UNIT 14  MULTIMEDIA TEXTBOOKS

Structure

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14.1 OBJECTIVES

At the end of this unit the reader will be able to determine:

1) The definition of multimedia texts

2) How multimedia is different from printed textbooks

3) What are the various components that go into editing of multimedia namely, video aspects, story boarding, research, audio aspects, editing and dubbing

4) Become equipped to meet the standards of the industry.

14.2 INTRODUCTION

Multimedia uses multiple learning contexts, i.e. it uses varied sensory learning situations such as visual and auditory and therefore leads to a greater understanding and knowledge. This is a human computer interaction using the text, audio, graphics, voice and video. Going further we can see that in printed textbooks, the written text uses only print and art work while in multimedia it uses both audio (sound and music) and video( animation and images). Multimedia thus numerous knowledge based systems. This is widely used now a days on the computers namely the web and also in other electronic devices such as TV and video. Hence the information content is accessed and transmitted through the computers and other electronic devices. Multimedia is also used for live presentations and lectures by teachers to assist learning.

Multimedia may thus involve some interaction with the viewer such situations take place on the computer where learning of the viewer is assisted and interaction takes place by a click on the mouse. However in some other situations interaction is not necessary and the multimedia is presented in its totality without any contact with
the viewer. It is necessary for a good editor should know whether such dealings are going to go on with the content and the viewer before starting his editing work. Some scholars however feel that the static content of a book is also interactive as it involves the turning of the pages by the reader but we are talking about interaction in a different sense. For example in a multimedia based content for preschoolers there could be an interaction based on matching colors. A blue pair of socks could be kept along with red clothes and a sound could indicate that it has been kept in the wrong category. Here the sound will make the learner understand that the colors of the clothes do not match. Therefore if the viewer clicks on the mouse of the computer that the match is correct the sound alarm will cue him to his mistake. The above example thus shows the interaction between the viewer and the content.

Besides education multimedia is used in scientific industries, advertisements, art and entertainment, engineering, mathematics and business research. Before starting on the project of editing of multimedia textbooks it is necessary for the editor to keep certain points in mind. These are given below:

1) The information and the content should be made easily accessible. This can be done through screen enlargers and by computer software that reviews screening.

2) The video images should be varied and descriptive and there should be enough action taking place in the video.

3) Captions should be provided for starting and ending of any content.

4) There should be enough textual content with the descriptive video.

5) There should be correct captioning of concepts.

6) There should be key descriptors for new terms and glossary should be provided.

7) Graphics provided should be easily accessible.

8) There should be enough visual indication for auditory clues, for example a sound should accompany the visuals like a computer beep.

9) There should be enough accompanying labels on the computer disks and CDs and it should be in the least at 18 point print. This will make the labels large and easily readable.

10) Modifications should be made for students with disability.

The purpose of any multimedia based textbook is four fold:

- It makes information more free flowing and ensures better learning contexts.
- Both video and audio initiates learning better.
- It provides for sequential learning.
- The information is more sensitized.

Check your progress

1) Define multimedia.
It becomes necessary for us to differentiate printed textbooks from electronic ones. The next section will discuss this in detail.

14.3 PRINTED TEXTBOOKS AND ELECTRONIC MULTIMEDIA BASED TEXTBOOKS

Over the last few years there has been a huge impetus of electronic textbooks forming the base of knowledge. We find that electronic multimedia based technology found in textbooks has reached our colleges and schools. Therefore it becomes necessary to see and determine both the advantages and disadvantages of electronic based texts.

Human learning is determined due to multiple factors. An editor should be aware of these factors while doing his job. The three main factors that help in learning are:

Concreteness

Connectedness

Practice

Concreteness is based upon direct sensory experience that can be found in our physical world. What we mean by this is the auditory as well as the visual components of our understanding. This can be directly found in electronic multimedia based texts. Connectedness is the relation of new concepts to older based knowledge. When any fact or information is studied in isolation it does not yield proper results but when strongly associated with previous knowledge learning is reinforced in a better manner. The learning gets reinforced further in practice and repetition. All the three factors can be found in any multimedia text.

