipments for instructional purposes. Motion pictures, tape recorders, television, teaching machines, computers are called educational hardware. This approach is the result of the impact of scientific and technological development during the present century. Hardware approach mechanizes the process of teaching so that teachers would be able to deal with more students with less expenditure in educating them. The software approach uses the principles of psychology for building in the learner a complex repertory of knowledge or modifying his behaviour. It originates from the pioneering work of Skinner and other behaviourists. The programmes which such a technology produces are often called software. Newspapers, books, magazines, educational games, flash cards may also form part of software. Software approach is characterized by task analysis, writing precise objectives, selection of appropriate learning strategies, immediate reinforcement of responses and constant evaluation.

### 1.2.2. The Psychology of Using Teaching Aids

There is an old saying which reads as:

"I hear, I forget;
I see, I remember;
I do, I understand."

The traditional teacher depended too much on verbal exposition. The pupil hears and forgets. Further, unless the individual has pragmatic imagination it will be difficult for the individual to visualize objects and event however vivid the verbal description is. It is highly possible

that concepts formed will depend upon, the nature of background experience of the individual. It is highly necessary particularly in science and technology that knowledge gained by an individual is accurate, where considerable visualization of objects and processes are necessary and information of accurate concepts essential.

As a sensory organ, the eye is very highly developed when compared to the other sensory organ. Further primates and man, due to location of the two eyes in the front of a flat face have the additional advantage of perceiving depth. This is called the binocular vision. The human eye could differentiate very minute differences in colour and shade. It is quite natural that the knowledge gained through the sense of sight is more vivid, accurate and permanent. Hence what one sees, one remembers. More than 85 percent of our knowledge is gained through our eyes.

When one is engaged in any practical activity, involving physical work (doing practical work in the laboratory, workshop or in the field) all the senses are used to perceive. Knowledge is through all the senses. Hence inflow of knowledge is through many channels and naturally should be fast, complete and more accurate. This is learning by direct experience. Project method involving creative work will provide direct experience in a natural way. The work has a meaning to the pupil. The outcome is pragmatic. Lot of self activity is involved. It is an ideal method of making pupil acquire complete knowledge.

Psychological studies of effective learning emphasize the importance of first-hand concrete experiences involving sensory contacts as the starting point of learning, which later only proceeds towards greater and

greater abstraction. A pupil profits most from instruction when he becomes involved through his own interests and purposes and such an involvement is possible when concepts and principles are introduced to him through well-chosen educational media appealing to the different senses. Such a pupil will also act creatively. The teacher of today has at his command an array of aids some ready-made and some fabricated, by the teacher, using these teaching aids, the teacher can plan learning situations and be sure of realizing his objective. The teacher can make use of specific audio-visual aids to suit his purpose. The aids being concrete will be able to secure the attention of pupils, motivate and enable the pupils form accurate concepts, ensure permanent retention of the knowledge gained. A teacher using appropriate aids can make clear a difficult concept even to a below average pupil very easily. Mialaset (1966) emphasized the importance of the production of audio-visual aids for teaching purposes. Additionally we must eliminate materials which might cause traumatic effects amongst pupils, and we must never forget the psychology of our spectators. The utilization and production of audio-visual aids is now inconceivable without an educational research laboratory, through which the quality of such aids can be constantly improved. We must attempt to being together data and reflections with a single object in view, that of helping teachers to do their work better so that the children of tomorrow will be better than the children of today.

The activities during a class should be varied to prevent boredom, purposeful for effectiveness and pre-planned to achieve the set objective. The teacher to effect maximum learning should make the pupils look, listen and think. He should secure their attention and maintain the same throughout. Interest should be created and learning should be speeded up,

fixed and consolidated. Knowledge gained should transferable and utilitarian. The teacher of today makes sure of all the above outcomes by making use of the right type of audio visual aids at the right time in the right way.

The teacher uses verbal exposition, which is the least effective method of imparting instruction, to a minimum extent, supplement the same with judicious use of proper teaching aids and providing ample direct experience where knowledge is gained through multi-sensory media.

### 1.2.3. General Advantages of Using Teaching Aids

The following are the general advantages of using teaching aids:

1. By using audio visual materials, inaccessible processes, materials, events, objects, changes in time, speed and space could easily be brought to the class. Teachers often face difficulties in making information available to students in certain cases. Students in a large classroom may not be able to see the demonstrations, small models, objects and small pictures shown by the teacher. Further the teacher may not be able to show the microscope things to the whole class. Sometimes different types of instruction and guidance may be needed for individual students. Audio visual aids can help the imaginative teacher to solve all these communication problems. Motion pictures using remotely controlled cameras employing slow motion and time-lapse photography techniques, technical animation, etc., closed circuit television equipment, slide-tape presentations and the like

can always be used to advantage audio visual aids help to extend human experience.

