CHAPTER - I

INTRODUCTION
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The multimedia allows kids to see him to hear him speak that you don’t get off the paper. - Douglas Buchaman

1.1 PREAMBLE

Variety in teaching methods adds spice to learning. Teachers need a repertoire of teaching methods, strategies and tactics to make their teaching – learning process more interesting, interactive and effective. Since teachers teach as they are taught, teacher-educators have an added responsibility. They should present content through a variety of methods and techniques that is passed down to student-teachers.

Teaching methods in recent years have moved from a predominantly teacher oriented and teacher controlled approach to teacher-pupil interactive process. In the present scientific and technological age, the conventional teaching methods are not sufficient to arouse interest among the students and do not satisfy the intellectual, psychological, and emotional needs of the students in the new millennium. For making this teaching – learning process effective a learner has to be active as he or she cannot afford to be a passive listener.

The infusion of communication technologies into teaching and learning has generated much interest in educational research in recent years. A vast array of instructional strategies using information and communication technologies has been carried out in research studies. They include Simulations (Pfahl,
Laitenberger, Ruhe, Dorsch and Krivobokova (2004), Online learning (Hanafi, Zuraidah, Rozhar and Mohd. Zubir 2003), Static and animated modes of presentation (Sadiah, 2003), Internet and World Wide Web (Finger, 2003), Multimedia software (A. Guilar, Arena, Clarin, Hulamani and Monirade, Keong 2003), Microsoft Excel (Munirah, Shafia and Zurida 2003) and Multimedia Learning Package (MML) (Mohanty, 2008 and Madan, 2009). One of the most rapidly changing exciting areas of education in the world today is the development of computer based learning materials, especially multimedia teaching-learning programmes that run on personal computers.

Multimedia is a computer based interactive communication process that incorporates text, graphics, diagram, sound, animation, pictures and video. These elements of multimedia can be combined for multimedia application in teaching and learning. Through the condensed storage capabilities of computer, multimedia can deliver large amount of information in ways that make it manageable approachable and useful.
The various elements of multimedia namely text, graphics, sound, animation and video helps in activating the learners in drawing attention, arousing their interest and creating interest in the concerned subjects. Sound used in MML package becomes a stimulus to the imagination. As a result of using video, graphics and animation in MML package, classroom teaching – learning process become interesting, more interactive and have a direct influence on subject's learning outcomes.

Multimedia Approach manifested by the emergence and convergence of technological advances has provided an important stepping stone in the evolution of teaching-learning. The virtual world of seamless digital integration of text, images, animation and sound offers a fundamental transformation in educational system. Incorporation of instructional technology into conventional teaching method is certainly effective in facilitating conceptual understanding and fostering active and independent learning. The recipient is also an active participant in the experience, not only seeing and hearing the message, but interacting with it as well. (Kamat and Shinde, 1998)

Pande and Mohan lal (1998) reported that through multimedia the learner is exposed to a variety of information which helps in clearer understanding of the subject as well as in the appetite to know more. The user can make use of the information contained in the program which could comprise of different levels of information from basic to complex or advanced.

Nimarathi (2008) reported that by the use of multimedia, the students get a live vision of life's aspects and scientific factors, e.g. a diagram can be explained in detail with three-dimensional effect which helps the students in understanding the lesson clearly.

Numerous studies have also shown that student's academic achievement improved when taught through multimedia approach (Kulik, 1994; Simkins, 2002; Patil 2006; Shikhare, 2007 and Madan, 2009). Various explanations have been put forward with regard to the cognitive benefits provided by the use of various communications technologies in preparing multimedia learning (MML) package for enhancing student's conceptual understanding. Selinger (2004)
claimed that multimedia content helps to illustrate and explain difficult concept in ways that were previously inaccessible through traditional teaching resources and methodologies. Similarly, Ferror (2002) reported that the use of multimedia approach using interactive CD-ROMS, Power point presentations and graphing software has been successful in generating conceptual understanding in student's studies conducted by researcher. Munirah, et. al (2003). Chandra (2002) has also reported the use of different multimedia in bringing about conceptual change.

Bosco (1986), Fletcher (1989) Leahey & Harris (1989) and Najjar (1996) reported that interaction which results during teaching - learning process as a result of different multimedia have a strong enhancing influence on the learning of the pupils by improving their retention and their speed of learning. They found that novelty associated with multimedia enhanced interest in learning. Students felt motivated to learn with computers after seeing their usefulness in teaching - learning. (Ranade, 2004 and Madan, 2009)

A review of these research investigations indicates that a well designed Multimedia Learning Package (MML) can generate effective instruction and learning. It offers an alternative medium of instruction to the current learning process.

1.2 CONCEPT OF MULTIMEDIA

In the simplest form of definition, multimedia can be described as two or more media combined to provide information about a subject or concept. Media (both digital and analog) can be any of the following: - Text. Drawing. Graphics, Photographs, Films, videos, Wireless, Audio, Animation, Web and so on.

According to starr “Multimedia is computing our way to educational reform”. The concept of multimedia has existed for many years. There is lot of confusion about what exactly multimedia is. A simple way of drafting multimedia is that it denotes the combination of several media to transport. The technology of using text and words, diagrams, graphics, sounds, and video images collectively to show everything more effectively is called as multimedia.
In a most general way multimedia is defined as a system which exploits the computer to combine text, graphics, animation, audio, and video into a single synchronized production or presentation. Under this definition, CD-ROMs, internet, pen drive and films are multimedia delivery mediums. Planning, storyboarding, editing and authoring are the steps of development of multimedia. The main focus in this definition is the capability of the computer to exploit hardware and software to integrate different elements of the multimedia. These elements may be developed independently by various media sources into a multimedia user interface or presentation.
1.2.1 Definitions of Multimedia

Multimedia is fast emerging in the 21st century, it makes very big difference in the way we utilize things. For instance the traditional way teachers teach, students are more likely to get bored with just talking or looking at text on the blackboard but the use of multimedia brings life to text with sounds, pictures, music, video's which makes the teaching faster.

Multimedia has been favourite area for the organization as a means of training employers. McCrea and others, (2000), Udan and Weggen (2000) found online training being given preference by organizations, considering that with these method employers can be trained in less time, with less cost and more effectively than with other methods. It has been found that integrated multimedia into course delivery certainly adds to the advantages. (Najjar, 1996).