It sometimes becomes difficult to recollect facts in the written text. It can become confusing for the reader to relate sentences together. When the student hears and sees the visual components of the text together it becomes easier for him to gather information.

It becomes important here to highlight some important advantages of the printed text before we go on to discuss electronic media in specific. This is important for the potential editor to know. The advantages are given below:

1) A printed page has a higher resolution than the computer screen and therefore page can show and display more.

2) Books can also be carried easily and are can be transported without any difficulty.

3) They also do not need any power supply.

4) Books have a longer shelf life.
5) It is easier to scroll chapters through the eye than to do it over the mouse of the computer.

The printed page will never go out of fashion as it is indispensable. However it is equally important to realize the potential of the multimedia text. If an editor understands the basic advantages of the multimedia text it will be easier for him to edit it. The advantages are given below:

1) The multimedia text can prove to be cheaper and more effective. The publishers of the printed textbooks are concerned with the cost of publishing the first copy and then reproducing it. The cost depends on the payments to the author, editor and artist and also the page. This hence involves large amounts of money and therefore the author has to keep his content small. In the computer based technology hundreds of pages can be sent just in a few minutes. The cost of receiving and supplying the information is thus negligible.

2) Large amounts of free texts are available on the computers and the world wide web.

3) Multiple examples can be provided to the viewer.

4) Cross references can be easily provided by connecting the viewers to various web pages.

Going further we can say that multimedia based texts leads basic seven main intelligence skills amongst students. These are Verbal (linguistic), Logical (mathematical), Visual (spatial), bodily (kinesthetic), musical, Interpersonal and Intrapersonal. A skilled editor should keep this fact in mind while he edits multimedia based texts. These seven intelligence levels in students will be discussed in detail below.

**Verbal/Linguistic Intelligence**

1) Allows young children to write and illustrate their own stories before their fine motor skills are developed. It thus allows them to explore their skill through the hand. The editor should make sure that this creativity is explored in the multimedia text.

2) Word processor software stimulates learners to interact more closely with their work. The editor should make sure that the content generates such interest.

3) Audio and video recording can give students instant feedback in their story telling skills and can help them develop further. The editor should make sure that the imagination and creativity of the student is fostered.

4) Multimedia helps students to produce reports. The editor should make sure that the report writing skills are introduced. They include content development, giving key points, being brief and yet informative.

5) Telecommunication programs link students who correspond in writing. Such content should also be suggested by the editor.

**Logical/Mathematical intelligence**

This helps the students to memorize and perform mathematical operations, ability to think logically and applies to solving problems. The students through this are able to:
1) They graphically illustrate concepts of physics. The editor should make sure that the graphic is self explanatory.

2) Provide visual and spatial tasks that develop mathematical and logical thinking. The editor should make sure that the mathematical problems are clear and lucid.

3) Develop higher order mathematical thinking by making abstract ideas concrete. The abstract ideas should be less theoretical and the editor should make sure that these thoughts are made practical.

**Visual and Spatial Intelligence**

This helps the student to understand the world through what we see and imagine and express their ideas through graphic arts.

1) The paint programs allow students who are unskilled with paper and brush and create art. The editor should run the paint program himself and test his ideas out.

2) Get data bases of art works. The editor should have an idea of some basic art concepts in order to make the artistic ideas tangible.

3) Get familiar with desktop publishing. The editor should run the program by himself and get well versed with it.

4) Internet links to museum and virtual tours. The editor should check all the links and make sure that they are smoothly operational.

**Bodily/ Kinesthetic Intelligence**

This helps the students to develop their ability to learn through physical coordination and dexterity and by having the ability to express oneself through physical activities.

1) Educational games which challenge fine motor coordination while developing logical thinking skills. The editor should make sure that none of the games are too violent in content.

2) Construction of Lego robots and program their movement on the computer. The editor should make sure that there are well written manuals accompanying the robots.

