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MULTIMEDIA APPROACH IN EDUCATION

Sushil Kumar

Assistant Professor, Institute of Teacher Training and Research, B.P.S. Mahila Vishwavidyalaya, Sonepat, Haryana, India

Abstract

The traditional teacher-centric method of teaching used for decades in our educational system has been modified and enhanced. Currently, modern education theory is moving from the traditional recall of facts, principles, or correct procedures into the areas of creative thinking, problem solving, analysis and evaluation. In recent years, the infusion of multimedia into teaching and learning has altered considerably the instructional strategy in our educational institutions and changed the way teachers teach and students learn. These are skills which are very much needed in today's knowledge based economy. This shift in focus on learning has presented educators and academicians all around the world with serious challenges as well as opportunities in restructuring their curriculum to meet the rising demands of the knowledge based society. The present paper is just an attempt in this direction to highlight the various facets of the multimedia approach in education. In this paper the author has focused on one hand the fundamentals of the multimedia i.e. definition, types and its relationship with the learning; similarly on the other hand due focus has been made on the importance of the multimedia.

Key Words: Multi Media Approach, Education, Educational Technology

The Context

In today's era, information and knowledge stand out as very important and critical input for growth and survival. Rather than looking at education simply as a means of achieving social upliftment, the society must view education also as an engine of advancement in an information era propelled by its wheels of knowledge and research leading to overall development.

The advent of multimedia and information and communication technology (ICT) has rapidly altered the classroom scenario of the educational institutions particularly in higher education. With multimedia technology, the way we send and receive messages is rapidly changing. Multimedia technology has been employed to classroom instruction for several years. If multimedia technology is to be successfully employed to enhance classroom instruction and learning, the full capabilities of the technology must be used. The power of multimedia includes high quality graphics and images, sophisticated navigational techniques with traditional effects, appropriate music and sound, animation and, increasingly, 3-D modeling and virtual reality,

An ancient Chinese proverb highlighting the involvement of learner in learning states:

"If you tell me I'll forget,

If you show me I'll remember,

If you involve me I'll learn"

It implies that if we involve learner through multimedia in learning process, the learning objectives can be easily achieved and learning could be made permanent and longlasting.

Types of Media

1. **Multimedia**

Multimedia refers to the combined use of text, graphics, animation, pictures, video, and sound to present information in a coherent manner. Since these media can now be integrated using a computer, there has been a virtual explosion of computer-based multimedia instructional applications.

2. **Monomedia**

Monomedia stands for the use of one type of the media out of text, audio, video, graphics and animation etc. for transferring information.

3. **Redundant Multimedia**

Redundant multimedia refers to the extra channel for transferring information, above and beyond the bare minimum requirement. For example, to explain the working of a diesel motor, text can be used as a monomedia for explanation. However, if audio narration were used together with the text, it would be considered as redundant multimedia. The redundant multimedia, once again, may or may not improve the learning rate of students.

4. **Edutainment**

Edutainment refers to the integrated use of several media, such as text, graphics, audio, video, and animation for the combined purpose of education and entertainment. Edutainment represents the use of multimedia computing as the bridging gap between the Educational and Entertainment Industries. Edutainment has the potential to create strong impacts on Educational industry but only after its adoption, issues are settled.

What is Multimedia?

Bob Goldstein (later Bobb Goldsteinn') coined the term "multimedia" in July 1966 in order to promote his, "LightWorks at L'Oursin" show at Southampton, Long Island. Multimedia is distinguished from mixed media in fine art; by including audio, for example, it has a broader scope. The term "rich media" is synonymous for interactive multimedia.

Multimedia means "an individual or a small group using a computer to interact with information that is represented in several media, by repeatedly selecting what to see and hear next". (Agnew, Kellerman & Meyer, 1996)

The use of multimedia as a platform for teaching and learning is made even more feasible with the availability of the MPCs (Multimedia Personal Computers) that are powerful, fast, and able to process all media elements effortlessly and quickly, and multimedia software that are user-friendly yet power-packed.

According to Kleen & Shell, (1994); Najjar, (1996); Tannenbaum,(1998), Multimedia consists of some, but not necessarily all, of the following elements: Text; Still Graphic Images; Motion Graphics; Animations; Hypermedia; Photographs; Video; and Audio, i.e., Sounds, Music, and Narration. In this context Iding, (2000) states that multimedia today refers not only to what is presented through computers, but also through the composition of text and illustrations in print media.

Multimedia and Learning

A multimedia learning environment involves a number of components or elements in order to enable learning to take place. Hardware and software are only part of the requirement. Multimedia offers exciting possibilities for meeting the needs of 21st century learners. Today's secondary school students are very different from even their recently graduated peers. These students are **digital natives**, a term attributed to futurist Marc Prensky to distinguish between those who have grown up with technology and those who have adapted to it.

Technology is their —native language and they expect to use technology in school. While some students have greater access to technology than others, computers with Internet access are now and should be the part and parcel of all Indian schools. Use of technology by 5-18 years old is at its highest level and is projected to increase. This increased reliance on technology combined with what

we know about brain processing, offers enormous potential for instruction. Research has shown us that the brain process information using two channels—visual and auditory.

Importance of Multimedia Approach in Education

Today, users require access to or communication of information in the most speedy and efficient manner as possible. With multimedia, navigational and participatory features provide more flexibility and control to the users. These unique features allow them to quickly access information when they need it and how they want it. With multimedia, users become participants in an exciting experience involving the sensory modalities of sight, sound and touch, all of which naturally facilitate learning.