Multimedia is a combined use of educational radio or television on the one hand and printed material on the other. Bates (1989) suggested such parameters as voice, written language, colors, still pictures, animation, dramatic events and full movement where we make the choice between media such as lectures, audio, print, computer and television. "Multimedia is the combination of variety of communication channels into a co-ordinate communicative experience for which an integrated cross channel language of interpretation doesn't exist". (Eison - cook, 2001). This definition gives way for two approaches: one that is termed the 'multiple media' utilization, and the other in which a combination of different channels acquires unification as a medium.

"Multimedia can be defined as an integration of multiple media elements (audio, video, graphics, text, animation, etc.) into one synergetic and symbiotic whole that results in more benefits for the end user that anyone of the media elements can provide individually (Reddi, 2003). This definition tells us that the overall effectiveness of multimedia is better than any one component of it.

"The term interactive multimedia" is a catch-all phrase to describe the new wave of computer software that primarily deals with the provision of information. The "Multimedia" component is characterized by the presence of text, pictures, sound, animation and video; some or all of which are organized into some
coherent program. The 'interactive' component refers to the process of empowering the user to control the environment.

Multimedia is defined as an integration of multiple media elements (audio, video, graphics and text, animation etc.) into one synergetic and symbiotic whole that results in more benefits for the end user than any one of the media elements can provide individually. Multimedia has application in a variety of situations in education and training incorporate presentation, in advertising and in many other access. (Yadav, 2006)

People only retain 20% of what they see and 30% of what they hear. But they remember 50% of what they see and hear and as much as 80% what they see, hear and do simultaneously.

Multimedia is the combination of using multiple channels of communication to present information. Multimedia can be defined as the combining of text, graphics, animation, picture, video's and sound to present information (Bagui 1998). Multimedia involves the simultaneous use of multiple media formats (Hede and Hede, 2002). When one enables users to control the pace and direction of information, the program become interactive multimedia.

Although the definition of multimedia is simple, making it work can be complicated. Not only we need to understand how to make each multimedia element works effectively but we also need to know how to tie the elements together using educational multimedia computer tools. If done properly, interactive multimedia excels in long lasting impressions in the teaching-learning process. Retention rates increases by 25% to 50%.

Definitions of multimedia available on the web and books are:

- A combination of multiple media types, including text, graphics animation audio and video is called multimedia.
- Generic description of the generation and transfer to voice/ data/ video traffic between users. Applications to exploit multimedia to the full are text, graphics and audio, video and animations.
  (www.nettedautomation.com/glossary_menu/glossary_m.html)
• A form of communication combing text with graphics, page layout, video, audio, animation and so forth.
  (www.dakno.com/glossary.php)

• The use of several media, such as movies, slides, music and lighting in combining normally for the purpose of education or entertainment.
  (www.publicspeakingcourse.com/glossaryo.htm)

• Writing and filmmaking encompassing more than one medium at a time, script wise, usually refers to CD-ROM games or Internet based programming.
  (www.screenwriting.info/glossary.php)

• Computer controlled presentation combing three or more the following elements text, graphics, animation, full motion images, still video images and sound.
  (www.serc.iisc.ernet.in/computingfacilities/systems/cluster/vac7.0/htm/glossary/czgm.htm.

• The combination of audio, video, animation and graphics Multimedia software present information in all these contexts. Multimedia computers are required to run these types of programs.

• Presenting data in more than one medium, such as combing text, graphics and sound.
  (www.m2ktech.com/hardware/glossary.htm)

• Software programmes that combine text and graphics with sound, video and animation. A multimedia PC contains the hardware to support these capabilities.
  (www.gbdpro.com/glossary3.html)

• A term used to describe a range of products that have some audio and / or visual basis; for example encyclopedia programmes are labeled as being 'multimedia'.
  (www.its.stratch.ac.uk/helpdesk/glossary)
• System that support the interactive use of text, audio, still images video, and graphics. Each of these elements must be converted in some way from analog form to digital form before they can be used in a computer application.

*(tr. wou. edu/ ntac/ documents / fact sheets/ glossary. htm)*

• The integration of audio, video, graphics

*(mason. gmu. edu/ montecin/ netterms. htm.)*

• This originally indicated a capability to work with and integrate various types of things of including audio still graphics and especially video.

*(Ambron and Hooper, 1988)*

• Multimedia is the integration of multiple forms of media. This includes text, graphics, audio, video, etc. For example, a presentation involving audio and video clips would be considered a multimedia presentation.

*(Srsc. misstate. edu/ ecommerce/ curricula/ farm - mgmt / glossary.htm.)*

From the general definitions, it is clearly evident that multimedia encompasses a wide spectrum of application and technology. Any one or more of the following media and or a combination of Audio, Text, Graphics, Animation and Video is generally employed in all Multimedia Project in the field of education.

### 1.2.2 Elements of Multimedia

It is very tempting to use the latest computer wizardly to represent information and develop computer enhanced learning materials. However, the instructional design of these systems should be based on a careful examinations and analysis of the many factors, both human and technical relating to visual learning. When is sound more meaningful than a picture? How much text is required? Does the graphic over whelm the screen? Students must be able to select appropriate multimedia tools and apply them to the learning task within the learning environment so that effective learning takes place.

Multimedia learning environment involves a number of components or elements in order to enable learning to takes place. Hardware and software are
Multimedia learning integrates five types of media to provide flexibility in expressing the creativity of a student and in exchanging ideas.

**Figure 1.2 Elements of multimedia**

**Text** Out of all the elements, text has most impact on the quality of the multimedia interaction. Generally text provides the important information. It is the well written text that makes a multimedia communication wonderful.

- Title Texts
- Body Texts
- Menu
- Miscellaneous Texts

**Audio or Sound** is used to provide emphasis or highlight a transition from one page to another. Sound synchronized to screen display, enable teacher to present lots of information at once. This approach is used in a variety of ways, all based on visual display of a complex image paired with a spoken explanation. Sound if used creatively becomes a stimulus to the imagination used inappropriately becomes a hinderance or an annoyance.
In multimedia audio is put in the form of:

- Natural sounds
- Music
- Dialogues
- Narrations

While developing multimedia, audio recording is a serious business and it needs great effort, and expertise.

**Video** The representation of information by using the visualization capabilities of video can be immediate and powerful. There are many instances where students studying particular processes, may find themselves faced with a scenario that seems highly complex when conveyed in purely text form or by the use of diagrams and images. It is made up of series of teams of slightly varied images 'which' when shown in rapid succession gives the impression of movement. A video clip is a sequence of images that are displayed rapidly to give the impression of movement. To give smooth motion, PC needs to display once 25 frames per second. Each frame is a separate image so even a short video clip takes up huge amount of the space on disk.