3) Electronic field trips: depths of Mediterranean and inside of a volcano. The editor should make sure that the images use vibrant colors and are three dimensional.

**Musical Intelligence**

This helps the students to have an ability to understand, appreciate, perform and create music through voice and or instruments or dance.

1) The students hum into the synthesizer and make it sound like any instrument. The editor should explore the musical aspects of computer.

2) MIDI (Musical Instrument Digital Interface) helps to compose music and orchestrate it. The editor should explore all the musical sounds available to him.

3) Interactive music presentation, different levels of music, separates instruments, reviews them and learns about the musical history and cultural background of place. The editor should make sure that the music is free flowing and smooth.
Interpersonal Intelligence

This helps the students to have the ability to work together and cooperate and communicate with other people.

1) Clusters of students learn more than individuals. The editor should make sure that the content of the multimedia text allows for group interaction.

2) Links to outside world. The editor should make sure that the content has enough cross references.

3) The students will be able to get pictures of people that they are speaking to. The editor should make sure that the content allows for personal communication and interaction.

Intrapersonal Intelligence

This helps the students to express their inner thoughts and emotions.

1) The classrooms are created into centers of student directed inquiry. The editor should make sure that the content captures the creativity and imagination of the student.

2) The editor should make sure that the multimedia technology is for more deep thinking, pursuing curiosity and exploring and expanding intelligence as they build mental models and visualize and connect ideas on any topic.

3) The editor should make sure that the individual growth plans are developed jointly by the students, teachers and parents that can encourage the growth of intrapersonal intelligence. He should make sure that technical supports are planned along with electronic records, videotaped interviews and multimedia portfolios.

Check your progress

2) what are the various intelligences that a multimedia text can help students with?

The creation of any multimedia text involves careful planning and execution. Research of the content hence becomes the primary tool for any editor. The next section will discuss this in detail.

14.4 RESEARCH

According to Galbraith a leading economist, “Technology means the systematic application of scientific and other organized knowledge to practical tasks. Its most important consequence, at least for the purpose of economics, is in forcing the division and subdivision of any such task into its component parts.”

Multimedia is therefore one such technology that helps organize knowledge into
practical tasks. The division of this practical task into its primary component is research. This is the first tool that equips the editor. This helps the editor in the following manner:

1) It helps the editor to determine relevant curricular decisions. The content is designed so that it meets the academic interest of the student.

2) It helps to design the content and make careful selection of its parts.

3) It helps to develop the comprehensive analyses of the learner.

4) It helps the product or the multimedia to be tested.

The content must be carefully analyzed by the editor. He should keep the below points in mind.

1) The content should support the information.

2) The editor should be aware of the entry information that the learner will come with the material. For example, if the lesson is on Indian History, the editor should know that the student will come with prior knowledge of Indian leaders such as Nehru and Gandhi.

3) The editor should determine the point at which the content must begin. He must be aware and check all the introductions.

4) The editor should be aware about the level to which the content must proceed. He must know the point of exit and hence must personally check all the conclusions.

5) What is the pacing of the content? The editor should make sure that the content develops well without making the viewer bored or disinterested. The content should supply information in a free flowing smooth manner and should also not be rapid so that the viewer will become equipped to learn the material.

6) The editor should make sure that the content is relevant and is worthwhile to the learner.

7) There should be removal of redundant material. Even though the students will need reinforcement the content should not be repetitive.

Check your progress

3) Discuss any three points that the editor must keep in mind while analyzing the content.

The editor should make sure that the research fulfills certain basic functional roles for the students. He should ensure that the students have the ability to-

1) To see and listen carefully.
2) To freely access all the details.
3) To detect and tackle stimuli to the senses.
4) To receive, interpret and identify feelings, ideas and emotions.
5) To receive and interpret situations- in terms of beauty of content or the pureness in character.
6) To respond to material
7) Identification of religious concepts and racial and political situations present in the multimedia text.
8) To identify social structure if present in the multimedia.
9) To read at optimum speed.