2. Use of audio visual materials results in greater acquisition of knowledge of facts and ensures longer retention of the information gained. Audio visual materials provide first-hand experiences in a variety of ways and sometimes make the pupils actively participate. Hence they not only help to develop meaningful vocabulary but also enable then pupils remember facts for a pretty long time. Audio visual technology provides pupils with meaningful sources of experience, primary visual sources as well as additional resources.

3. Use of audio visual materials in the classroom can provide effective substitutes for direct contact of students with environment - social and physical. Audio visual materials enable us to cut through the physical limits of time and space. A teacher may take his class by means of an appropriate motion picture to any distant place and to 'meet' the people who live these and to observe places and things. Some media may serve as a magic carpet for providing needed experiences. Motion pictures, television and carefully prepared slide sequences would be particularly valuable. These stimulate pupil interests.

4. Using suitable audio visual materials, any expected change in attitude and behaviour could be facilitated. Audio visual material, generally add an interest and involvement to the viewer. Students learn more if they are engaged in significant and appealing activities. Active participation maintains interests and increases

learning whether they are participating in individual or group activities like a project. The entire gamut of the audio visual technology offers much scope for making models and exhibits, writing and producing plays and making charts, diagrams, maps and posters.

5. Proper audio visual materials can provide integrated experiences varying from abstract to concrete. Audio visuals supply a concrete basis for conceptual thinking, giving rise to meaningful concepts. Audio visual technology presents abstract information to the learners in various forms. On many occasions, teachers have to prepare the students for experiences which are normally beyond the scope of their comprehension. Teachers in this complex age should be able to guide them to the vast reservoir of knowledge by making use of additional resources like television, films, diagrams, charts, globes, maps and transparencies. All these resources enhance clarity of communication and increase speed of comprehension.

6. Using audio visual materials the approach is through more than one sense multi-sensory approach and hence they will be able to secure and retain and attention of pupils as well as develop the communication skills of pupils.

7. Audio visual materials could be used to motivate and stimulate interests of pupils to gain further knowledge. Interest is not an end in itself. Interest has been created by means of an audio visual aid must act as springboard for launching the students into a wide variety of learning activities. Audio visual media can develop on awareness of problems, open up possibilities for exploration, present meaning

preliminary information and thus open avenues to new activity. A field trip or community study can open up a number of possibilities for further activities like interviewing people, observations, taking photographs of objects seen and then returning to the school to arrange the materials for presentation.

8. Lastly, audio visual materials could be used to advantage for any age or ability groups. In a conventional teaching method, the teacher is the centre of attention and the primary source of information. Audio visual media may be used as 'supplements' to illustrate, to clarify and to focus attention. When properly programmed, media alone can teach. Students can learn using media at their own pace. For example, the computer assisted instruction can provide individualized instruction. The particular student using the programme receives immediate confirmation or correction of responses made by him. Similarly the programmed instruction and teaching machines offer lot of possibilities for individualized instruction. Such auto instructional aids may also make use of tape recordings, slides, filmstrips, motion picture films, models and other media. In brief educational technology helps to multiply teacher efficiency and helps in remedial teaching too. When the audio visual aids are used it is necessary to make sure that the entire class pupils are able to perceive any specific aspect pointed out by the teacher at the same instant. Hence the aid should be large enough to be seen by all. This fact should be remembered when using the chalkboard and graphic aids. One advantage of using projected aids is the resulting high magnification of the image formed on the screen which is easily seen by all.

Kothari (1987) indicated instructional media help the pupils by creating more vivid impressions, by using additional organs of sense. In short pupils are said to: (i) learn more; (ii) remember longer; (iii) learn faster; (iv) learn uniformly; (v) learn as his own speed; and (vi) develop interest through instructional media.

Some of the above facts are also supported by researcher in the field of instructional media. Ashokkumar (1979) found that multi-media method was more effective on retention. Mullick (1980) found that multi-media programme consisted of 46 slides, tape script and a work book was found superior in terms of achievement.

## 1.3. Communication and Role of Mass-Media

'Communis' is a latin word meaning 'common.' Hence communication is having common experiences with people. The word communication means a wide variety of things to different people.

