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# Multimedia



Multimedia is media that uses multiple forms of information content and information processing like text, audio, graphics, animation, video, interactivity) to inform or entertain the audience. Multimedia also refers to the use of electronic media to store and experience multimedia content. Multimedia is similar to traditional mixed media in fine art, but with a broader scope. The term "rich media" is synonymous for interactive multimedia. Multimedia means that computer info can be represented through audio, graphics, image, video and animation in addition to traditional media (text and graphics). Hypermedia can be considered one particular multimedia application. Multimedia finds its application in various areas including, but not limited to, advertisements, art, education, entertainment, engineering, medicine, mathematics, business, scientific research and spatial temporal applications. Below are the several examples as



Adobe Flash Player ya no está disponible

## Multimedia uses



### Entertainment and fine arts

Multimedia is heavily used in the entertainment industry, especially to develop special effects in movies and animations. Multimedia games are a popular pastime and are software programs available either as CD-ROMs or online. Some video games also use multimedia features.

Multimedia applications that allow users to actively participate instead of just sitting by as passive recipients of information are called Interactive Multimedia.



In the Arts there are multimedia artists, whose minds are able to blend techniques using different media that in some way incorporates interaction with the viewer. One of the most relevant could be Peter Greenaway who is melding Cinema with Opera and all sorts of digital media. Another approach entails the creation of multimedia that can be displayed in a traditional fine arts arena, such as an art gallery. For the most part these artists are using materials that will not hold up over time.

### **Education**

In Education, multimedia is used to produce computer-based training courses (popularly called CBTs) and reference books like encyclopaedia and almanacs. A CBT lets the user go through a series of presentations, text about a particular topic, and associated illustrations in various information formats. Edutainment is an informal term used to describe combining education with entertainment, especially multimedia entertainment.

### **Journalism**

Newspaper companies all over are also trying to embrace the new phenomenon by implementing its practices in their work. While some have been slow to come around, other major newspapers like The New York Times, USA Today and The Washington Post are setting the precedent for the positioning of the newspaper industry in a globalized world. News reporting is not limited to traditional media outlets. Freelance journalists can make use of different new media to produce multimedia pieces for their news stories. It engages global audiences and tells stories with technology, which develops new communication techniques for both media producers and consumers. Common Language Project is an example of this type of multimedia journalism production.

Multimedia reporters who are mobile (usually driving around a community with cameras, audio and video recorders, and wifi-equipped laptop computers) are often referred to as Mojos, from mobile journalist.

### **Engineering**

Software engineers may use multimedia in Computer Simulations for anything from entertainment to training such as military or industrial training. Multimedia for software interfaces are often done as collaboration between creative professionals and software engineers.

### **Industry**

In the Industrial sector, multimedia is used as a way to help present information to shareholders, superiors and coworkers. Multimedia is also helpful for providing employee training, advertising and selling products all over the world via virtually unlimited web-based technologies.

### Mathematical and Scientific Research

In Mathematical and Scientific Research, multimedia is mainly used for modelling and simulation. For example, a scientist can look at a molecular model of a particular substance and manipulate it to arrive at a new substance. Representative research can be found in journals such as the Journal of Multimedia.

### Medicine

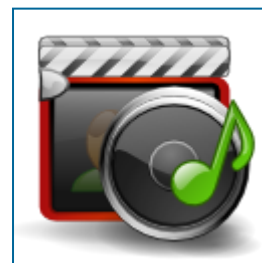
In Medicine, doctors can get trained by looking at a virtual surgery or they can simulate how the human body is affected by diseases spread by viruses and bacteria and then develop techniques to prevent it.

**Graphic Design** encompasses a whole range of media services. Website Outsourcing is your one stop shop for all kinds of graphic designing services. With many years of experience designing high quality professional graphics and advertising material, we are well suited to be your long-term graphics partner. As your company grows and therefore you graphics needs, you will find it makes more sense to associate your firm with a vendor who is experienced in all aspects of graphics designing.

## Multimedia Types



**Linear Multimedia** is limited to advancing forward to the next screen or moving back to the previous page. The user has limited control over Access to information. There is only a fixed path that presentation can follow. This type of Multimedia is also known as passive multimedia. Linear or passive Multimedia is suited for presentations and demonstrations that do not require the user's constant interaction.



**Interactive Multimedia** is a revolutionary form of information Technology. It integrates various and multiple media, content and format, digitally stored, applied and adapted, with which the user can interact. Interactive elements can include: voice command, mouse

manipulation, text entry, touch screen, video capture, or live presentations.

