Selected Concepts of Multimedia

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Abstract:

Multimedia can have a many definitions these include: Multimedia means that computer information can be represented through audio, video, and animation in addition to traditional media (i.e., text, graphics drawings, images). A good general definition is: Multimedia is the field concerned with the computer-controlled integration of text, graphics, drawings, still and moving images (Video), animation, audio, and any other media where every type of information can be represented, stored, transmitted and processed digitally.

A Multimedia Application is an Application which uses a collection of multiple media sources e.g. text, graphics, images, sound/audio, animation and/or video. Hypermedia can be considered as one of the multimedia applications.

Multimedia is the use of a computer to present and combine text, graphics, audio, and video with links and tools that let the user navigate, interact, create, and communicate. This definition contains four components essential to multimedia. First, there must be a computer to coordinate what you see and hear, and to interact with. Second, there must be links that connect the information. Third, there must be navigational tools that let you traverse the web of connected information. Finally, because multimedia is not a spectator sport, there must be ways for you to gather, process, and communicate your own information and ideas. If one of these components is missing, you do not have multimedia. For example, if you have no computer to provide interactivity, you have mixed media, not multimedia. If there

are no links to provide a sense of structure and dimension, you have a bookshelf, not multimedia. If there are no navigational tools to let you decide the course of action, you have a movie, not multimedia. If you cannot create and contribute your own ideas, you have a television, not multimedia.

Key words: Multimedia, Animation, Sounds, Forms of Multimedia, Multimedia application, hypermedia

I. HOW IS SOUND PRODUCED IN YOUR OWN OPINION?

Sound is like a sensation or feeling that we hear. We produce sounds by doing something. The motion of materials or objects causes vibrations. A sound originates in the vibration of an object, which makes the air or another substance around the object vibrate. The vibration of the air moves outward in all directions in the form of a wave. Human Voice, Animal Sounds, Musical Sounds and Noise are examples of how certain sounds are produced.

For us humans, sound is produced in our larynx which is a part of our throat. Animals also produce sounds. Almost all mammals, birds, have vocal cords or similar structures, which allow them to produce sounds in a similar way to us humans. However, many other animals produce distinctly different sounds.

Musical instruments produce many different sounds in various ways in which this instruments is categorized in a percussion, string and wind types of instruments. We all know that once you did something to one of those instruments, it will cause parts of the body of the instrument to vibrate, creating sound waves in the air and that's the sound we hear.

Human sounds, animal sounds, and instruments sounds are not the only sounds we hear, many of us come across various other sounds or noise every day. For example thunder is caused when lightning heats the air, causing the air to vibrate. A car makes a rather loud noise, which is produced

when the engine vibrates, causing the other parts of the car to vibrate. These types of noises are produced by irregular vibrations occurring at irregular intervals. This is what makes noise a rather unpleasant sound.

In conclusion, sound is a part of our daily lives, yet we never stop to think how or why we sound the way we do. Well, at the end of the day, sound is also an important factor since it can help us to determine what we see or what we can't when there's no visuals provided for us.

II. GIVE 6 MULTIMEDIA ELEMENTS AND ADVANTAGES OF EACH.

Multimedia elements can be used for many things. With the help of computer software such as Adobe Photoshop, Adobe Illustrator and Adobe Flash we can create and combine various multimedia elements to create a great project. The following are the 6 elements of multimedia and I choose to state their advantages in our educational system.

Text. This is the most basic element in multimedia and it is very easy to use. But, you must not underestimate it because text can give the most impact on the quality of the multimedia interaction compared to the other elements. In general, text is used in order to provide important information. This is because text is more direct and easy to understand rather than the other multimedia elements. In learning, text is the most commonly used element. But, by using multimedia text, the word can be much more interesting rather that plain text thus increasing the learning effectiveness.

Graphic. This is two-dimensional figure or illustration. It is the most creative ways of learning approach. It can be a photograph, drawing or picture. Using graphic in education will increase the students understanding. It will also enhance their memory skill because pictures are easy to remember this is

because image use a massive amount of cortical skills such as color, form, line, dimension and imagination. This will help the students to get a clear picture of what they are learning.

Audio. This has been used in education for many decades. Because everything that we learn can be recorded, it is an effective tool for the students because they use it to interact with the course content provided by their teacher at any times and any location that they want.