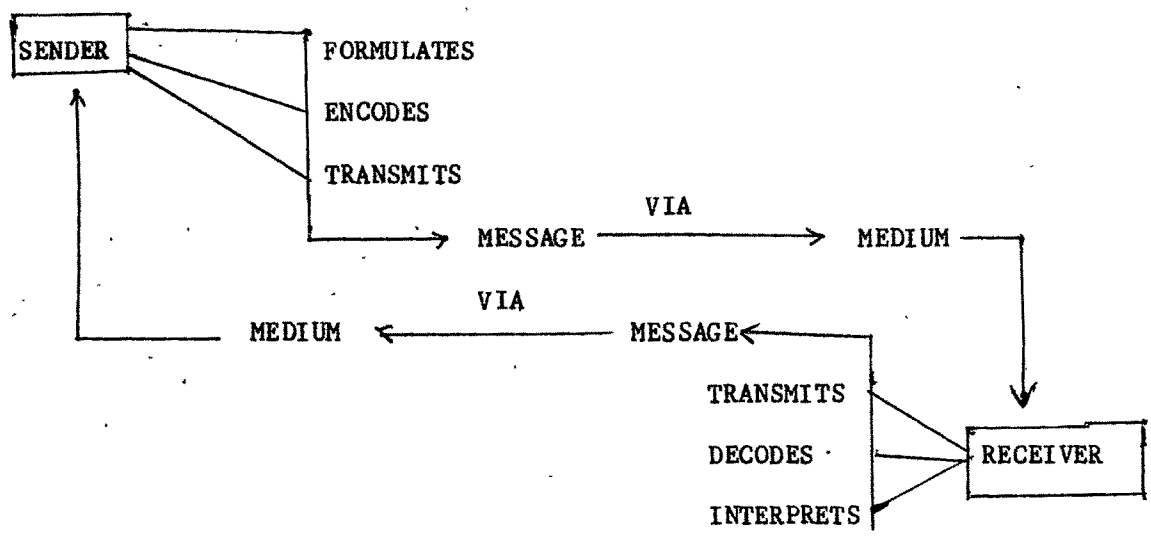
The basic communication model involves an informational or interpretive process in which messages, information or reaction to information travel from the initiator to the receiver through the route called communication channel. The message conveyed by the teacher and/or the educational media may be verbal or visual and the receiver may listen, see or examine and react in other ways. The communication channel in the classroom should ideally carry both messages and counter-messages; it involves initiation, reception and response which serves as feedback. The communication channel must be kept wide open, as only when the teacher and

pupil are able to communicate clearly and without interference can understanding and appreciation ensue. Usually the more valid and appropriate the sources from which messages originate the stronger and more valid will be the responses and counter messages that occur between the teacher and students or among students themselves. But unfortunately many interferences and communication barriers arise which impede the smooth flow of communication between the teacher and his pupils in the classroom. Some of these come from out of school agencies as commercial and entertainment media such as advertisements, magazines, radio, TV, etc. Others originate from psychological causes arising out of the interactive classroom procedure itself and as such are very difficult to tackle. These include excessive verbalism, lack of related experiences necessary for comprehending the new material presented and consequent attempts to relate the new material to seemingly relevant experiences resulting in what is called 'referent confusion,' day-reaming, limited perception resulting in limited understanding as well as physical discomfort of the classroom environment. Educational technology uses man's psychological and technological knowledge extensively to break-through such barriers to communication in the classroom.

There are essentially four components in the process of communication. They are:

1. Sender or source, technically called as 'encoder,'
2. Message or signal,
3. The medium or channel of communication, and
4. The receiver or destination or 'decoder.'

In this process, the source must have correct information and transmit accurately at optimum speed. The message may be designed for a single person or a group of people. It may be conveyed by expressions, gestures, spoken or written symbols or by hand-drawn or photographic pictures. Every medium exerts its influence and its peculiarities on the message and in this sense becomes a part of the message. The receiver must understand the message or in other words, must decode it or interpret it and must produce a desired response, or react which must be received by the sender. This is called feedback channel.




The communication cycle can be represented by the figure as mentioned on page

Types of Communication

There are three types of communication:

1. Speaking - Listening,
2. Visualizing - Observing,
3. Writing - Reading.

1.3.1. Communication in the Classroom

Communication in the classroom is to a considerable extent carried on through language - spoken and written, with the former playing a relatively greater role. Good teaching is more than mere communication. It is not enough if the child merely repeats the same word as conveyed to it. The teacher's concern is that the child should recognize the word, understand the meaning and use it appropriately with correct spelling on future occasions. True learning has occurred only when the act of communication has successed in making permanent and meaningful addition to the students communication skills. Classroom communication is not mere one-sided presentation of facts; it requires inter communication between students and teachers. There must be reaction and interaction with constant reciprocal feedback.

Teachers should know about communication. Classrooms are set up for the purpose of communicating and not for dictating teacher's ideas on the young and growing minds. Developing communication skills in children is the basic concern of the school and hence teachers must provide ways and means of developing and improving the skills. Teachers must realize the constant influence of several communication media outside the classroom upon the student. The words that the children seem to possess before entering school were all learned through various media. Teachers must capitalize on the students' conditioning to these media and must relate them to the school activities. Communication can occur only when the teacher and his pupils share common meanings and experiences.

Pupils with widely different background, different abilities and interests attend school. Further the teacher has to manage with the vast explosion in knowledge. Students have too few opportunities and too little

time to explore the vast subject-matter included in the curriculum in depth. To meet these challenges, the teacher has to make use of new and improved communication devices in the classrooms. Modern technology has provided films, filmstrips, radio, television, video, magnetic tapes, stereoscopic pictures and vast myriads of communication devices. These materials and techniques can be divided into two categories:

1. Those that are effective for use with groups containing individuals of varying abilities, and
2. Those that can be used advantageously in individualized instruction with a minimum teacher assistance.

