Multimedia Applications in Pakistani Education

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ABSTRACT

Multimedia is one of the important advances in Information Technology. Its use is very common in educational institutions especially in class room teaching in the entire world. This paper explores the present status of multimedia use in schools in Pakistan. To explore the situation regarding use of multimedia in school class rooms, data was collected from 232 teachers of 45 secondary schools of three districts of Punjab i.e. Kasur, Lahore, Shikhupura through a Questionnaire. Questionnaires were comprised of questions relating to: (i) Availability of multimedia (ii) Multimedia use in classroom (iii) Teachers training both pre-service & in-service to use multimedia.

Rationale and objective of the study

In 20th century, several important advances in information technology have been invented. These new scientific inventions influence mass media and ultimately all mankind. The latest changes promise a new multimedia format with characteristics of both print and electronic media. Although, its uses in educational and other fields in Pakistan is till very limited but nobody can deny its importance

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and usefulness, day to day. So, we should know the functions and applications of multimedia generally in all fields of life and particularly in education. This is a dire need of the information age and main objective of this brief study.

Definition and origin

Firstly, we should focus on the definition of 'multimedia'. In this connection, some experts of instructional media define this:

> "Media combinations are generally referred to as multimedia systems. The multimedia concept involves more than using multiple media for a given instructional purpose. It involves integrating each medium and medium format into a structured and systematic presentation. Each instructional medium in a multimedia system is designed to complete the others so that ideally the whole multimedia system becomes greater than the sum of its parts".[1]

An US media expert, Tony Feldman further analyzed definition of multimedia and wrote:

> "The word multimedia has already acquired diverse meanings in various technical fields. Some computer buffs use multimedia to describe the hardware, which allows computer data to be sent from one machine to another. Many audio visual specialists remember when multimedia meant presentations which combine still images from slide projectors with a soundtrack. Some software producers use the term to describe packages which combine computer-generated text and graphics on the same screen, especially if the graphics move or there are sound effects".[2]

After this initial introduction of multimedia, Feldman described the details:

> "Ideally, multimedia systems provide in a single box all the hardware and software necessary to combine still and moving pictures including video, photographic and animation with sound, text, computer-generated data

and computer programs. Equally all the information in a multimedia program sound, pictures, text and data can be recorded on a single fiber optic".[3]

When and how did multimedia systems come to be involved in mass communication? Jim Willis answered this question in 1995, as under:

"The birth and development of fiber optics communication satellites and CD-Rom technology will have far more impact on journalism than even television had". [4]

In historical perspective, Tony Feldman described the origin of multimedia in detail and wrote:

"A useful starting point is to go back to the 1970s to a time when computers were still huge unfriendly devices demanding air-conditional environments and costing mullions. Even if desktop computing had not yet been invented, the term 'multimedia' was already in use. In the world of educational publishing in particular, multimedia meant kits, typically a combination of pupils' booklets, teachers guides, film strips, audio tapes, and photographic slides. Such products, attractively boxed and delivered to the classrooms of the early 1970s, certainly offered multiple media text, images and sound but each was delivered as an independent element in the package". [5]

After mentioning the previous practices in a developed country, Feldman described applications and failure of different media in past. We should keep in our mind this important aspect. He wrote:

"We could spend much time analyzing the possible reasons for the failure of classroom multimedia in the 1970s. One clear reason, directly relevant to our pursuit of any identity for multimedia concerns the way in which the different media were being presented. In the mid-1990s, however, the multimedia environment is dramatically different. Electronic technology provides a single medium with the power to integrate diverse types

of information. So the first stage of identifying modern multimedia is to focus on its power to draw together different forms of communication, smoothly integrating them within a digital environment, and providing access to the stored information using computer systems which are fast, friendly and, above all, interactive". [6]

Now, we have an identity for multimedia, a working definition against which we can measure developments and potential impacts. We can describe multimedia as follows:

"Multimedia is the seamless integration of data, text, sound and images of all kinds within a single, digital information environment". [7]

Applications

After knowing above mentioned facts, the application is very important. In this connection Jim Willis wrote that in the multimedia age:

"Multimedia Communication technologies will profoundly alter the way we work in the decades ahead. In a virtual workplace, your office is no longer defined by one specific location. The integration of computers, telephone modems, fax machine (fix & portable), mobile phones, conference phone calls and video conferencing will make it possible for you to take your offices where ever you go". [8]

But the professionals of instructional media said:

"The use of multimedia systems in classrooms and training centers have reclined considerably from the general trends towards individualization of learning and encouragement of active student participation in the learning process…. Multimedia systems are also multisensory and thus simulate learning as it takes place in the world outside the classroom". [9]

In the light of these two different opinions, we can apply multimedia systems for different purposes. Pakistani education and industry are passing through developing process. In educational field, a teacher can deliver his/her

lecture in very speedy attractive and effective manner. The students may be more attentive. They would be able to memorize that lecture for a long time. In such way, we can avoid stereotype teaching methods.

Different Types of Multimedia Systems And Applications

According to practical experts, different types and their applications are as under:

1. Sound-Slide Combinations:

Combining 2-by-2 inches slides with audio tape is the easiest multimedia system. This system can be produced locally, this is versatile, easy to use effective both for group instructional and independent study. A well-done sound-slide presentation can have significant dramatic and emotional impact and instructional effectiveness. Sound-slide sets are available from commercial sources. However, mass distribution programs of this sort usually are converted to a filmstrip/audio type format. Some commercial programs are available with phonograph records instead to audiotapes. In Pakistan, majority of our teachers are still writing boards with verbal lectures, sound-slide combination would be proved a new technique.

2. Multi-Image systems:

Whether you call the system "multi-image" or "multi-screen" depends primarily upon the way you design it. Multi-image refers to the use of two or more separate images from a single source. Multi-Screen refers to the use of more than one screen in a single presentation. The two concepts usually go hand in hand, since the multiple images are often projected on adjacent multiple screens. Most often the images are projected from slides, but overhead transparencies, filmstrips or motion pictures may also be used. Multi-image presentations must be carefully planned to fit your audience and to meet your objectives. Now-a-days, in Pakistan, due to development of film and TV industry, common viewers have become habitual multi-image system, so we will have to adopt this way to deliver effective lecture in classroom.

3. **Dissolve Units**:

You can achieve dramatic effects in your slide/type projectors by using a dissolve unit ant two-slide projectors. With a dissolve system your can gradually

overlap images, blend or change directly from one visual to another, or blend one image into the other while the level of screen illumination remains constant. All dissolve units require at least two projectors focused to a single point on the screen so that the images will overlap. You can achieve some very interesting effects by superimposing images from the two projectors. This multi media system is comparatively costly, specially in developing countries like Pakistan, but the presentation would be proved very powerful.

Multi-image presentations can be used creatively in a variety of instructional situations. This technique might be used to show the relationship of a component of a system of process to it's entirely or to show a detail of a work of art or architectural forms in different periods of history.

"Before and after" shots could be used in industrial arts classes. Similarly, line drawings of an object can be exhibited adjacent to its photograph, or a photograph can be displayed on one screen and data or questions about the picture presented on another.

Two or more screens may also be used to present-angle or panoramic views of a visual that might be impossible to present on a single screen. Multi-screen images can also be used to show physical activities in more detailed sequence, such as swimming, diving. They can also be used to present several views of the same object to achieve a three-dimensional effect or to allow viewers to see an object from different distances and angles. Multi-images presentations can also be used very effectively for learning in the affective domain and for establishment of mood.

4. Variable Motion Programming:

One of the most versatile multimedia systems utilizes an 8-mm film and an audio cassette. The systems provide "Variable motion sound filmstrips" with the impact of motion pictures and the teaching effectiveness of still pictures. The most commonly available systems in Berber's Cue/See. This system can intermix the equivalent of slides, filmstrips and motion pictures along with narration or sound effects.

The machine has built-in rear projection screen as well as a mirror and lens system for projecting the image on a screen, so it is suitable for individual or small group use. It can show slow motion, time laps or stop action.