**Hypermedia** is the most recent form of multimedia  
With hypermedia, you can look at a screen of information and if there is a topic or Word you want more information about, click it with the mouse and you have the information. These words or phrases are highlighted so that they stand out from the normal text.  
Hypermedia introduces the concept of hyperlink.



### Fill in the gaps

Match the definitions with these words: hypertext, hypermedia, streaming, webcast, video editing.

The process of manipulating video images -->

The text with links which take you to other pages -->

A technique for playing sound and video files while they're downloading -->

A live event broadcast over the internet -->

A form of enriched multimedia which allows an interactive and dynamic linking of visual and audio elements -->

## Multimedia Elements



Information can be represented with very different elements.

- Graphic
- Animation
- Text
- Audio
- Video



## Graphic



Graphics are visual presentations on some surface, such as a wall, canvas, screen, paper, or stone to brand, inform, illustrate, or entertain. Examples are photographs, drawings, Line Art, graphs, diagrams, typography, numbers, symbols, geometric designs, maps, engineering drawings, or other images. Graphics often combine text, illustration, and color. Graphic design may consist of the deliberate selection, creation, or arrangement of typography alone, as in a brochure, flier, poster, web site, or book without any other element. Clarity or effective communication may be the objective, association with other cultural elements may be sought, or merely, the creation of a distinctive style. Graphics can be functional or artistic. The latter can be a recorded version, such as a photograph, or an interpretation by a scientist to highlight essential features, or an artist, in which case the distinction with imaginary graphics may become blurred.



To Know more.....

Look at this table which describes the different types of Graphic File.

## Animation



Animation is the rapid display of a sequence of images of 2-D or 3-D artwork or model positions to create an illusion of movement. The effect is an optical illusion of motion due to the phenomenon of persistence of vision, and can be created and demonstrated in several ways. The most common method of presenting animation is as a motion picture or video program, although there are other methods.



To know more...

[Look at this link, to learn more animation techniques](#)

## Text



Text is the representation of information with words.

You can use some formats to enrich the text.

## HTML Text Formatting Tags

Tag	Description
<u><a href="#">&lt;b&gt;</a></u>	Defines bold text
<u><a href="#">&lt;big&gt;</a></u>	Defines big text
<u><a href="#">&lt;em&gt;</a></u>	Defines emphasized text
<u><a href="#">&lt;i&gt;</a></u>	Defines italic text
<u><a href="#">&lt;small&gt;</a></u>	Defines small text
<u><a href="#">&lt;strong&gt;</a></u>	Defines strong text
<u><a href="#">&lt;sub&gt;</a></u>	Defines subscripted text
<u><a href="#">&lt;sup&gt;</a></u>	Defines superscripted text
<u><a href="#">&lt;ins&gt;</a></u>	Defines inserted text
<u><a href="#">&lt;del&gt;</a></u>	Defines deleted text



## HTML "Computer Output" Tags

Tag	Description
<u><a href="#">&lt;code&gt;</a></u>	Defines computer code text
<u><a href="#">&lt;kbd&gt;</a></u>	Defines keyboard text
<u><a href="#">&lt;samp&gt;</a></u>	Defines sample computer code
<u><a href="#">&lt;tt&gt;</a></u>	Defines teletype text
<u><a href="#">&lt;var&gt;</a></u>	Defines a variable
<u><a href="#">&lt;pre&gt;</a></u>	Defines preformatted text

## HTML Citations, Quotations, and Definition Tags

Tag	Description
<u><a href="#">&lt;abbr&gt;</a></u>	Defines an abbreviation
<u><a href="#">&lt;acronym&gt;</a></u>	Defines an acronym
<u><a href="#">&lt;address&gt;</a></u>	Defines contact information for the author/owner of a document
<u><a href="#">&lt;bdo&gt;</a></u>	Defines the text direction
<u><a href="#">&lt;blockquote&gt;</a></u>	Defines a long quotation
<u><a href="#">&lt;q&gt;</a></u>	Defines a short quotation
<u><a href="#">&lt;cite&gt;</a></u>	Defines a citation
<u><a href="#">&lt;dfn&gt;</a></u>	Defines a definition term

## Audio



Sound is a mechanical wave that is an oscillation of pressure transmitted through a solid, liquid, or gas, composed of frequencies within the range of hearing and of a level sufficiently strong to be heard, or the sensation





stimulated in organs of hearing by such vibrations.

## Why Use Audio

Perhaps the most obvious advantage of using audio is that it can provide an interface for visually disabled users, however using audio offers a number of other advantages for all users:

It can convey meaning, providing an extra channel of information. It allows redundancy to be incorporated into the presentation of information, so that if the meaning is unclear to a user using visual information alone, the audio may clarify it.