Barriers to Communication: Communication may fail in certain instances as in the following:

(a) When facts are to be presented based on different socio-economic backgrounds.

(b) When facts are based on alien time dimension and space dimension.

Teachers have extra problems as communicators as they have to be sure of their messages reaching all pupils regardless of the kinds of interference present in the classroom. These barriers can be overcome to a very great extent by means of various audio visual aids. The so called mass media of communication like radio, motion picture, films, video and television reach mass of people at high speed with low cost. They are very flexible in their use and are excellent in quality. Verbalism which is a disease usually contracted in schools can be eradicated only when learning in a classroom is made real, meaningful, concrete and first hand. Audio visual material, if properly used, offer great opportunities for improving learning. For bridging the communication gap, use of audio visual materials

is not the best reason but only the practical reason. Now such media may be used flexibly in instructional systems resulting in greater benefits to pupils.

### 1.3.2. Role of Mass-Media

In the present century, when the extension of education to children and adults has gained lot of importance many educational programmes are being established at various level and through various modes and channels. These channels include mass-media like T.V., Radio, Films, Video, etc.

Education through the mass-media refers to the process of learning which takes place in mediated situations where there is provision for a large numbers of learners to participates in the learning situation. Mediated situation or mediated communication refers to impersonal communication via some medium so that no face to face setting is involved. Generally, reproduced sound, print or visual information is transmitted through mediated communication channels. In such situation, however, only one way communication is possible.

Mass media consists of channels, where the source communicates with the receiver through an impersonal channel over which the source has no control. These channels are entities themselves where a direct one to one relationship does not exist. But it is these very media that speed up the process of education by reaching mass audience in remote areas and overcome the barriers of time, distance, and illiteracy.

Mass media have an added advantage of being highly flexible and can respond to change in the curriculum, so it can introduce materials available in printed forms. By doing this, it can bring the latest advancements in various fields to large number of illiterates in developing countries, who would otherwise never have had access to such information. Thus the role of mass media in the development of human resources through distance education is unlimited and unparalleled not only in the situation where no other means of dissemination of knowledge is available, but also as a supplement to the more formal means of instruction.

## 1.4. The Video Cassette; an Estimate of its Potential for Education

Advances in information offer a new global resource that provides potential for far-reaching social changes. Futurists presume that computing education and communication technology will have an impact on political, social and economics aspects of the society, which would be far greater than the impact of the industrial revolution. We are moving across the threshold into a new hightech-era, an era of a world information based society. Technology is creeping into our economic and productive spheres of life. Science and technology have influenced the every aspect of human life, educational process does not remain untouched with the science and technology. Educational technology implies a behavioural science approach to teaching and learning in that, it makes use of pertinent scientific and technological methods and concepts developed in psychology, sociology, communication, linguistics and other related fields. It also attempts to incorporate the managements principles of cost effectiveness and the efficient deployment and use of available resources in men and materials. It involves media, methods, equipments and resources.

The video cassette is regarded as any packaged system which enables a programme of vision and sound to be played and replayed on a television screen. The system must be technically simple so far as the viewer is concerned, so that play and replay is positive and easy. One is required is that the video cassette as defined could well become the most important carrier of communication since the book. Where there is a TV set then there is the subsidized and endorsed outlet for the video cassette. It is this implication which need to be grasped by educationists at the outset. The home, the institution, the business are all accessible, wherever they may be; it is a commendatory reflection that even the shanty towns of South America are first remarked by their TV aerials. The potential is enormous.

### 1.4.1. A Brief History of Video Cassette; and the Present Views

Recording sound on magnetic tape and replaying the material when appropriate has been a regular practice for only eight or nine years with many educational authorities.

The practice of making audio recording has become so widespread. It is now for example, quite possible for the British Broadcasting Corporation (B.B.C.) to contemplate not making broadcasts, but supplying special tapes and booklets direct to the contributing schools and using the air time for support experiences. Such an example would be any of the excellent Radio Vision series were tape, filmstrip and printed commentary make a package.