The 90s is an age where the learner environment is more learner oriented when compared with the teacher oriented emphasis of the past. The following is a summary of some advantages that can be gained by utilizing multimedia in the modem smart classroom:

Advantages of Multimedia for Learners

- *Reduced learning time.*
- *Cost effective*
- *Instructional consistency and fairness*
- *Enhanced academic achievement and retention*
- *Mastery learning*
- *Enhanced motivation*
- *Flexible and creative*
- *Immediate feedback*
- *Interactive learning*
- *Pace learning*
- *Safe and Easily accessible*
- *Privacy and confidentiality is maintained*

1. **Reduced learning time*:*** It has been observed that interactive multimedia/ videodisc can reduce instructional time up to 60% over traditional classroom methods. This can be attributed to the immediate interaction and constant feedback which provides excellent reinforcement of concepts and content.
2. **Reduced Cost**: The cost of interactive multimedia lie in the design and production. When the same program is used by more students, the cost per student is reduced, unlike the traditional instructional system which needs to cater to teacher salaries and overheads regardless of the number of students.
3. **Instructional Consistency and Fairness**: Instructional quality and quantity are not compromised while using multimedia as technology based interactive instruction since it is consistent and reliable.
4. **Increased Retention:** The interactive approach provides a strong learning reinforcement and therefore boosts content retention over time.
5. **Mastery of Learning***:* A good interactive system can ensure the learning of the prerequisites by learners before proceeding to new content. This provides a strong foundation for continued learning and therefore helps to achieve mastery learning.
6. **Increased Motivation***:* Immediate feedback and personal control over the content provided by an interactive multimedia system has proven to be highly motivating to learners.
7. **More Interactive Learning*:*** Interactive systems enable learners to have more responsibility and better control over their learning and this generates a greater interest to actively seek new knowledge rather than passively accept instruction.
8. **Increased Safety:** Interactive multimedia and the simulations they provide, allow the safe study of hazardous phenomena such as dangerous scientific experiments on harmful substances or natural disasters like volcanic eruptions or earthquakes by the learners.
9. **Privacy/ accommodates Individual Learning Styles*:*** This system allows for one to one learning and caters to the different learning styles of individuals. The freedom to ask questions repeatedly without embarrassment and the involvement of each individual learner motivates them and reduces the potential for distraction.

10. **Flexibility***:* The flexibility comes from the ability to navigate, by using a keyboard, mouse or touch screen, through an interactive program and to choose what and how much information we want and when we want it.

11. **Online availability of lecture notes:** Instead of taking notes, the whole class is able to participate in a lively discussion during each lecture. With the traditional blackboard approach, it is a well-known fact that most lecture time is spent by writing notes on the board.

12. **Encouragement of creativity**: A term project can be assigned as a part of class work. Each student is expected to develop a personal web site with multimedia-rich content including text, graphics, images, audio, and video. The class was informed that the grades would be based on how the design parameters (graphic design, interface design, information design, and scripting) learned in class was used to ensure an aesthetic, usable and functional web site. This assignment in this way encouraged the students to be creative in designing their web site. They visited many sites to get interesting ideas, and researched the web design principles.

13. **Access to additional course material on the Internet***:* When needed, the instructor had immediate access to numerous online resources that contained relevant information. The students, in turn, realized the immense potential of the Internet as an electronic library.

14. **Hands-on experience**: Many hours of Internet usage allowed the students to become fully aware of the Internet architecture, and the related topics such as the World Wide Web, the internet protocol, bandwidth and storage requirements, and the server-client relationship.

15. **Electronic Encyclopedia:** It is the application of multimedia for the creation of an encyclopedia with millions of entries and hypertext cross references covering a wide variety of research and reference topics mainly for educational and training purposes.

16. **Faculty Development:** Multimedia is also useful while building the capacity of in-service teacher at different levels of education. Multimedia is commonly used during the orientation and refresher courses of the faculty members for enrichment of knowledge and development of skills as per their course specializations. Apart from them multimedia presentations is an essential part during the conferences, seminars, workshops and symposiums and are found most appropriate tool to enhance the motivation and learning needs of the participants. Multimedia presentations are a great way to introduce new concepts or explain a new technology. Individuals find it easy to understand and use.

Thus, multimedia can be used for education, training, simulations, digital publications, museum exhibits and so much more.

Conclusion

Thus, the above discussion can me concluded in the terms that that multimedia technology can be used as an efficient instructional tool in creating a constructivist based learning environment in a classroom, whereby students can learn to inculcate interpersonal and collaborative learning skills. Multimedia which is defined as an integration of multiple media elements (audio, video, graphics, text, animation etc.) into one synergistic and symbiotic whole that results in more benefits for the end user than any one of the media element can provide individually, is undoubtedly the powerful educational tool which can enhance the teaching learning environment manifolds.

Therefore, the Multimedia approach is becoming increasingly popular in education as a means to motivate students and thus enabling knowledge based learning community to be created whereby students, peers and teacher share knowledge and assist one another in the acquisition and transfer of knowledge. Students became active seekers instead of passive recipients of knowledge and information. They also became motivated in their study and learnt to apply what they have learned previously in solving authentic problems. Learning by doing deepened their understanding of the subject matter.

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