Different learners use different learning strategies, and audio can provide additional information to support different learning styles, for example some users may learn more by hearing than reading a piece of text.

Audio can add a sense of realism. Cultural associations with music allow you to convey emotion, time period, geographic location, etc. However, when using audio in this way you must be aware that meanings may differ in different cultures. Methods of sound spatialisation are now available, giving the effect of 3D sound, and allowing environmental acoustic effects, such as reverberation, to be added. For example, for the Windows platform, Microsoft has defined the device-independent DirectSound interface for spatial sound as part of DirectX.

It is useful for directing attention to important events. Non-speech audio may be readily identified by users, for example the sound of breaking glass to signify an error. Since audio can grab the users attention so successfully, it must be used carefully so as not to unduly distract from other media.

It can add interest to a presentation or program.

Ease of communication - users may respond better to the spoken word than other media. For example in a company presentation, 'sound bytes' from satisfied customers can be used.

There are however a number of disadvantages to using audio:

Like most media, files can be large. However files sizes can be reduced by various methods (see File Formats), and streamed audio can be delivered over the Web (see Streaming).

Audio can be easily overused, and when sounds are continually used users tend to tune them out. When used in a complex environment it can increase the likelihood of cognitive overload. Studies have shown that while congruent use of audio and video can enhance comprehension and learning, incongruent material can significantly reduce it. That is, where multiple media are used they should be highly related to each other to be most effective.

For most people, audio is not as memorable as visual media.

Good quality audio can be difficult to produce, and like other media most commercial audio, particularly music, is copyright.



Users must have appropriate hardware and software. In an open plan environment this must include headphones.

## File Formats

There are a large number of audio formats, but in all the file size (and quality) depend on:

Sampling frequency

Bit depth

Number of channels (mono, stereo)

Lossiness of compression

The easiest way to reduce file size is to switch from stereo to mono. You immediately lose half the data, and for many audio files it will have only a small effect on perceived quality.

Bit depth, or sample size, is the amount of information stored for each point - equivalent to the bits/pixel in an image file. This is usually 8 or 16 bits.

Frequency is the number of times per second the sound was sampled - the higher the frequency, the better the quality. In practice the frequency is usually set at one of a number of predetermined figures, most commonly 11KHz, 22KHz and 44KHz. 22kHz is very common in computer sound file formats, 44kHz is the standard for audio compact discs

The total size of a mono, uncompressed sound file will be the sample rate \* bit depth \* duration. Stereo sound will be twice this. For example, a CD quality sound file will be 16 bit, 44KHz, and uncompressed will be about 10.5Mb per minute.

The most common sound formats found on the Web are WAV, a Microsoft format, and AU, primarily a UNIX based format, AIFF (Audio Interchange File Format) mainly used on Mac and SGIs, and streamed formats such as RealAudio (.ra).

Recently MP3 files have become more popular, particularly for storing CD quality audio. MP3 refers to the MPEG (Motion Picture Expert Group) layer 3 audio encoding scheme, which is defined within both the MPEG-1 and MPEG-2 standards. The audio encoding scheme in MPEG-2 only differs from that in MPEG-1 in that it was extended to support very low bitrate applications.

MP3 can provide about 12:1 compression from an 44kHz 16-bit stereo WAV file without noticeable degradation of sound quality, much higher compression rates can be obtained, but at a cost of poorer sound quality. However, it is reasonably CPU intensive, encoding much more so than decoding. MP3 playback is not recommended on machines slower than a Pentium or equivalent.

MIDI (Musical Instrument Digital Interface) files are different from the audio formats described above. MIDI is a communications standard developed for electronic musical instruments and computers. In some ways it is the sound equivalent of vector graphics. It is not digitized sound, but a

series of commands which a MIDI playback device interprets to reproduce the sound, for example the pressing of a piano key. Like vector graphics MIDI files are very compact, however, how the sounds produced by the MIDI file depend on the playback device, and it may sound different from one machine to the next. MIDI files are only suitable for recording music; they cannot be used to store dialogue. They are also more difficult to edit and manipulate than digitized sound files, though if you have the necessary skills every detail can be manipulated.

## Video



Video, like sound, is recorded and played as an analog signal. Analog video must be digitalized in order for it to put into a multimedia file. Digital video has many advantages, but file size is important.