This, then, is endorsement of the practice of making and using audio cassettes. The addition of vision of the cassette introduces not just another range of perception, but a far vaster field of presentation. It also introduces some extra problems. For example, audio tape will bear the

imprint of imagination more readily than the video cassette, because it is easier to make a sound recording of adequate quality. Indeed, it was only within the limited sphere of broadcast works that video recording of any sort was used up to 1963. From that time on very considerable advances have been made. The first developments were in terms of large video tape recorders making their programmes on 2" wide tape. They were costly, used black and white, and were usually concerned with programmes made by the BBC or at the larger universities and colleges. Around 1965 the first reliable 1" recorders appeared in America and this enabled much more experimentation to go ahead. But even as late as 1968 the cost of the equipment precluded the use of the video recorder on a wide scale and it was not until the introduction, around 1968, of the cheap 1/2" helical scan video tape recorder that wide use of video recording came about. Even at that stage such institutions as the BBC were particularly cautious about its use, and even more doubtful about how widespread it would be likely to be. Whereas, even today, it would be the expected thing that a school would obtain a 16 mm film projector, the case for video recording 'off-air' programme has made itself clear to many schools, and already the priority list is switching from those who would require a projector first to those who would want a video recorder first. But at this stage we have not reached the video cassette. Essentially we are still talking about the use of a video tape recorder of an open reel variety: that is one which requires lancing and some manipulation. Even the most simple and lightest are cumbersome and require special provision to transport. Nevertheless, the establishment of economically priced black and white 1/2" helical scan video tape recorder can be regarded as the true precursor of the video cassette recorder.

Broadly speaking one can summarize the video cassette as existing under three headings: those using magnetic tape technology, those using disc technology, those using laser technology. At Houghborough they have been concerned with the development over the past two years from 1973, of the systems employing magnetic tape and have experimented with laser holography.

In Europe Philips have established a consortium of all the major manufacturers to turn out their NM 1500 video cassette recording using 1/2" tape. Any machine, wherever produced, will play the cassette of any other similar group machine. This is most important and is one of the cassette of any other similar machine. This is most important and is one of the particular features that commends the machine. There is one version available capable of recording off-air programmes, either automatically or by manipulation, and of playing any cassette appropriately recorded elsewhere. Modification to the device makes possible the creation of locally produced black and white programmes. Other models capables of play black only or incorporating locally recorded features will be produced.

A similar machine was the Sony 'umatic' Japanese produced it is at the moment used in the USA and employs 3/4" tape.

Film devices which employ super 8 mm film in a closed boy, inspected by a week laser or corresponding system are also serious contenders to produce video cassettes and trade name "Cartrivision" has established itself to some degree in this respect. Essentially, however, any device which uses film demands a remote processing function. This is true of the EVR which some of the audience may have seen in exhibitions. Essentially

this is a film medium accepting electronic signals and, after processing, playing back onto a television set. It is this feature, that film needs processing, which most particularly distinguishes the video cassette which employs magnetic tape. Usually tape is capable of local or remote recording and replication. It is this feature which places it most advantageously within the field of education.

The case is equally true when video discs are considered, whilst demonstrations of these have been made it is not possible to use or purchase one. The reason is the difficulty in making the discs (essentially high quality gramophone records revolving at very fast speeds) last long enough.

There remained the use of holography. This indicated that three dimensional colour cassetting was possible.

Thus without considering the particular feature of the video cassette we have already the milieu into which a system of electronically stored visual material is acceptable. This acceptability is endorsed enormously when we consider the availability of the outlets. The case already been stated that wherever there is already a TV set there is an outlet. There is a particular case to consider here it is one of significance to all who intended to use video cassettes and concerners the use of colour TV receivers.

This in considering the video cassette recorder, we have to acknowledge its particular ability, at a comparatively low cost, to record and play back colour. This compares with the limited ability of a low

priced video tape machine which uses black and white only. Nevertheless, to purpose the rationale, we have in the video cassette machine a system if recording, storage and playback which is contemporary in terms of communication media, opposite in terms of its relevance to students and logical in that its outlets are a million fold already subscribed and located.

The point regarding the ability to process magnetic tape immediately and locally as against other systems of recording needs re-stressing. The existence of thousands of excellent programmes made for education and broadcast each year is the compelling reason, at the moment, for the employment of the video cassette machine.

To sum up, the argument for video cassette specially using magnetic tape is that it is educationally opportune, that it is correctly oriented technologically so far as communication is concerned, that is already has access to all locations where a TV set or station operates and that it is capable of sustaining future growth, especially in the field of curriculum change and mass education.

Seymour (1973) adopted video cassette as a standard output format for Audio Visuals Research and Development Centre for teacher education and other major educational research centres of University of Texas, Austin, considering the following advantages:

- User Convenience: A video cassette can not be erased accidentally. The video cassette may be stopped, rewound, replay or even removed at any point in the playing cycle.

- Input Versatility: With most input formats duplicate video cassette, cost, substantially less than duplicates of the product made in the original medium.
- Room Light Viewing: High quality TV picture produced by a cassette player can be watched by the teacher and students in full room light in day-time. They may take legible notes.
- Viewing Habits: Students are accustomed to watching TV, its their familiar habits.
- Re-use of Material: Video cassette can reuse over and over again and again with a view to futuristic perspectives.

According to the objectives of the educational document called 'The Approach to the Seventh Five Year Plan 1985-90' (1984) 'Crucial goal oriented technology missions must be identified and achieved by linkages between users, producers, and research institutions. Such comprehensive technology development plans which take an important view of domestic development.'