Audio also ease the students by conducting live online discussion via audio tools and platform. There are a few widely use software that can be used for this such as Wechat, Whatapps, Line and Skype. This will not only save some time rather than meeting face-to-face it also frequently used for long distance learning. Sound can also be used by teachers to present a lot of information at once. Learning by using audio also can help disable people such as blind people to learn. This is one of the few ways for them to learn because they cannot see and read. This shows that the use of sound in education can benefit a lot of people if used in the correct way.

Video. This is widely used multimedia element. It has the highest performance on your computer or device among the five elements. Sometimes, using text or other multimedia elements to convey information are hard and complex. This type of multimedia element is used because it can provide visual stimulation for students so that they can have a better understanding in learning. This proves to be helpful in surgical training where students cannot just understand the producer for surgery just by reading. So, a video of a surgery in action is needed so that the students can understand.

Teacher can also ask their students to make a video project. This is because it can help them getting in touch with the real element of what they are learning and show it to their other classmate. It also can help to enhance their practical skill. This is because, by doing a video they are expose to the outside

element rather than just sitting in the classroom. So, they can gain more experience and improve their skills. This shows that video can help to improve our educational system.

Animation. This is created using continuous motion and shape change combined together to produce an animation. Animation are different than video. This is because video is taken from real life event while animation is usually taken from drawing. There's a few animation software that are used in educational field such as Adobe Flash and Director. By using this software, students can use their own creativity and idea to present a project that they like. This help to improve their creativity while bringing fun in learning.

Animation also can help students to learn faster and easier. This is because it can help the teacher to explain a difficult topic. For example, the flow of blood throughout the body cannot be seen. The flow of blood in and out of the heart is difficult for students to understand in the beginning. By providing a structural animation of our blood circulatory system and the heart, students can see clearly how it works. With the help of computer animation, learning and teaching can be easier, faster and amusing.

Interactive Media. Interactive media is captivating tech-savvy children via apps and video games. The expansion of interactive media provides a vital opportunity to empower children and to increase their educational skills and knowledge. It has the capability to excite children by engaging multiple senses through illustration, animation, audio and touch. The intuitive nature of mobile devices encourages children to learn through experience and experimentation as a result of the changing learning behaviors in children. It also has great potential to enhance learning outcomes by providing programs that cater to an individual by allowing them to progress through levels at their own pace.

In conclusion, multimedia can bring a number of advantages to the education. It can help learners come to a deeper understanding through supporting materials when new material is being presented. It involves the learner actively into the learning process and promotes internal reflection. Also, the dialogue between teacher and student can be supported through combining interactive multimedia with communications technology. But the most important thing to remember is: with or without multimedia elements, learner has to be motivated to learn. Only then we can speak about real learning.

III. WHY IS DIGITAL RECORDING BETTER THAN ANALOG RECORDING?

An analog sound recording is where the characteristic of a physical recording medium is made to fluctuate in a way which is analogous or similar to the variations in air pressure of the original sound. Usually, these variations in air pressure are first changed into an electrical analog signal. The instantaneous voltage or current produced is directly proportional to the instantaneous air pressure. These variations of the electrical signal are then changed over to variations in the recording medium with the help of a recording machine like a tape recorder or record cutter. The variable property of the medium is adjusted by the signal.

A digital sound recording is created by changing the physical properties of the original sound into a series of numbers. These numbers are then be stored and read back for reproduction. Generally the sound is transmitted to an analog signal in the same way as for analog recording. Then the analog signal is changed to a digital signal or digitized.

We see that the main difference between analog and digital sound recording is that the analog signals are continuous in time, no matter how short a time period you consider, while the digital signal is distinct in time, which

means that it has discrete parts following one after another with definite, unambiguous division points between them. These are called signal transitions. Comparing analog and digital sound recording, the precision of the conversion process in digital depends on the sampling rate and the sampling depth. In analog recording, the quality of playback depends significantly on the accuracy of the medium as well as the playback device.