The major disadvantages of the system are initial cost of the equipment, the lack of commercially available materials and the time the expense required for local production.

In Pakistan educational system, variable motion programming is especially useful in learning situations. We can use different sound tracks with the visual component of the system. For example, in foreign language class, the audio could be in English on one cassette tape and also in a foreign language, our students are facing many problems in this regard.

When the same instruction is needed for a large number of students in widely scattered locations, the variable motion system becomes cost effective.

5. Interactive Video:

Interactive video has all features of variable motion programming and more. Interactive video creates a multimedia learning environment that capitalizes on the features of both instructional television and computer-assisted instruction. It is an instructional delivery system in which recorded video material is presented under computer control to viewers who not only see the pictures and hear the sound, but also make active responses, with those responses affecting the pace and sequence of the presentation.

Interactive video systems are currently being used in a variety of instructional applications. One of the first interactive educational video disks is "the development of living things" about biology released by McGraw-Hill in 1978. In business and industry, these systems are being used for example, to train automobile mechanics to troubleshoot electronic ignition system, to improve communications skills for bank tellers, and to teach relaxation time of lift truck operators from three hours to one hour by replacing classroom training with interactive video training. Technical repair skills also can be taught with interactive video. These programmers are also being used to teach and reinforce interpersonal skills through intensive simulation. These are also being used in bank branches, for remote shopping. In the medical field for patient education and the US Military is big user of these programs. In Pakistan, we can adopt these methods for further better education and industry.

6. Multi Media Kits:

A multi media kit is a collection of teaching/learning materials involving more than one types of medium and organized around a single topic. These kits may includes filmstrips, slides, audio tapes, records, still pictures, study prints, over head transparencies, single concept films, maps worksheets, charts, graphs, booklets, real objects and models. Commercial multimedia kits are also available for a variety of educational subjects.

These kits are limited only be teacher ingenuity, these are being used on magnetic fields and mathematical topics. Our teachers might be used these kits.

7. Learning Centers

The development of multimedia instructional technology and the growing interest in small group and individualized instruction has led to the establishment of special learning environments, generally classroom learning centers. Learning centers may be set up outside the classroom or in a laboratory or even in a school corridor.

Learning centers can be used for number of basic instructional purposed. As teaching centers they can be used to introduce new contents or skills. As skill centers they can provide the student with an opportunity to do additional practice or can reinforce a lesson that has been previously taught. As interest centers they can promote present interests or stimulate new interests and encourage creatively.[10]

Finding of Study

Data was collected from 232 secondary school teachers of 45 Govt. High(Secondary) school of three districts i.e. Lahore, Shekhopura, Kasure of Punjab through a questionnaire. The questionnaire consisted of Questions relating to the

(i)   Availability of multimedia
(ii)   Its use in class room
(iii)   Teachers training both pre-service & in-service about use of multimedia.

The result reveals that there not in a single school multimedia is in use because the schools don't have multimedia. None of the respondents have been trained to use multimedia during their pre-service teacher training programme nor

they have been given opportunity of multimedia training during in-service training programme.

Results of the study reveals that till multimedia as a tool for interactive learning is not in use in Government schools in Punjab.

Conclusion and Recommendations

In education and other fields of life, the usage of multimedia is increasing. The educators and other media and business managers are applying multimedia techniques for promotion and effectiveness of their jobs. In different professional fields, there is no alternate of this modern information technology yet. Unfortunately, due to the negligence of the rulers, multimedia facilities are not available in the universities and others institutions as such. Meanwhile, we should use multimedia for an effective presentation in every field. It would be proved very helpful to improve the quality of education in Pakistan.

Now-a-days, Pakistani government is going ahead to enhance and establish IT culture to meet the challenges of 21st century. Different ministries and departments of federal and provincial governments have constructed their websites, as the first step towards electronic government. The multimedia applications training would be very helpful for this purpose. In this connection, the extensive training programs for the educators and government employees may be arranged. The Pakistani government should establish a full fledge multimedia university to enhance the educational and communicative abilities as soon as possible. This is also a way to progress in this information age.

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