According to P.O.A. (1986) education requires media support which is related to the curriculum. Video technology offers considerable potential for improvement of the quality of education.

Video can make a significant contribution in making the teacher trainee his own theorist. Good teaching practices is based on good theoretical understanding and teachers, therefore need to see particular techniques not simply as techniques but as exemplification of particular theoretical assumptions. Widdowson (1987) makes a plea for greater

attention to the development of a spirit of enquiry among teachers and demands of teachers to understand the relationship between theoretical principle and practical technique and to test 'one out against the other in a continual process of experimentation guided by implicit theory, or by intuition.' The use of video-taped lessons will enable the teacher-trainees to have more informed and objective perceptions of their classroom tryouts. The conscious use of intuition strategies would give the teachers greater control over their classroom behaviours and help them conduct themselves in the class with greater confidence.

The video offers a necessary fillip to the learners for developing their communicational skills in the target language. The BBC English video course entitled 'English Teaching With Video' (1987) has demonstrated some key techniques to make video-based lessons more productive. It has outlined seven simple strategies that can be employed with virtually any video, in any class. They are:

| | | |
|---|---|---|
| 1. | Silent Viewing: | Showing students a scene with the sound turned off and asking them to interpret, what they see? |
| 2. | Prediction: | Stopping the video or freezing a frame and considering what will happen next. |
| 3. | Description: | Asking students to describe what they have been watching. |
| 4. | Reading their minds: | Viewing a conversation carefully and speculating on the speakers real thoughts. |
| 5. | Understanding their feeling: | Exploring the emotions of the characters in the video. |

6. Topics: Re-enacting a scene in the class as a means of interpreting it.

7. Reviewing: Expressing earlier experiences.

Gautam and Sachdeva (1989) 'The Use of Video in language teaching does not entail a completely new language methodology. It is only a useful addition to the repertoire of teaching aids already available to the teacher. The best principles of using other teaching aids and resources should be applied critically to the possible use of video equipment.'

Video has a high motivational and reinforcement value as it exposes the learner to both the aural and visual discourse simultaneously. Through the use of video the learner's psychological resistance is significantly reduced and he is mentally set to taking in the recorded situations as nearly authentic. For creating and facilitating the interplay between the learner and his world the teachers' role as an interpreter and the viewers role as a learner must be meaningfully coordinated. This pedagogic transaction needed to facilitate learning. In handling video as a teaching aid, the teacher can manipulate the properties of the video like STOP, PLAY, REWIND, FAST FORWARD, PAUSE, FREEZE, and also its sound and vision can be controlled separately. This control of the machine and ease of operation of the controls gives video a flexibility.

Sometimes the practicing teacher begins to regard video as a threat to his role in the classroom, which in fact is not the case. On the contrary, video can prove to be an important and viable tool in his pedagogic kit, as it will help the teacher to contextualize the language material more efficiently.

Video provides a positive support to the classroom teacher. This medium can used as an effective complement and supplement to the available teaching aids. With its help the teacher can create in the classroom a near real and stimulating environment because it is presented in a socio-pragmatic context. It can extend the learners' access to the target language and its uses by presenting a greater variety of speakers in a wider range of contextional classroom with orthodox teaching materials. Video shows the educational programme within whole systems of interaction including non-verbal communication,, and it helps supply the necessary background to be fully understood. In the traditional classroom setting the learner learns the mechanics of the target rather consciously but through the visual presentation of the educational programme in all situations the learner will acquire the educational programme in a natural manner.

Video can extend the walls of the classroom by its realism, as it depicts of real life situations, real life people and real life experiences. In the classroom what is taught remains a mere simulation; where as with the help of video lessons this element of artificiality in teacher presentation is sufficiently reduced. The visual presentation of real life people in real life situations creates a sense of immediancy, which ensures a more ready and natural participation of the learner in a simulated situation presented on the video.

Looking to these potentials of video, the present investigation was much impressed.

## 1.5. Importance of Nutrition Education

In many places in the world, malnutrition is the result of ignorance and prejudices rather than of the poverty and shortage of food. Everything begins with education. This expresses the need for an integral education meaning that basic understanding about foods and nutrition is an important part of total education. The concept that man should eat what instinct dictates has long been abandoned, and the need for food nutrition education has been amply debated in educational institutions. Food and nutrition knowledge must be started at an early age in order to achieve a greater impact on the behaviour of an individual. Although the solution of the problems of nutrition depends to a large extent on the solid economic and agricultural development of the country and the quantity and quality of the food available at reasonable prices. It has been generally recognized that food and cultural patterns also influence nutrition. But how can the traditional, faulty food habits and the rigid cultural patterns which come in they way of adequate nutrition, be changed as modified, or corrected? The simple and the best solution is to educate individuals in nutrition.