The preparation of the multimedia requires a certain format and techniques; these can be seen as script (content preparation), video aspects (pictorial aspects), story boarding sound and editing. A good editor should be well versed with all these aspects. The next few sections will discuss this in detail.

### 14.5 SCRIPTING

This can be said to be the arrangement of the video and the audio aspects of the content in a set sequence. This is arranged in such a manner that it follows in a logical and uncomplicated flowing manner from easy to complex, concrete to abstract, and naive to sophisticate. In the script the form and the content is well designed. An editor must read the script and also assist in the visualization of the various structures. One should keep in mind that printed matter can go along with the multimedia text such as charts, diagrams, worksheets etc. The editor must oversee its production as well.

The content of any multimedia text depends on a large number of events. An editor should determine the event forming the base of the content. The script will thus be based on the event. The events can be of the following category:

1) Documentary event: This is an event that is recorded as it occurs in history. Some of the examples include action of stars, eruption of a volcano, and election of the prime minister and construction of a machine.

2) Reconstructed event: This is a situation that is recreated, it could have happened in the past for example the world war II, freedom struggle of India.

3) Contrived event: This is a situation that occurs when certain conditions are set and predetermined. An example of this could be an earthquake.

4) Logical situation event: In this the situation occurs when it is based on facts, and principles. Many events like the interaction of atoms, earth’s gravity are based on this principle.

5) Inductive and Deductive situation event: this occurs when a problem is posed what if...? Many mathematical problems are based on this event.

6) Open ended events: Here there are no solutions present and the answers are left to the viewer. Many aspects of literature come under this category.
7) Demonstrative event: In this the process is demonstrated step by step. Many biological and chemical experiments are based on this like making of hydrochloric acid or dissection of a frog.

8) Participatory event: any situation that involves the active participation of the viewer is called participatory event. The examples of this could be interactive games to learn vocabulary or solving mathematical problems.

9) Theatrical play event: In this a situation is dramatized.

10) Fantasy event: In this the situation occurs when something fictional takes place and it is not based on true facts.

11) Animated event: In this situation animation or cartoons are employed to describe the content.

12) Data event: In this event data is presented. Many geographical concepts like the population of the various countries, literacy rate or the ratio of men vs women are presented.

13) Programmed event: In this the situation occurs when the occurrence is programmed like that of a computer program or a musical composition on the synthesizer.

Once the event is predetermined by the editor it becomes easier for him to create the script. He should keep the following points in mind:

1) Mass Instruction: The content should be large enough and loud enough to be heard and seen by the viewers. There should be significant detail in words, numbers and pictures must be distinct and clear.

2) Individualized Instruction: The learners must not be overloaded with complicated and numerous concepts. The information should be designed and scripted in such a manner that it is relevant and has enough scope for responses and practices by the viewer.

3) Shift of levels: The script should be flexible enough to allow it to become adequate for the individual learner. It should also accommodate slow learners and disadvantaged learners as well.

4) Details of symbols: careful attention should be paid to the symbols and they should not be overcrowded. The eye span is limited and hence too many pictorial symbols should not be present at the same time. The image should move from the left to the right as the human eye scans pictures in that direction. Attention getting symbols should be placed in a appropriate location.

5) Details of staging: the situation should be staged in the proper manner. The background of the content should be paid attention to. For example if the lesson is one a Tamil Temple town of Madurai then the town, marketplace, people and streets should closely resemble it.

6) Additive: the script should be open and allow the scope for any additions by the editor.

7) Subtractive: At the same time the script should be uncomplicated so that it allows for subtraction of certain concepts by the editor.

8) Hardware considerations: the editor should keep the hardware considerations in mind and also the medium of the content whether it is TV, video or computers.
9) Physical Specification of medium: The editor should pay attention to the color of the medium and look into the size of the images and the informational bits.

Check your progress

4) Discuss any two points that the editor must keep in mind while reading the script of the Multimedia script.

Once the script is ready the editor needs to carefully examine the video aspects of the multimedia text. This will be discussed below.