**Animation** is used to show changes in a state over a time. Animations are primarily used to demonstrate an idea or illustrate a concept. Video is usually taken from life whereas animation are based on drawings. It literally means to bring something to life. A computer based animation is an animation performed by a computer using graphical tools to provide visual effects. It is yet another feature of multimedia capabilities. Two Dimensional (2-D) Animation is the most common type today, such as cartoons. However, 3-D Animation has mostly been confined to the engineering field of like computer Aided Design (CAD). As 3-D Animation technology matures and becomes more competitive, this feature will also get into application like on live tutorials, simulations and virtual classrooms.
1.3 Types of animation

Graphics provide the most creative possibilities for a learning session. They can be photograph, drawing graphs or something from the internet with a scanner.

Employing multimedia tools into the learning environment is a rewarding but complex and challenging task. All of multimedia format available text, sound, video, animation and graphics already exist in one form or another in most libraries. Students can explain an almost infinite variety of information. All these of exploration can certainly lead to the new discoveries, but unless consumption is followed by production, the story ends. In computer graphics, an image is always digital in nature.

1.2.3 Types of Multimedia

The multimedia programmes are mainly of two types:

- Linear
- Non Linear

A) Linear: Early multimedia was linear in nature. In linear, multimedia the end user receives a programme, which plays a sequence of sound, video and images
without any control over the presentation content. So linear media is generally non interactive in nature.

b) Non – Linear : In contrast to linear, if the programme lets the user control the sequence by selecting and study materials. Now a days multimedia program are develop on various themes.

Interactivity has always been considered important element in learning, which is basically the end of communication system. Most of the learning theories suggests that for learning to be effective, there should be active participatory approach in teaching learning environment to stimulate the learning process different options, it is called Interactive Multimedia (IMM) or Non – Linear multimedia.

Interactive Multimedia

Interactivity relates to communication between the multimedia system and its user, i.e. it requires input from its audience. Interactive media may also be accessed to various sequences by the user. It combines the storage and retrieval capabilities of computer database technology with advanced tools for viewing and manipulating these materials. Interactive multimedia in education means any package of materials that includes some combination of text, graphics, still images, animation, video and audio. These materials are package, integrated and linked together in such a way that offers and analysis indexing features with capacity to create good teaching – learning environment
Interactive multimedia offers an alternative medium of instruction to the current learning process. On the one hand multimedia can give low ability students extensive learning time before moving forward. Alternatively, high ability students can branch out to random sequencing through the module and not be confined by linearity on a much slower race. This aspect of multimedia learning support students centered strategy whereby learners take responsibility in their own learning process. Students gain experience with different package, there is a high degree of transfer of skills and knowledge from previous activities and experience. Students have a sense of experience and in same cases a degree of training in specific functional as to what forms of response to expect from different actions.

In the past decade academic institutions have found themselves inadequately prepared to cope with the rapid changes brought about by the cultural appeal of computer graphics and interactive multimedia. The development of a new interdisciplinary structure could enable flexible adaptation thus encompass the changing needs of students entering the interactive multimedia design field with the advent of the book, information become tied to a tangible material that enabled the dissemination of idea to a wider audience. Books become permanent record of knowledge and more often considered the authority. Culture developed elaborate companies to maturate text based literacy, while de-emphasizing i.e. visual images. Interactive, inherent in pre-text based information exchange leaving the receiver of information along without recourse.

With the responsibility of preparing today's youth to function effectively within a cross-cultural, interactive, visual environment, educators have an obligation to address the concerns of the changing state of the information consumption and production. In many countries we are seeing new academic programs emerge and existing structure exposed to emphasize the production of visual information using computer graphics. The technical aspects involved in the production of images and interaction using computer technology typically contains academic attention. Little, if any, time is devoted to how these images are transforming our culture. The essence of interaction and information design is
overlooked in favour of the technical means of production. A cross disciplinary approach to interactive multimedia design will enable students to produce works that not only stimulate one sense, but also challenge it intellectually.

1.2.4 Multimedia Educational technology

Concepts are at the centre of organizing educational content. Usually various perspectives of the presentation of concepts in content exist in terms of the learning and training context. Aspects such as declarative or factual knowledge, procedural knowledge and skills form these perspectives. All these perspectives can be related to the same concepts.

For effective multimedia teaching in classroom or laboratory, some major educational technology are enlisted as follows:

- a network multimedia computer, preferably, equipped with a wireless mouse and keyboard.
- a LCD video projector and screen.
- a visualizers
- a VCR Player
- a head mounted wireless microphone.
- a laser Pointer

![Diagram of Multimedia Educational technology](image)

**Figure 1.5 Multimedia Educational technology**

The multimedia computer can serve for multimedia, including power point lecture presentation demonstration of computer simulated experiments, showing
multimedia materials from CDROM and from the internet. Wireless mouse, keyboard, microphone and laser pointer make the teacher more freely to interact with the students any where in the classroom or laboratory.

The LCD video projector (or TV) can make large enough display of the text, graphics or video output from a computer screen, a visualizer or a VCR player. The most important criteria for selecting LCD projector are the brightness and resolution.

1.3 HISTORICAL DEVELOPMENT OF MULTIMEDIA: A STORY OF INVENTION, INGENUITY AND VISION

Multimedia is an effective medium to express your ideas and present your information in more attractive way. As Multimedia makes use of text, pictures, audio, animated characters people of all ages get attracted to it. It is an interactive medium of communication and entertainment. It allows the user to access world wide information.

Earlier Newspaper was the first medium of communication to the large mass of people. Text and graphics were used to make news attractive, but the use of newspaper was limited to educated people only. If the same information is presented using visuals than illiterate people can also understand it. Thus T.V. and computers have become the most powerful communication tools in the twentieth century which makes use of audio and video. Now people can access to the world wide events.

In the ancient time people had no such tools for entertainments and communication. They used to draw animal picture and traditional ceremonies in the cave walls. Communication was done through these pictures. When the language was not invented people would talk through hand gestures. Animators took inspiration from these cave paintings. They draw still pictures in sequence and developed a technique so that the characters would look moving. Later on the artists developed a technique to give sound to the movie when the artists started using computers this field developed a lot. Many types of softwares were developed and are being developed to add special audio visual effects and to increase the interactivity. Thus multimedia field broadened a lot. The combination
of the computers interactive power with the video is the most common vision of multimedia.