Nutrition is the subject of national importance. It is the foundation of good physical and mental health. The immediate relationship of food to the health of the individual extends to become an influence upon the health of the society in which he lives. It has been said that nutrition is the science concerned with the movements of atoms in man to the movements of man in the society.

From the point of view of psychologists food is a basic need of human beings. From the point of view of physiologists and medical doctors,

adequate nutrition is the foundation health. According to educationists education is the cornerstone of adequate nutrition. This mainly because it is primarily the responsibility of the educators to help the individuals to understand what is adequate nutrition, food habits and how to change nutritional needs? Education in nutrition seeks to create an awareness of what we eat and its relation to our health. Nutrition education plays a very important role in diffusing ideas of balanced nutrition and cheap sources of protective foods. Nutrition education is very important from two angles. Firstly upon the health of the children lies the foundation of the future of nation. Secondly the children when taught the subject of nutrition, convey their impressions of the schools to their homes and parents which result in spreading the relevant education to the masses.

The problems of nutrition are not particular to certain group of people they are diverse and exist everywhere. Malnutrition is not only due to poverty but due to ignorance, faulty information and simple lack of appreciation of the relationship existing between adequate nutrition and the health and well being of the individual.

This reflects that nutrition education plays a very important role in national development, since it ensures healthy population. It is a pity that large number of people in our country are still not nutrition conscious. There is much ignorance as to what constitutes the balanced diet. Even educated people in high income groups suffer from this ignorance.

Nutrition is one of the major aspects of the health of human beings. The primary school level students are not nutrition conscious. There is

need to develop an awareness concerning nutrition education in them. Promotion of health and nutrition education encourages the students to alround development.

Indeed, the need of the hour, today is to incorporate basic information in regard to human nutrition, into the frameworks of our educational curriculum that the younger generation could grow with the basic knowledge of foods and nutrition they would require later, that there is an urgent need to create awareness for nutrition educational purpose through a well planned educational activities. The basic understanding about foods and nutrition is one of the important parts of science education. Food and nutrition knowledge must be started at an early age in order to achieve a greater impact on the behaviour of an individual. Foods and cultural patterns also influence nutrition. We must change our faulty food habits and rigid cultural patterns.

National Seminar on Nutrition Education (1976) recommended "The Introduction of Nutrition Education in Primary Schools." In the proposed syllabus of 'Nutrition Education Primary Stage,' the seminar specified the general objectives of nutrition education at Primary School level as follows:

i. To help children to become aware of the foods available in the locality.
ii. To help children to understand the need for food and what food does to them.
iii. To help children to like eating different groups of foods avoiding waste.

iv. To help children to acquire good food habits and hygienic practices.

v. To stimulate the child's participation in food production activities in the home and school to the extent possible.

vi. To help children carry home knowledge of nutrition and its application and teachers to observe and follow up changes in the pupils and their homes through parent/teacher association and discussion groups.

Guru (1981) in a report of a Technical Working Group meeting on Curriculum Development and Education on "Towards Better Health and Nutrition" reviewed Indian experiences concerning status of health education and health and nutrition education and environmental sanitation at primary level. According to his observation the children below 14 years of age as per 1971 census constitutes 42% of the Indian population. Presently 40% death occur between 0-5 years. This is frightening. Malnutrition and infection are two major causes of high infant and child mortality rate. The reasons for malnutrition are not only poverty and non-availability of food, but to a large extent ignorance of nutritional facts, undesirable practices and beliefs.

Devadas (1981) mentioned that malnutrition is a multifaced problem, therefore its solution calls for a multidimensional approach. While supplementary feeding may give relief temporarily, the long term solution lies in the education of children and their families in nutrition, health and environmental sanitation. Such education can reach more people through the primary schools which constitute the largest organized formal education sector in any country. Hence nutrition and health education should be built into the curriculum and activities of the primary school system and the institutions which train the teachers.

"The approach to the Seventh Five Year Plan 1985-90," according to the objectives of the document, "There is need to improve greatly the physical well being of the people and the environment in which they live. This will require an improvement in nutritional support." Nutrition Education is the area with regard to train the students from the point of view of communication methods related to the teaching of basic concepts of nutrition to the primary school students as well as people in the country.

The UNICEF-NCERT pilot scheme on Nutrition/Health Education and Environment Sanitation at primary stage of the Science Education Programme (PROJECT - IMPO), (1981), has started the general objectives of imparting Nutrition/Health education as follows:

- To enable children and their caretakers to understand that proper nutrition is essential for good health, normal physical and mental development.
- To educate them in the selection preparation and conservation of good quality food.
- To develop desirable and good hygienic and environmental sanitation practices.