According to research, In terms of the music they produced, 35% of the people say that digital is better than analog since it makes music sound clearer and more realistic. Digital music continues the evolution that analog music first started, but takes music to a whole new level and sound quality. Digital music allows the listener to hear a clearer sound quality over analog music, which makes it better. While 65% say that digital is not better than analog because analog sound is the purest of recorded sound; therefore it is superior to digital sound, if in nothing more than its pure originality. It is made from the initial sound resulting from the original air pressure variations, then converted via say a microphone, into an electrical analog signal. Digital sound takes all its qualities from the original, pure analog sound, so it is a "man-made reproduction" at best. Digital sound does have its profound benefits in today's technological age, but for purity and originality in recording, analog sound cannot be beat.

In conclusion, you and only you can answer whether digital is better than analog. We have different opinions and were all entitled to them.

IV. MULTIMEDIA IS DIVIDED INTO LINEAR AND NON-LINEAR CATEGORIES. DIFFERENTIATE THE TWO.

Linear and non-linear multimedia are two different categories that are applicable to the world of multimedia. The main difference is that linear multimedia does not feature any sort of navigational abilities. The linear multimedia will go from the

start all the way through to the finish without variation. Non-linear media is the opposite; it doesn't follow that one-way structure and instead allows free movement around all aspects of the multimedia in any order. In short, Non-Linear is Interactive while Linear is not, as simple as that.

V. MULTIMEDIA SYSTEM HAS FOUR BASIC CHARACTERISTICS. EXPLAIN THEM AND GIVE EXAMPLES.

A Multimedia System is characterized by the processing, storage, generation, manipulation and rendition of Multimedia information. It has four basic characteristics: Multimedia systems must be computer controlled. Multimedia systems are integrated. The information they handle must be represented digitally and the interface to the final presentation of media is usually interactive.

Computer Controlled. How multimedia systems can be computer controlled? In producing the content of the information we want to convey, we can use authoring tools, image editor, sound and video editor, and then we can store that information by providing large and shared capacity for multimedia information. In transmitting, we can transmit it through the network and when presenting the information to the end user make direct use of computer peripheral such as display device (monitor) or sound generator (speaker).

Integrated. When we say all multimedia systems are integrated it means that all multimedia elements are used in the system must be somehow incorporated with each other. So every device, such as microphone and camera is connected to and controlled by a single computer and a single type of digital storage is used for all media type.

Interactivity. This is strictly on information delivery. We have different levels in interactivity. In Level 1, users select the time

at which the presentation starts, the order, the speed and the form of the presentation itself. Level 2, users can modify or enrich the content of the information, and this modification is recorded. And in Level 3, actual processing of users input and the computer generate genuine result based on the users input.

Digitally Represented. In here we include the practice of Digitization where in this is a process involved in transforming an analog signal to digital signal examples like when using microphone and telephone.

REFERENCES

1. Brewer, Judy, ed. 2001. *How people with disabilities use the Web.* http://www.w3c.org/wai/eo/Drafts/pwd-Use-Web (31 March 2001)
2. Chisholm, Wendy, Gregg Vanderheiden, and Ian Jacobs, eds. 1999. *Web content accessibility guidelines 1.0.* http://www.w3c.org/tr/wai-webcontent/wai-pageauth.html (17 January 2001).
3. CPB/WGBH National Center for Accessible Media. *Rich media resource center.* http://ncam.wgbh.org/richmedia (29 March 2001).
4. Kelsey, Logan, and Jim Feeley. 2000. Shooting video for the Web. *DV* (February). http://www.dv.com/magazine/2000/0200/videoforweb0200.html (28 March 2001).
5. Nielsen, Jakob. 1995. *The alertbox: Current issues in Web usability.* http://www.useit.com/alertbox.
6. ———.1999. *Designing web usability: The practice of simplicity.* Indianapolis, Ind.: New Riders.
7. Simpson, Ron. 1998. *Cutting edge Web audio.* Upper Saddle River, N.J.: Prentice Hall.
8. Stern, Judith, and Robert Lettieri. 1999. *QuickTime Pro for Macintosh and Windows.* Berkeley, Calif.: Peachpit.

9. Terran Interactive. 1995 – 2000. *Cleaner 5 User Manual.* San Jose, Calif.: Terran Interactive. [See also http://www.terran-int.com]
10. ———. 1999. *How to produce high-quality QuickTime.* San Jose, Calif.: Terran Interactive. [See also http://www.terran-int.com/QuickTime/Article]
11. Waggoner, Ben. 1999. Making great Web video. *DV* (October). http://www.dv.com/magazine/1999/1099/webvideo1099.pdf (28 March 2001).