In 1965 the term multimedia was used to describe the "Exploding plastic inevitable a performance that combined live rock music, cinema, experimental lighting and performance art.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1702</td>
<td>The first English daily newspapers, The Daily Courant, begins publication.</td>
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<tr>
<td>1837</td>
<td>Television receiver and transmitter.</td>
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<tr>
<td>1895</td>
<td>Gugliemo Marconi sent his wireless radio transmission at pontecchio, Italy. A few years later (1901) he detected radio waves beamed across the atlantic. Initially invented for telegraph, radio is now a major medium for audio broadcasting.</td>
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<tr>
<td>1895</td>
<td>Louis and Auguste Lumiere make La sactic des ourdiers de Lusine Lumiere a hym (Workers Leaving the lumiere Factory in Lyon) considered the first motion picture. Also during this time, Georges melies invents stop motion animation.</td>
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<tr>
<td>1906</td>
<td>James Stuart Blackton introduces animation to film with his short humorous phase of funny faces. Television was the new media for the 20th century. It brings the video and since changed the world of communication.</td>
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<tr>
<td>1926</td>
<td>American Telephone and Telegraph's Vitaphone system allow synchronization of sound and film. Warner Brother's releases (Don Juan) the first fall length motion picture to incorporate recorded music and sound effects.</td>
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<tr>
<td>Early 1950's</td>
<td>Computer Technology is used in flight simulators; arguably the first application of computer interactivity.</td>
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<tr>
<td>1964</td>
<td>&quot;Understanding Media&quot; postulates the global village.</td>
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<tr>
<td>1971</td>
<td>E-mail</td>
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<tr>
<td>1990</td>
<td>K. Hooper worsley. Apple multimedia lab, 100 people education.</td>
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</tbody>
</table>
IBM, Tandy ATST and others announces the software specifications for multimedia platforms. The term Multimedia which was used during the 1970's to describe a particular theatre - based film and slide show collage experience has now been shortened to just the word "Multimedia from the Mid 80's through the late 90's the prevalent meaning of multimedia was a category of "authoring" software that allowed designers to develop interactive computers programmes without having to have advanced programming skills.

Examples include Apple's Hypercard, Scala Multimedia. This category of software still exist, and is some times referred to as multimedia, but the term now is to used to more generally describe nearly every hardware or software technology that displays images or plays sounds. In recent years, the term multimedia has taken on more and different meanings to an ever increasing audience. The term multimedia describes a number of diverse technologies that allow visual and audio media to be combined in new ways for the purpose of communicating. Applications include entertainment education and advertising. Multimedia often refers to computer technologies. The term multimedia also describes a no. of dedicated media applications such as digital video recorders (DVRs' etc.) (Scala Multimedia)

In the 1990's it took on its current meaning. In common usage the term was used to describe presentation consisting of multi projector slide shows times to an audio track. In common usage the term was used in such a way that can be accessed interactively. Much on the content on the web today falls with this definition as under stood by millions.

History of Multimedia can be best understood by understanding the development under five themes i.e. Visionaries, Text, Processing and Software, Audio and Telecommunication, Computers, Video and Animation (Table 1.1)
# Table 1.1

## History of Multimedia

<table>
<thead>
<tr>
<th>Time &amp; Visionaries</th>
<th>Text, Processing &amp; Software &amp; Software</th>
<th>Computers</th>
<th>Audio &amp; Telecommunication</th>
<th>Video and Animation</th>
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<tbody>
<tr>
<td>1455</td>
<td>Printing Press Gutenberg and Caxton, movable type printing</td>
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<td>1780 FRANKLIN</td>
<td>Franklin discovered electricity</td>
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<td>1822 BABBAGE</td>
<td>Charles Babbage designed the Engine</td>
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<td>1833 LADY BYRON</td>
<td>Byron designs Analytical Machine, often considered to be the first general purpose computer</td>
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<tr>
<td>1837 MORSE</td>
<td>Telephone receiver and transmitter</td>
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<td>1854 BOOLE 1854</td>
<td>George Boole : developed binary mathematical language of 1's and 0's (Boolean Algebra)</td>
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<td>1867 REMINGTON</td>
<td>Remington Manual Type writer</td>
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<td>1876 BELL</td>
<td>Telephone</td>
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<td>1888</td>
<td>Gramophone : disks manually rotated @ 70 rpm.</td>
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<td>Film : Sequential photographs manually pulled through a projector</td>
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<tr>
<td>1920</td>
<td>commercial Radio launched</td>
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<td>1927</td>
<td>&quot;Talkies&quot; The first commercial talkie film using optical sound recording</td>
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<td>First public demonstration of T.v.</td>
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<td>1928 DISNEY</td>
<td>First animation film.</td>
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<td>1931 ZUSE</td>
<td>Conarad Zuse first Calculator</td>
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<td>Year</td>
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<tr>
<td>1939</td>
<td>ATANASOFF &lt;br&gt; John Atanasoff and Clifford Berry designed a prototype of the ABC Computer (the first automated digital computer)</td>
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<td>1940</td>
<td>First colour T.V. broadcast.</td>
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<td>1943</td>
<td>Zuse – Z3: First machine to work on a binary system rather than decimal system.</td>
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<td>1946</td>
<td>ENIAC Electronic</td>
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<tr>
<td>1946</td>
<td>MAUCHLY Numerator integrator the first successful high speed digital computer.</td>
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<tr>
<td>1952</td>
<td>IBM 70 I: First electronic stored computer was the size of a piano.</td>
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<td>1953</td>
<td>Electric Type writer</td>
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<tr>
<td>1958</td>
<td>CRAY Builds the CDC 1604 for the Control Data Corporation. The first fully transistorized supercomputer.</td>
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<tr>
<td>1964</td>
<td>McLUHAN &quot;Understanding Media&quot; postulates the global village. Third Generation of computer included the photo printing of conductive circuit boards to eliminate wiring.</td>
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Today with the multimedia revolution the life is changed and gives new ways to present information, and act as powerful source of information and communication.
The multimedia revolution is digitization which means the conversion of all types of information such as words, sound, pictures, videos and numbers into a special code that electric machines can recognize and understand. The first type of machine to make use of digital information was the computer, "Information processes" which occupied more space began to appear in large organizations in the 1950's they were used to perform complex calculations and could display only text and figures on the screen.

Clark further focuses on the concept of multimedia and glittering world created by it. "Before you become too entranced with gorgeous gadgets and mesmerizing video displays, let me remind you that information is not knowledge, knowledge is not wisdom and wisdom is not foresight. Each grows out of the other and we need them all."

Clark (1997) impress upon the fact that multimedia attracts everyone, but needs to be used judiciously. So multimedia by itself can't be fruitful. "It is the competence of the teachers on which depends the success and failure of the multimedia in the field of education."