Reported objectives and concepts concerning aspects of health and nutrition education exhibit that the best time for building the foundations for better health and nutrition is early in life. The primary schools have the responsibility and opportunity to help, protect, maintain, and promote the health of the pupil who is required the legal and moral responsibility in providing instruction for health and nutrition as well as providing a safe and healthful environment for the pupil. The health and nutrition curriculum encourages the pupil to develop skills in critical thinking,

wise decision making and problem solving rather than memorization of facts or emotional impulses. It views health as dynamic quality of life and recognizes the interrelationship of the physical, social mental and emotional forces. It recognizes the worth and dignity of the individual as he makes the most of his potential. It motivates the individual to seek knowledge as a lifelong commitment. Health is multifaced and its many facets relate to the aspects of human well being, the physical, the mental, the emotional and the social. The importance of health and nutrition education can not be over stressed. In any human endeavour its value should be underscored as the one single factor without which nothing else would succeed. Individual progress and national development are alike development on health - the health of the individual and the health of nation. This brings out its criticality as both an individual and a national concern. Any educational programme should take into consideration and the interests of children. The situation of conflict that can arise between knowledge, values and practices the child imbibes in the school, on the one hand, and in the home and the community on the other hand is something peculiar to health education. If the school programming is delivered efficiently, for instance, if in the affective domain a child can be made to value and champion what he has being made to imbibe in the school, then he becomes a vehicle through which the school could reach out to the family and the community. That would be a treasured contribution to national development.

The school health education needs to include the sum total of experiences in four inter-related facets:

- health instruction;
- healthful school living environment;
- health services; and
- school community co-operation.

Health education must be pupil-oriented in terms of their problems, interests and needs.

The present study is essentially aimed at producing a Video Instructional Package (VIP) to teach balanced diet to the students of Standard VII and studying its effectiveness in terms of the students'. This is the study having four aspects; that are:

1. Development of the V.I.P.
2. Validation of the V.I.P.
3. Tryout of the V.I.P. and
4. Comparison of the V.I.P. with traditional method of teaching.

This study can be classified under developmental research because a developmental research is one which aims at organizing instruction in real educational settings and study its functioning with the aim to continuously improve its effectiveness. Developmental research has two-fold significance as it not only increase the applicability of educational practices in specific situations but also helps in generating better insights into the instructional process. It increases the applicability of practical modes of educational interventions as well as generates better insights into the interplay of various variables in the context of intervention under the study. Since the research is carried out in real conditions, it helps in getting increased understanding of relationships existing among numerous variables in an instructional setting. Bruner (1961), Maccia (1967) and Travers (1986) opined that the significance of conducting research in real conditions where all related variables function in a natural fashion and a complex interplay operating among these variables provide new patterns of relationships, possibly different from those which are derived from

research in controlled conditions. Even a more description of such educational process helps to draw out certain implications towards the generation of better understanding about the educational process. Investigator has selected VC as instructional package as it possess following characteristics:

- It involves input, output and process aspects of education.
- It stresses upon developing methods and techniques for effective learning.
- It includes the organization of learning conditions for realizing the goals of education.
- It emphasizes designing content for testing learning outcomes.
- It facilitates learning by control of environment, media and method.

Investigator is particularly interested in primary school level as he found the relevant target content in primary school level curriculum of science. He also found that his study has wide scope as the relevant content is there having gradual development starting from Standard I to VII, there is more descriptive content than other standards text books. After Standard VII the relevant content is not there in the curriculum of science starting from Standard VIII to VII, except in Standard X.

Considering the above mentioned important stage investigator had to select the relevant content and sample from Standard VII of primary school level for the present study.

Investigator arrived at this study, as he found that no such kind of study has been conducted. Fundamental reasons of this research study are concerning lack of indigenously developed software in the field of primary

education; limitations of ETV programmes and lack of co-ordination between the curriculum developers and the media people.

The present study is an attempt:

1. To support the objectives of the Seventh Five Year Plan 1985-90 in terms of -
   - promotion of nation wide technological advancement.
   - promotion of nutrition education.
2. To support the objectives of National Policy on Education (NPE) (1986) in terms of -
   - to give importance to the nationally important features like:
   i. academic use of video technology in terms of technological advancement and
   ii. nutrition education.
3. To cater diverse needs of educational activities.
4. To make students more interested in the Nutrition Education area.
5. To try to understand and solve the problems in the field of educational technology in general and concerning lack of software in particular.
6. To exhibit the functional aspects of the content.

Present study purports to develop the software based on a content points, concerning nutrition education as a researcher found that there is lack of software in the field of primary education in our country. No doubt TV has great potential in instruction, but it is not utilized to its optimum. This is because, though there is a large TV network in our country, there is a lack of indigenously developed software. Moreover the time allotted for the use of TV for educational purpose is less. According

to investigator video technology is potential for imparting education effectively.

According to investigator there is need to solve the above-mentioned problems through educational activities, that primary school pupils must become nutrition conscious, standard of science education must excel in primary schools, and students' taste and interest concerning the content must be increased.

The study is in the direction, to provide awareness regarding nutrition education through video instructional package and study its effectiveness in terms of the students' achievement.