14.6 VIDEO ASPECTS

Once the script or the narrative is complete the visualization of the content is needed. The editor must pay careful attention to the details of the video and the images present. He must ensure that:

1) Picture images are sharp, intelligible and realistic.
2) There is sufficient action.
3) Continuity in images should be maintained.
4) The pictures are natural and understandable.
5) Composition is being maintained.
6) Content free from conflicts in music.
7) Pacing and length of action is maintained.

Visualization can be helped to the by looking at:

1) The words of the content outline.
2) By looking at the charts and diagrams.
3) By over viewing drawings, maps and plans.
4) By looking through the symbols.

The editor can also keep a plan sheet that will help him ensure that the content runs smoothly. It can provide the following information:

1) Information about the content and learning event.
2) Dates of completion.
3) Contain pagination.

4) There should be enough direction for responses and practice of the learner.

5) Cues should be given to the exact spot where the visuals are to be exposed, changed or removed from attention.

6) The subject matter should be written on top of the cue sheet.

7) There should be a title section.

8) It should include the name of the author.

9) It also should have the copyright symbol.

10) Pauses in the speech should be timed.

The editor should also be familiar with certain filming techniques that will allow him to analyze the video aspects. This has been discussed below:

1) Cowcatcher: This means beginning of the content with some eye catching effect. Usually the introduction is done through the titles, credits and printed messages. These fade out and the main content flows through. The message thus must be present in such a manner that it catches the eye.

2) Overprints: In this an image is displayed over the main image and it usually bold with high in contrast, it may be pictorial or verbal. This usually fades in.

3) Pop on: in this a picture or word appears instantly that brings to the attention of the viewer.

4) Highlight: In this technique a part of the image is overemphasized by dimming the main body with a gray film.

5) Exploded view: This is said when the image has more than a single part in which the main image has all the parts in position and they also know the point at which to assemble.

6) Coloration: In this a part of the image is colored in a contrasting hue.

7) Distinctive coloration: In this technique two or more distinctive colors are used in order to discriminate between details and units.

8) Technamation: In this process motions are created in which the image can become linear, circular or curved.

9) Slow motion: In this an image is displayed at lesser than normal speed.

10) Time lapse: This is the reverse of slow motion.

11) Stop Motion: In this the camera brings a moving object to a full stop.

12) Photomicrography: In this process images are magnified.

13) Cinefluoroscopy: In this a motion image is made by the means of X-rays.

The narrative and the video are created by story boarding. The editor must be aware of this. Let us now discuss story boarding in detail.
14.7 STORY BOARDING

Story boarding is a process that uses cards or pieces of paper for the development of the content outline, the narrative and the visuals. An editor should make sure:

1) The card size is easy to store and handle.
2) It provides for spaces for the content outline, narration and suggestion of the visual image.
3) This is also accompanied by the shot direction (long shot, medium shot, close up etc) and also the visual effect (fade in, fade out, dissolve, cut to etc)
4) The content outline is written in the right corner.
5) It should be easy enough to be displayed and visually inspected.
6) It should have the objectives, sub- objectives and the details of the supporting materials needed.
7) Narrative should be written in the lower left.
8) Narratives should not be exceedingly wordy.
9) Constant restructuring should be advised by the editor.
10) Grammatical checks have to be made.
11) Appropriate visuals have to be suggested.
12) The organization of images, colors, photographs quality to be maintained
13) Pictures should be in organized sets or units,
14) Pictures should have continuity and range,
15) Captions should be suitable and in proper places.

Check your progress

5) what are the two points to be kept in mind while editing the story boards of a multimedia text?

After story boarding the producer is able to determine how to process and design the content. The editor hence should also get involved in this process.

The editor should also take care about the audio aspects of the multimedia text. He need not be a skilled musician or technically qualified in music. He should be aware about this essential component too. Let us now discuss this in detail.
14.8 MUSIC/AUDIO

The planning of any multimedia presentation requires both the visualized portion as well as the audio. For the auditory sound track the editor must keep the following points in mind.