Several elements determine file size:

- Frame rate
- Image size
- Color depth

To determine file size use the following formula:

frames per second X image size X color depth / 8 = file size

### Video Formats



The MP4 format is the new and upcoming for video. It is supported by YouTube, Flash player

Format	File	Description
AVI	.avi	The AVI (Audio Video Interleave) format was developed by Microsoft. It is supported by all computers running Windows, and by all the most popular web browsers. It is a very common format on the Internet, but not available on non-Windows computers.
WMV	.wmv	The Windows Media format is developed by Microsoft. Windows Media format is supported on the Internet, but Windows Media movies cannot be played on a Windows computer without an extra (free) component installed. Windows Media movies cannot play at all on non-Windows computers because the component is not available.
MPEG	.mpg .mpeg	The MPEG (Moving Pictures Expert Group) format is the most popular on the Internet. It is cross-platform, and supported by all the most popular web browsers.
QuickTime	.mov	The QuickTime format is developed by Apple. QuickTime is a common format on the Internet, but QuickTime movies cannot be played on a Windows computer without an extra (free) component installed.
RealVideo	.rm .ram	The RealVideo format was developed for the Internet by Real Media. It allows streaming of video (on-line video, Internet TV) with low bandwidth. Because of the low bandwidth priority, quality is often reduced.
Flash	.swf .flv	The Flash (Shockwave) format was developed by Macromedia. It requires an extra component to play. But this component comes pre-installed on most web browsers like Firefox and Internet Explorer.

## Multimedia Tools

**PHOTO EDITING: Photoshop**

Free: Splashup

Photoshop may be the industry leader when it comes to photo editing and graphic design, but Splashup, a free online tool, has many of the same capabilities at a much cheaper price. Splashup has lots of the tools you'd expect to find in Photoshop and has a similar layout, which is a bonus for those looking to get started right away. Splashup isn't the only free online photo editing program, check out this list of 20 more.

**WEB DESIGN: Dreamweaver**

Free: KompoZer

Looking to create your next web site without paying big money for programs like Dreamweaver? KompoZer, a free web design program available for immediate download, is great for both novice web designers and professional webheads who need more advanced editing features.

**VIDEO: Final Cut, Adobe Premiere**

Free: iMovie, JayCut

Many video editors, both novice and professional, use iMovie to create professional-looking videos and an amateur price. The program is included on modern Macs as part of the iLife package and has the basic features editors need as well as few advanced extras such as detachable audio and image stabilization. JayCut is an online video editor that lets registered users upload and edit their video for free. You can even add photos, audio and effects to your project. The final edited video can be shared on the web or downloaded directly to a computer.

**AUDIO: ProTools, Adobe Audition**

Free: Audacity, GarageBand

Audacity is a comprehensive audio editor with many of the capabilities of its costly competitors. The program, which is available for a free download lets users record and edit everything from simple audio tracks to complex professional work. GarageBand, which is included on modern Macs along with iMovie and iPhoto, takes a simple approach to audio editing and has the added capability of creating enhanced podcasts with photos, chapter markers and more. Find even more free audio editing programs here.

**SLIDESHOWS: Soundslides**

Free: PhotoPeach

Until recently there was no other slideshow tool that could

compete upload Soundslides' flexibility and easy-to-use interface...until now. PhotoPeach lets users upload and order photos using a drag and drop interface, upload an MP3 audio file from a computer, add captions for individual photos and embed the final slideshow anywhere on the net. All this is familiar to anyone who has ever used Soundslides, but PhotoPeach offers all this and more for free, making it a strong substitute for Soundslides.

**INTERACTIVE MEDIA:** Flash

Free: Effect Generator

Effect Generator, a free online tool, lets anyone create common Flash elements such as slideshows, graphics, and embedded videos. Once you've created your effect the generator emails a link where you can access the Flash file you created. The layout differs from Flash and takes some getting used to but is a great alternative, especially for those just starting to learn Flash.

**WORD PROCESSING:** Microsoft Office (Word, Excel, PowerPoint)

Free: Google Docs

Many of the programs and tools on this list are substitutions for existing program. With Google Docs, you'll never want to touch Microsoft Office again. The free online tool lets anyone with a Google account create documents, spreadsheets and presentations as well as share the document for collaborative editing or viewing. Google Docs is accessible from any computer with an internet connection or you can work offline or download your finished work directly to your computer. You can even upload your existing documents into Google Docs.

**Fill in the gaps**

Read the paragraph below and fill in the missing words.

GarageBand, which is included on modern Macs along with iMovie and iPhoto, takes a simple approach to and has the added capability of creating enhanced podcasts with photos, chapter markers and more

KompoZer is great for both novice web designers and professional webheads who need more advanced editing features

is accessible from any computer with an internet connection or you can work offline

PhotoPeach lets users photos using a drag and drop interface

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