Today, Multimedia is made possible and affordable because of increase in storage and speed and decrease in size and cost; this yields an increase in performance and availability. Electronic communication can be broadly classified in two categories.

- Analog
- Digital

Waves and electromagnetic fields are analog. Most of the media machines used today for example television sets, video recorders, radios, and most telephones are analog. Analogs are continuous signals capable of smooth fluctuations. Waves of water, sound, light and electromagnetism and analog. They deal with data that has been transmitted as varying electrical voltages and not as electronic code.

Digital media record audio as binary computer code. Computers are digital in nature. Computers process, store and communicate information in binary form, i.e. in the combination of the I's and O's which has specific meaning in computer
language. A binary digit (bit) is an individual for 0. Multimedia bit streams are used in the computer network. With the development of excellent graphics and emergence of stereo sound multimedia, the computers have become excellent device for effective interaction and entertainment.

1.4 BENEFITS OF MULTIMEDIA

The multimedia approach in teaching-learning scenario means a strategy, which incorporates more than one technique/media of instructional unit. But it is not just a collection of a few media or techniques rather it is planned combination of several technique/media with special reference to instructional objectives because different potentialities for realizing varied objectives. The multimedia approach aims at the maximum utilization of effectiveness of different techniques and media in proper combination to acquire desired end. The use of this approach will definitely reduce the monotony of the classroom which is caused by a single technique but the application of different media will activate more than one sense organ simultaneously. Along with the maximizing learning it becomes pleasurable also that each person learns in his own way and at his own pace.

Multimedia can be used to develop active participation on the part of the learners. It can stimulate the students mind and encourage learning through all senses because multimedia can combine so many media together. Psychologists acknowledge the importance of interactive process of learning.

It may be defined as a strategy of teaching which utilize appropriate and carefully selected varieties of learning experience which presented to the learner through selected media will reinforce and strengthen one another.

Multimedia is fast emerging as a basic skill that will be as important to life in the 21st century as reading is now. In fact, multimedia is changing the nature of reading itself. Instead of limiting to the linear presentation as it is printed in books, multimedia makes reading dynamic by giving words an important and new dimension. The task of learning more about a topic can be accomplished by providing the information through sound, pictures, music and video.
Multimedia will help to spread the information age to millions of teaching learners who have not yet used the computer. Multimedia educational computing is one of the fastest growing markets in the world today.

With the growth and advancement in technology, the cost of multimedia has lowered. With more and more people using internet have created a larger market for multimedia.

Multimedia approach promotes active rather than passive learning by stimulating discussion during lectures. It motivates students, enhance their learning and give them memorable experience through the use of the color, graphics, video clips, and sound clips. In this way, it provides a learning environment that is stimulating and effective.

The trend towards innovation and improvement in teaching-learning methods, efficient communication, individualization of instruction and an effective learning system emphasizes the significance and need of multimedia in teaching-learning.

The multimedia approach provides more effective communication than a single medium. The use of different media is likely to reduce boredom and monotony in teaching learning process and provides a conducive environment for better motivation and makes the process of learning participative and joyous. A great deal of advantage of these media is their flexibility which can be utilized for teaching-learning of a variety of topics of various age levels. They are found to be of great value in fostering creativity and removing the dull routine of the 'chalk and talk' method.

Marshal, Meluhan (1977) explains "A shovel extends man's arms, a bow and arrow extends his reach in another way, clothing extends his voice and hearing and writing extends man's memory and now the computer extend man's central nervous system. In the same way instructional media extends enormously capabilities to transmit knowledge and skill to learners". Multimedia produces a new coherent through which the strength of one other media like using the audio program with print or vice versa.
Multimedia is in fact the interrelated functioning of instructional media to facilitate learning.

1.4.1 Benefits of Multimedia in Education

It is a very well known fact that people of today's modern society spend more time with the media than with any other activities in their daily life. Quite a few times we have heard that children probably spend more time in watching television and using the computer than they do learning in the classroom.

Although there are many other more important reasons to foster media education just having to face life as a free person in the information society would be enough by itself to make some kind of media education or media literacy not only useful but necessary. To successfully prepare, students as workers and citizens, in democratic societies, we as educators must incorporate experiences into the curriculum that enable students to create and utilize new forms of expression and new information and audiovisual technology.

A simple and traditional definition of the literacy could be the ability to communicate through reading and writing. This definition however will only refer to textual/alphabetic literacy. Today we must also consider a variety of literacy's, visual literacy, media literacy, information literacy, technology literacy etc. By the end of the 20th century the range of the information media has expanded to include not only books and television but also computers, advanced information networks, satellite and communications and satellite broadcasting. Global information networks are being developed enabling information to be transmitted and received everywhere and in different forms. We consider multimedia literacy in the development of skills to understand the meaning of multimedia message and produce similar ones as a way of expression.

Multimedia education by using current audio-visual and information technology should provide students with opportunities to develop the knowledge, skills and attitudes to produce communication in a variety of forms and media to develop a personal autonomy and a critical awareness that will allow them to achieve a better society for all. Formal education has an important role to play in multimedia education by incorporating new media into schools in three different
and interconnected ways as learning tools, as subject matter, and as a means of informal education.

Multimedia is widely acknowledged as environment with great potential in education. It is able to assist both the students and teacher in new ways. For the teacher it provides a means of ideas and information, for the students it can represented a one to one teaching environment which moves at the required pace. At the simplest level, multimedia is harnessed as a presentation tool with which only the teacher interacts. Materials might represent a pictoral and textual presentation with sound, animation etc. to enhance a lesson. In some instances it is seen that a complete lesson or lecture is a dialogue between student and systems, but shortage of system restricts this mode of operation. In a simple way the word multimedia refers to the integration of multimedia media – such as visual imagery, text, video, sound and animation which can together multiply the impact of teaching and learning process. Multimedia has several implications in education such as:

- The first implication is that we can use the technology into our curriculum and in delivering methodologies. It is no longer be utilized for distance education but it can also be worked at difficult fields of education.

- Secondly, it can be used to stimulate the seven receptors, e.g. sound, voice and music stimulate the musical receptors. Hands can be used in the simulated or real workplace. Thirdly it helps in generating students collaboration more effectively and makes the environment positive and interactive (Brain Stanford 1996).