1) An expository sound track is not personalized and is often formally presented. The editor should go through this sound track by himself.

2) The audio should sound as realistic as possible.

3) A great variety can be created for fiction based multimedia texts.

4) It should be recorded without any glitches or sound effects.

5) There should be a sound cue for student responses and practices.

6) The introductions can have elaborate music.

7) The music should be free from conflicts.

8) It should not sound jarring.

9) It should flow freely and there should be some continuity maintained.

10) It should be of the appropriate length and neither is too short or long.

The editor should also get involved in the process of editing. The following section will discuss editing of multimedia texts.

14.9 EDITING

The editor should be aware that there are three kinds of editing that can exist on the content. This is visual editing, narrative editing and Involvement editing.

Visual editing

The main purpose of visual editing is to eliminate superfluities, redundancies and distractions. The editor should ensure that the given below points are considered.

1) Every visual medium must have a title, credit, introduction, body of message and summary.

2) It should provide clarifications to the viewers.

3) It should make clear transitions from one point to another.

4) It should constantly reorient the viewer to the main message.

5) It should demonstrate examples.

6) It should develop relations in a lucid manner.

Narrative editing

The editor should make sure:

1) The exposition is neither too fast nor too slow.
2) The pace of the development is also not to fast nor too slow.

3) Level of audio is appropriate.

4) Timing for viewer response is adequate.

The editor should be aware of how audio tapes can be edited. This can be done through excision, insertion or dubbing.

Excision means that you cut out what you do not want and join the tape together at the cut out point.

Insertion means that you cut out the tape at a logical point and merge a piece of the tape containing what ever you need.

Dubbing means the duplication of the word. In this one simply eliminates what you want by recording what you need on the copy. This can be done by splicing the tape or by stopping the original and recording it.

**Involvement editing**

This is to involve the viewers in your content. This can be done by the editor by

1) Stimulating commentary with questions.

2) Applying the content message

3) To provide timed cues for the viewers to complete their desired activity and return to the medium.

4) It can be added through visual supplements such as charts, posters and diagrams.

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**14.10 LET US SUM UP**

The process of editing of multimedia involves the interaction of the editor in both the visual and the audio aspects of the multimedia texts. He should also be aware of many of the design processes such as scripting, research, video aspects, story boarding, audio and editing. It is practical to think that the editor can do all this alone. He needs to be involved with each and every member of his team. It is not a matter of simple feelings and guesses but application of techniques, materials and tools to the content. One should not forget the final target audience the teachers and the learners and thus the material should not be superficial and unrelated. One can conclude by saying that public validity is also of primary importance that can lead to successful editing of multimedia text.

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**14.11 CHECK YOUR PROGRESS**

1) Multimedia uses multiple learning contexts, i.e. it uses varied sensory learning situations such as visual and auditory and therefore leads to a greater understanding and knowledge. This is a human computer interaction using the text, audio, graphics, voice and video.

2) Multimedia based texts leads basic seven main intelligence skills amongst students. These are Verbal (linguistic), Logical (mathematical), Visual (spatial), bodily (kinesthetic), musical, Interpersonal and Intrapersonal.

3) The content should support the information. The editor should be aware of the
entry information that the learner will come with to the material. The editor should determine the point at which the content must begin. He must be aware and check all the introductions.

4) Mass Instruction: The content should be large enough and loud enough to be heard and seen by the viewers. There should be significant detail in words, numbers and pictures must be distinct and clear. Individualized Instruction: The learners must not be overloaded with complicated and numerous concepts. The information should be designed and scripted in such a manner that it is relevant and has enough scope for responses and practices by the viewer.

5) Grammatical checks have to be made. Appropriate visuals have to be suggested.

14.12 ACTIVITIES

1) Go to your local library and do research of any historical event that has happened in your locality.

2) Select any three audio pieces that might fit your research.

3) Select any three images that might suit your research.

14.13 READING LIST


