**Multimedia Approach in Educational Technology**

**Introduction**

A set of pertinent questions exists in almost every teacher that is how to make teaching learning process interesting, effective and long-lasting? And how to produce learning that is meaningful and productive? The answer to these questions lies in the appropriate selection and application of the important components such as teaching methods, strategies and techniques along with usage of different teaching learning materials which work as media to communicate the information from senders to the receivers’ ends i.e., teachers and students respectively. In other words, it is answered through educational technology which involves the application of systematic organization of knowledge into solution of educational problems. It helps in reaching the goals of education in one of the most appropriate and proper manners. Here, education refers to something that equips the learners with essential skills, knowledge, capabilities and attitude which is helpful and pre-requisite for their future roles. With changing time and scenario, there are visible changes in education and its processes. The traditional concept of teaching and instruction is more teacher-centered and inadequate in todays’ context. So, modern approach including technological tools helps in making learning deliberate, purposeful, meaningful and organised. There are different methods, materials and appliances which are being used for producing learning. With advancement in almost all fields of life, educational materials, methods and strategies need transformation. Learners today are growing up in a world that is extremely different from the world in which their parents or grandparents were students. If they are to be prepared for future roles and responsibilities, technology needs to become an integral part of educational practices (Santrock, 2011). Multi media is one of the approaches which empowers the educational processes through interaction between teachers and learners. Itcan be used in the field of educational technology to bring desirable outcomes as per the changing needs and demands of society. It helps in providing rich learning experiences to learners and more effective and efficient learning environment. Here, considering its importance in the field of education, it is pre-requisite to be acquainted with the multi media approach and its benefits in the field of education.

**Multi Media: Meaning and Concept**

Media are meant for broadcasting and publishing information. These media are defined as transmitters of information which are considered as “carriers of messages from some transmitting source (which may be a human being or an inanimate object) “to the receiver of the message” (which is the learner) (Romiszowski, 1988). All teaching is mediated through different media be it the traditional media or the modern communication technologies. A lecturer mediates information through gestures, voice and board work or in other words through chalk and talk. A student while reading a book, receives writers’ knowledge through the medium of printed pages (Lee, 1973). It can be said that all teaching and learning is mediated instruction. There are different forms of media such as narrative, interactive, communicative, adaptive and productive which produce the learning experiences such as attending and apprehending, investigating and exploring, discussing and debating, experimenting and practicing and articulating and expressing respectively (Laurillard, 2001).

Media includes the means to create, store and present instructional content including tools such as chalk and talk, books and computers, slide projectors, video projection, document cameras, audio and video systems, etc. Each medium has its own unique characteristic and essential pedagogical implications which is selected according to the learners’ need and instructional objectives. These media can help “to bridge the gap between learning needs and teaching resources” (Lee, 1973). It is evident that media are best used in combination with variety of other instructional materials and techniques. These media are categorised as still pictures, audio, motion pictures, television, real things and people, models and simulation and programmed and computer assisted instructions (Gerlach& Ely, 1980).

In multi media approach, different media (new and/or old) are integrated together for better teaching and learning. It is defined as the presentation of instruction that involves more than one delivery media, presentation mode and/or sensory modality (Doolittle, 2002). In other words, it is the “multiple forms of media presentation” (Schwartz &Beichner, 1999). The integration of these media makes learning experiences more interactive, creative, dynamic and motivating. Multimedia in simpler terms is defined as any combination of text, graphics, sound, video and animation. This approach consists of the appropriate and effective usage of devices, techniques and media in such a combination to reach the teaching-learning objectives in the best possible manner.