- Third implication is that Information presented via multimedia may be more novel and stimulating than information presented via traditional classroom lecture. This explanation has some support from empirical studies. Analysis (Clack,1983,1985; Clark & Craig, 1992; Khalili & Shashaani,1994; Kulik Bangert, & Williams 1983) of nearly 40 multimedia studies found that compared to traditional classroom lecture, learning improvement were higher for groups that used multimedia for
four weeks or less, but the learning advantage tailed off strongly after eight weeks.

Another very significant finding was that learning appeared to take less time when multimedia instruction was used e.g Kulik Bangert, and Williams (1983) found one study that recorded 88% saving in learning time with computerized instruction (90 min.) Versus classroom instruction (745 min.) and another study that recorded 39% saving in learning time. Kulik, Kulik and schwals (1986) Identified 13 studies in which students using computer mostly for tutoring learned in 71%

1.4.2 Benefits to the learners

“Multimedia is liked and preferred by students in place of traditional teaching methodology.”(Marsh)

Students enter school already audio and visually sophisticated due to exposure to T.V Programmes at home they are accustomed to high-resolution graphics, stereophonic sound, and interactive video. “Students seem to have a compatible relationship with multimedia from the start” (Young, 2005)

Through Multimedia teachers can take advantage of students multi-sensory abilities to support and enhance traditional forms of learning-(Marsh)

Multimedia helps the learners in understanding the concepts faster, creates interest, increases their participation, makes classroom lively and boosts their achievement. It is very useful for students with special needs, since it has multi-sensorial approach.

- Provide students with opportunities to represent and express their prior knowledge.
- Allow students to function as designers, using tools for analyzing the world, accessing and interpreting information organizing their personal knowledge and representing what they want to tell to others.
- Multimedia application engages students and provides valuable learning opportunities.
- Empower students to create and design rather than absorbing representations created by others".
• Encourage deep reflective thinking.
• Create personally meaningful learning opportunities.

Multimedia encourages students to work in groups, express their knowledge in multiple ways, solve problems, revise their work and construct knowledge. The advantages of integrating multimedia in the classroom are many. Through participation in multimedia activities students can learn real world skills related to technology, the value of team spirit, the importance of research, planning and organization skills and how to express their ideas creatively.

Multimedia allows students to become active participants in teaching-learning process and place a greater emphasis on learner interaction. They offer the students the opportunity to explore a subject in the context of increasingly dominant modes of communication that typically involve digital technology and require them to engage in the meaningful thinking to represent and communicate what they have learnt using the multimedia application. Students respond positively to a meaningful learning experience which relates the subject matter with something useful and real.

In conclusion we can say that the main motive of the teacher is to captivate the attention of the student in the class. The multimedia will be used with variety of media to communication messages, ideas, information and contents thus appealing to more than one sense to create a multi sensory experience. Thus teacher using multimedia teaches students in many different ways, enabling them to retain more knowledge and increase their understanding to their subject of topic.

1.4.3 Benefits to the Teachers

"Multimedia can stimulate more than one sense at a time and in doing so, may be more attention – getting and attention – holding".

Not all subjects are suitable for the inclusion of multimedia. Some subjects however can potentially be learnt more effectively through different forms of engagement with the material. For instance students often display a greater level of motivation to learn material when they take an active part in its construction.
Incorporating the multimedia into classroom teaching not only caters to the context in which students are increasingly used to learning but also enables us to provide such an experience which makes the students creative and innovative.

Teachers primarily require access to learning resources, which can support concept development by learner in a variety of ways to meet individual learning needs. The development of multimedia technologies for learning offers new ways in the learning can take place in schools and the home. Enabling teachers to have access to multimedia learning resources, which support constructive concept development, allows the teacher to focus more on being a facilitator of learning while working with individual students. Extending the use of multimedia learning resources to the home represents an educational opportunity with the potential to improve student learning.

The elements used in multimedia have all existed before. Multimedia simply combines these elements into a powerful new tool, especially in the hands of teachers and students. Interactive multimedia weaves five basic types of media into the learning environment text, video, sound, graphics and animation. Since the mode of learning is interactive and not linear a student or teacher can choose what to investigate next. The multimedia technologies that have had the greatest impact in education all those that augment the existing curriculum, allowing both for immediate enhancing and encouraging further curricular development.

Educational software has long had a role in classroom, offering students structured learning exercise that they can carry out at their own pace. Multimedia potential for entertainment has led to a new breed of software known as “edutainment” that promotes learning through play, creative activities and adventure games.

ALL WORK AND NO PLAY makes jack a dull boy, so the saying goes – but with many current educational multimedia titles, jack would have difficulty telling in the two activities .......... Many of the most popular “Edutainment” titles combine elements of entertainment and education so effectively that children are unaware what they are learning. The best educational titles have learned some valuable lessons from games titles they are packed with colorful animations,
sound, video and homes. Such titles are equally accessible to very young children, who can expose the new world on screen at their own pace. Edutainment is now an important considerate when a family buys a multimedia computer.

"The most exciting thing about multimedia is that it reaches all the senses and that is why, its use in the field of education, is even more justified, "Say young, chairman of the Department of Technology, Cognitive at the university of North Texas, Dentan, "Students all given more fodder for their imaginations". (Young 2005)

Marsh Academic Dean for Worcester country school, Berlin, MD. agrees her school uses multimedia right through from the kindergarten to the senior grade. She says both the students and teachers find it exciting to use the encyclopedias, research program, presentation tools and curriculum specific CD-ROM that come under the banner of Multimedia (Marsh 2007). "How can you measure instruction suddenly excels using multimedia? I've seen student's manner when teachers used multimedia approach. Multimedia takes children far beyond what would normally be learning through the textbook. Multimedia works wonders".

1.4.4 Relevance of Multimedia Package in Teacher Education

With the changing times, the use of multimedia to support learning is becoming embedded in diverse fields of university education. One such field is pre-service teacher education.. Further, the rapid and pervasive increase in influence of information and communication technologies in all areas of modern society exerts significant pressure for change in course, nature and structure of pre-service education.. Innovative, authentic and cost effective ways of providing opportunities are required for pre-service teachers to complete their courses confidently and competently to enable them to begin independent teaching in the ICT-rich contemporary society.

Using multimedia in teacher education may enrich pupil teacher's learning and provide them with an opportunity to view and critique teaching methods and classroom activities collectively. So multimedia aims at the maximum utilization of effectiveness of different techniques and media in proper combination to
acquire the desired end. "Using Multimedia effectively in the teaching-learning process can do wonders. Textual information presented concurrently with visual information but the way they are presented can improve the learning process of students". (Allied, 2007).

In the past, a teacher or students had to consult many sources and use several media to access the needed information but multimedia has made it all very simple now. By integrating media, teachers are able to create healthy learning environment. There has already been a growing acceptance of it in educational settings at international levels and soon in our country also multimedia would be playing a vital role in the field of education.

Mayer and Gallini (2007) found that coordinating text with pictures improved learning. They found that students who were presented text with a narration by the teacher scored significantly higher on retention, matching and transfer texts.

**Multimedia Package have the following Objectives:**

- To design and promote a program of interactive lectures.
- To promote better understanding of the concept.
- To promote active rather than passive learning.
- To enable the students to learn better.
- To utilize a variety of medium such as sound, video, animation, text and graphics in one package to maintain, interest and attention.
- To promote active participation of the classroom.
- To promote critical thinking and ability to analyse the complex issues/concepts.
- To help in better retention of the content.
- To create a favorable attitude towards the education.

**1.5 MULTIMEDIA AS A SOURCE OF EDUTAINMENT**

"Edutainment is a form of entertainment designed to educate as well as to amuse" – (Wikipedia, 2007)

Edutainment is a hybrid of education and entertainment. It provides relatively equal emphasis on enjoyment and learning. Many programs for learning
fall into this category i.e. Multimedia Encyclopedias, Dictionaries and Thesaurus, similar to the traditional book and dictionaries and Thesaurus. Similar to the traditional book and dictionaries, multimedia version contains words, their meaning and synonyms and antonyms. However, they are better than traditional ones by presenting the information in a more dynamic and involving way. Navigating the e-dictionary is quicker with each word traceable with ease.

As technology continues to steadily advance, so lies the world of edutainment. Edutainment is a form of entertainment design to educate as well as provide a stimulating way for students to learn more effectively (Jerger and Wiberg, 2005). This can be done any number of ways, mainly by computers, videogames, films, music, websites and television programs. Edutainment has been used for the post several years; however, it is more prevalent in today's classroom. It helps to increase the motivation and the interest in children to encourage them to learn. Edutainment is an effective teaching method that enhances learning in which students respond to. Incorporating entertainment with education is a great way to capture the attention of many students, especially those who have low motivation and who lack prior knowledge in a given subject (Egenfelit – Nielsen, 2007). Through the use of text, graphics, audio, video and animation, edutainment steers away from the traditional teaching method. These multimedia appliances help to reinforce learning, and make learning more fun rather than a hassle. Another advantage of edutainment is that it allows the students to control their own learning pace. When students have the ability to control the speed at which they learn the material, it usually requires less time to learn it (Attewell, 2001). However, edutainment should not be used as a primary teaching method, but as a supplementary type program to provide more of a beneficial overall learning experience. It provides more of a comfortable setting and offers the student the chance to make learning a fun process, in which they have fun in learning instead of viewing learning as a trouble some and tedious chore.
1.6 THE FUTURE OF MULTIMEDIA IN EDUCATION

Many predictions have been made about the future of education, the decline of the classroom based teaching and the upgrade of information technology lead revolution in school, university and other educational institutions.

Human Communication has come a long way. It has travelled a path from cave painting (Single mode) to present day multimedia (multi-mode). The development of technology which has the capacity to integrate different media, has in the process, generated the possibility of making the process of communication for the developer (sender) and user (receiver) a richer experience.

Multimedia essentially consists of a content database which can be accessed by the user following a navigation path of his choice. The multimedia content can have ingredients made up the audio, video, text, graphics, animation etc. These can be seen heard by the user as he navigates through the database not only along a path of his choice but also at his own pace.

There is much current debate in the educational community regarding the concepts of putting education "On live". A quick visit to anyone of the conference will level the extent of global investment being made in debating these subjects. The future of multimedia in education is very bright. Simkins (2002) in his study on multimedia project stated that students learning increases through multimedia . He also stated that teaching with multimedia is the future of the classroom. He added, "My dream is to have multimedia enriched classroom. Multimedia teaching programs can enhance the achievement of students".

1.7 RATIONALE OF THE STUDY

In the present scenario of education, the primary source of teaching is the text book; sometimes supplementary reading material is available for certain subjects, apart from of course the reference books. By and large, however, students have to rely upon text books and depending on their interest as well as availability of material; they try to acquire more information through supplementary material and reference books. This is applicable even in case of teachers; infact they are faced with the problem of non availability of material for teaching for which they have to rely on text books. The situation as abstaining at
present is however much different: the fact remains that in our country most if not all educational institutions are functioning without even the basic teaching material. Withstanding the above one would agree that our system is based essentially on teaching and learning through books and is bound to remain so in future too.

As already stated earlier, the system of learning or teaching through books have several limitations: likewise, it may not be possible for school children to visit sites due to variety of constraints, the main constraint being financial. Thus in this teaching process, the basic tool is the text book in which the contents of the subject or theme are structured in a linear manner and the learner follows a charted course. Besides the information contained in the text book usually tends to all and sometimes full cumbersome details, there by distracting the learner. Added to this is the fact that in classroom learning environment both bright students as well as slow learners are taught together as a result of which at times, either of them feels out of place.

One or more hour lecture, which consists purely of a verbal presentation, is seldom effective in holding attention, stimulating interest or encouraging students to analyze, evaluate and think critically. Learning at times becomes monotonous for them. So in this world of science and technology, it is not possible for a single method, technique or medium to make teaching-learning process effective and to fulfill the needs of pupil and society. The involvement of more than two media of communication in learning or instructional procedure can bring fruitful results.

For qualitative improvement in teaching-learning process, Multimedia can prove as a big breather as it is capable of sustaining the interest of the students, through visuals and audio inputs. It also brings in the elements of the outer world into the classroom. It can help students in understanding the complex concepts in a very simple way. Today more emphasis is laid upon the experience rather than rote learning.

One of the main feature of this multimedia learning package is its ability to facilitate the teaching of complex concept via specially designed animations
and the condensed storage capacities of computers. The integration of multimedia programs into libraries and classrooms promises not only to change the kinds of information that is available for learning, but the ways that learning takes place.

There is an immediate need to incorporate multimedia packages in teacher education programs. The students opting for teaching as profession need to be given wider and extensive exposure to training by multimedia package. Through multimedia package, they will not only acquire the crucial concepts of educational technology and other subjects like philosophy, psychology, and so but also its implication on student's achievement. Once they are confident about the various strategies and process of multimedia they will themselves feel encouraged to teach their students at school using various multimedia packages.

Multimedia has enormous potential from the point of view of self-based learning and it can serve as an independent complementary tool for enhancing the learning process. The user can make the use of the information contained in the program which could comprise of different levels of information from basic to complex or advanced.