The term multimedia was introduced in 1960s to describe the combined use of several media such as text, film, still images, audio and video (Vincent & Shepherd, 1989). According to Phillips (1997), “Multimedia is characterised by the presence of text, pictures, sound, animation and video; same or all of which are organised into some coherent program.” In Oxford Dictionary of Education, it is defined as “the use of a range of teaching resources, particularly information communication technology, to reinforce or support learning.”In the words of Schnotz and Lowe (2003), multi media is defined as “the combination of multiple technical resources for the purpose of presenting information represented in multiple formats via multiple sensory modalities.” According to Malik &Agarwal (2012), “Multimedia is a melody sung in harmony with multi-channel and multi-modal bits of knowledge and creation.” Further they added, “Its ultimate goal is to inform, educate and/or entertain all. Multimedia is all pervading, thrilling and involving method of info-edu-tainment with multiple facets and long lasting approbation.” Multimedia tool is an instrument of perception, comprehension, application, deduction and systematisation of new learning materials (Karpova, 2017). The components of multimedia approach to effective teaching are interactive methods and techniques, multi media tools and multi media products.

**Features of Multimedia**

On the basis of earlier quoted definitions of multimedia and its related discussions, various features of multi media are elaborated briefly in the following ways:

* Multi media involves use of a number of media, devices and techniques for teaching and learning.
* It may involve text, graphics, pictures, video, audio, sound and animation.
* It gives variety of learning experiences.
* It offers a better pattern for exploring new teaching-learning models.
* It is used and organised in coherent manner as per the pre determined objectives of teaching.
* Its main purpose is to support and reinforce learning.
* It integrates hardware and software approaches to educational technology.
* Different media and its integration in properly structured manner facilitate acquisition and learning of new concepts and ideas more effectively and efficiently.
* Multi media approach makes teaching-learning go beyond the “verbal version of the subject” that is given through lectures only, by “providing direct representation of reality, chances for self-assessment and other modes of experiences” (Lee, 1973).
* It brings changes in traditional ways of teaching and learning where teachers remain the sole authority in the classroom and students as passive recipients of knowledge.

**Advantages of Multimedia**

Regarding advantages of multimedia, Malik &Agarwal (2012) have stated, “Multimedia facilitates mastering basic skills of a student by means of drills and practices. It helps in problem solving by means of learning by doing, understanding abstract concepts, provides enhanced access for teachers and students in remote locations, facilitates individualised and cooperative learning, helps in management and administration of classroom activities and learning content, and stimulates real life problem handling environments.”Considering these words, different advantages of multimedia approach are given in the following points:

* Multimedia is changing the ways of learning. For example, learning languages through text materials is less effective and relevant than the use of language laboratory where multiple media are used for involving more senses and giving opportunities for learning in more realistic context.
* Multi media has enormous potential to impart flexible, multi-modal, life-long education to heterogenous mass learners. This multi disciplinary nature makes it popular among people from diverse background and domains (Malik &Agarwal, 2012).
* It helps in cultivating students’ interest in teaching learning process.
* “Multimedia can be represented as a way of improving learning effectiveness by enhancing motivation probably because it promotes greater involvement in the learning situation” (Andresen & Brink, 2013).
* It helps in creation of interactive learning environment that can support and assist teachers and students in teaching learning process.
* Through the usage of multimedia, multiple resources are available to learners for exploration of novel ideas.
* It promotes co-operative learning, critical thinking and problem solving abilities among learners.
* It provides flexibility in learning concepts. It is not unimodal where one activity or style is considered as the only existing one. But it provides the range of useful activities and teaching learning styles for more fruitful results.It promotes flexibility in teaching as well as learning processes and tries to make learning more individualised or personalised.
* The knowledge acquisition process is more efficient when teaching and learning is done through multimedia simulation (Malik &Agarwal, 2012).
* It helps in giving multi perspective presentation of content.
* Multimedia provides technology based constructivist and conducive learning environment where learners learn through self-exploration, collaboration and active participation (Malik &Agarwal, 2012).
* It helps in encouraging and enhancing peer learning without harming or diminishing individual creativity and innovation. It gives opportunities for self-regulated and autonomous activities. It increases students’ engagement, motivation, social skills, digital and multimedia skills.

**Disadvantages of Multimedia**

Along with its various features and advantages, multimedia have some disadvantages such as: it requires highly sophisticated infrastructural facilities which may lead to financial burden. So, lack of infrastructure is the disadvantage of multi media approach; and the appropriate selection, usage and handling of multi media is important in this approach to educational technology which requires trained and well skilled teachers. So, lack of trained teachers is one of the disadvantages of multi media approach. It facilities are given, there is lack of trained teachers to use them effectively and efficiently.