"Teachers to be taught and trained" – is a relatively growing concept found in societies all over the world, for this many learners do B.Ed to improve their teaching skills and undergo professional training. Various methods are adopted by various institutions to increase the efficiency of their in-service teachers. In modern age of science and technology besides print media various other media like audio, video, broadcast, teleconferences, computer etc. are used for communication but still in teacher education colleges all the facilities for teaching and modern equipments are lacking. Multimedia enables students get a live vision of life's aspects and scientific factors. In teacher education a number of media are used to teach students. But there are very few institutions like IGNOU, C.I.E.T. that develop the multimedia package for the learners.

Keeping in view the importance of MML Package, investigator, who herself as a Lecturer in college of education felt the need to see the effect of multimedia in improving the knowledge, skills and attitude of pupil teachers during teaching.
It was felt by the researcher that there is dearth of syllabus based multimedia learning packages for students. The packages for teaching-learning process have to be specifically designed, keeping in view the interactivity level and syllabus of the target group. For development of syllabus based MML packages, the content has to be sequenced systemically, by involving the subject matter specialist, the teacher, the psychologist, the producer, and scriptwriter and if such a vast group of people is not available, a teacher alone can handle it. Multimedia based entertainment package are in plenty, but syllabus based packages are not readily available as yet. Multimedia enriched classroom is still an alien concept in our country. So the researcher took up the study to develop multimedia learning package in Paper IV i.e. Educational Technology for B.Ed. students and find its effectiveness.

1.8 STATEMENT OF THE PROBLEM

DEVELOPING AND VALIDATING A MULTIMEDIA LEARNING PACKAGE IN EDUCATIONAL TECHNOLOGY FOR B.Ed STUDENTS

1.9 OPERATIONAL DEFINITIONS OF THE KEY TERMS

In the present study, a few terms have been frequently used that have got specific meaning for the present investigation. Given below are the operational definitions of these terms.

i) Development of multimedia includes identification of concept, scriptwriting, preparation of story board and computer graphics.

ii) Validation To state officially that Multimedia Learning Package (MML) developed is useful and of an acceptable standard.

iii) Multimedia Learning Package The word multimedia simply means able to communicate in more than one way by using computer. So multimedia learning package (MML), by definition has the capacity to deliver large amounts of materials in multiple forms meant for teaching and to deliver them in an integrated environment that gives students the reading, listening, speaking and viewing experience.
Distinction may be made between the terms multi-media (multiple media) and multimedia. Multi-media (multiple media) implies the use of more than one media such as television, video, tape slide, graphics aids like charts, posters and projected aids to explain the specific concept where as multimedia implies the use of technology through computers to deliver the lesson using various elements of media – like text, graphics, audio, video and animation. There may be use of one or more mediums to present a concept depending on the need.

1.10 OBJECTIVES OF THE STUDY

The objectives of the study are to:


3. Develop an Achievement Test for B.Ed. Students.

4. Develop opinionnaire for teachers to find the opinion towards using multimedia as a teaching-learning strategy for B.Ed. students.

5. Develop opinionnaire to find the reactions of learners towards using multimedia as a teaching-learning strategy for B.Ed. students.

6. Compare the mean Achievement Scores of two groups of pupils taught Educational Technology with and without the use of MML before the experimental treatment.

7. Compare the mean Achievement Scores of two groups of pupils taught Educational Technology with and without the use of MML after the experimental treatment.

8. Compare the mean gain achievement scores of two groups of pupils taught Educational Technology with and without the use of MML package after the experimental treatment.
1.11 **HYPOTHESES**

In terms of hypotheses, the objectives of the study would translate themselves as:

H$_1$ Teaching Educational Technology through Multimedia Learning Package will have a significant effect in enhancing the achievement of B.ED students.

H$_2$ At the end of experimental treatment, the group of students taught ‘Educational Technology’ through MML package will score significantly higher on achievement test than the group of students taught through the traditional method.

H$_3$ At the end of experimental treatment, the group of students taught ‘Educational Technology’ through MML package will show significantly higher gain score on the achievement test than the group of students taught through the traditional method.

1.12 **DELIMITATIONS OF THE STUDY**

The study was delimited to:

- 100 B.ED students selected from only one college of education i.e. Advance Institute of Education, Palwal.

1.13 **POST-SCRIPT-SEARCH FOR A NEW PARADIGM**

In recent years, strong demand on sophisticated and integrated multimedia information, processing system has raised in many service areas including broadcasting publishing entertainment and communication. Students interest in exploring and taking initiatives have changed the face of teacher training. Classroom lectures no more appeal students zeal for learning. Teacher of today will have to think of innovative methods of teaching – learning. At pre-service level if the student teachers are exposed with new technology they would get idea
of integrating technology in lessons and the skills to be developed among the learners. Faculty initiatives are also essential for the educational success of students focusing in this area. Broadening our own experience to encompass new multi disciplinary approaches to our own understanding of the issues will inevitably translate into attainable solutions.

Multimedia is a combination of video, that still image and sound can provide an effective learning aid. "Putting computers into schools and colleges will directly improve learning." is negated by the reality that all this expensive technology will yield little educational return until schools and districts address the need for professional development, technical support, the availability of appropriate software, classroom management and curriculum integration.

The full potential of using multimedia technologies for learning in schools and colleges can only be realized after there has been some re-engineering of the way learning experiences are offered in the traditional schools and colleges. A critical element for teachers is to be familiar with multimedia technologies in order for them to know how to use them with in their curriculum areas.

Moreover, the freedom of the internet has some disadvantage. There is too much information on the internet. Student must decide what information they need and what they do not need. The quality of the information can also be misleading Students must be taught how to distinguish between quality and unimportant information.

Today, multimedia is used for advertising, entertainment, public information, training and education. Educational computer programs which use multimedia and the interaction of the student allows the students to see their mistakes immediately and guide them to learn a concept more quickly. The student can also move at their own speed for reviewing material that they are unfamiliar to familiar with.
Multimedia enables to simulate an environment allowing the user to feel like are actually there. The application of multimedia is becoming more domestic and millions of people are going to be affected in the way they communicate with one another. (Arab, 1996)

People enjoy multimedia prefer multimedia learning materials and believe that multimedia helps them learn. (e.g. Bosco, 1989; Beyant Brown, Silbeeberg & Elliot 1980; Fletcher 1989, 1990, Holiday, Brunner & Donias, 1977; Rigney & Lutz, 1976; Samuels, Biesbock & Terry, 1974; Moore, 1980).