**Conclusion**

To conclude, it can be stated that multi media approach allows and supports the usage of different media including text, graphics, still and motion pictures, audio, video and animations. it has universal application in the fields of education, science and technology and medicine, etc. It is very effective in gaining and holding attention of learners. Its effectiveness depends upon the skill of selection and organization of media according to the needs of learners and instructional objectives.

**Objectives**

After completion of this module, students will be acquitted with:

* Meaning of educational technology;
* Concept of multimedia approach in educational technology;
* Features of multimedia;
* Necessity of multimedia; and
* Advantages and disadvantages of multimedia.

**Glossary**

1. **Educational Technology**: Educational technology refers to the application of systematic organization of knowledge into solution of educational problems.
2. **Media**: Media are defined as the transmitters of information which are considered as the carriers of messages from transmitting source to the receivers.
3. **Traditional Media**: Traditional media include the use of text materials, still pictures and chalk and talk in the teaching learning process.
4. **Modern Media:** Modern media are more sophisticated that include video, audio, animation, motion pictures, projectors, computers and ICT etc.
5. **Print Media:** Print media is the means of communication which include the forms of print such as newspapers, magazines, textbooks, etc.
6. **Electronic Media:** Any equipment used in the electronic communication process may be called as electronic media such as television, radio, telephone, computers, etc.
7. **Multimedia:** Multimedia is defined as any combination of text, graphics, sound, video and animation.
8. **Multimedia approach:** Multimedia approach consists of the appropriate and effective selection and usage of different media in such a combination to reach the teaching-learning objectives in the best possible manner.
9. **Text:** Any printed or written work is considered as text.
10. **Graphics:** Graphics are the two dimensional figures or illustration. It maybe photographs, drawing or pictures.
11. **Audio & Video:** Audio consists of sound that is recorded, transmitted or reproduced. Video is the recording, broadcasting and reproducing of moving visual images.
12. **Animation:** Animation includes moving images created from still images, drawing, puppets, models, etc. They give the illusion of movement.

**Frequently Asked Questions (FAQs)**

1. **What is meant by media?**
   1. Answer: Media are the transmitters of information which are considered as the carriers of messages from transmitting source to the receivers.
2. **Define multimedia.**
   1. Answer: Multimedia is defined as any combination of text, graphics, sound, video and animation.
3. **What forms of media are, generally, being used in teaching?**
   1. Answer: In teaching, narrative, interactive, communicative, adaptive and productive forms of media are being used.
4. **Why is multimedia important in teaching and learning?**
   1. Answer: Multimedia is important in teaching and learning because it helps in realizing the goals of education in more effective and efficient manner. It makes learning flexible and realistic. It helps in generating students’ interest and motivation.
5. **What are the features of multimedia?**
   1. Answer: Multimedia involves use of a number of media that include text, graphics, video, animation, audio, etc. which give variety of learning experiences and offers better pattern for exploration. It is used for supporting and reinforcing learning.
6. **Give advantages of using multimedia in classroom.**
   1. Answer: Multimedia has enormous potential to impart flexible, multi modal, life long education to mass learners. It helps in creating an interactive learning environment that support and assist teaching. It promotes creativity, problem solving abilities and critical thinking among learners.
7. **What are the disadvantages or limitations of multimedia?**
   1. Answer: Its limitations include the financial burden for sophisticated infrastructural facilities and lack of resources and trained teachers.
8. **How does multimedia develop creativity?**
   1. Answer: It helps in giving variety of learning experiences to learners where they explore novel ideas for solution of problems and get involved in construction of knowledge.
9. **How does teaching become contextual through multimedia?**
   1. Answer: Contextual teaching involves the process of making learning meaningful to students by connecting to the real world. Through multimedia, real life or life like situations are created and brought to classroom for more realistic context for learning. It gives direct representation of reality.
10. **How does multimedia help in creative constructive classroom environment?**
    1. Answer: Multimedia is effective in creating a constructive classroom environment through self-exploration, collaboration and active participation of learners in teaching learning process.