

An Attractive Multimedia on the Web Will Enhance the Inspiration to the E-Learning Process

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Abstract

E-learning has become a key trend as it usually allows people to learn effectively by using hyper-text from the Internet. In the field of multimedia learning (Zheng, 2009), while doing research on cognitive effects and their implications for instructional design is rich; research on the effects of motivation in an e-learning context is surprisingly scarce. Since, one of the major goals of providing multimedia instruction to motivate students is attracted by e-learning websites. This paper will describe some of significant enhancements with motivation to e-learning process on the web attraction.

Keywords: 2D & 3D Animations, E-learning, Flash, HTML, Integrative, Multimedia, VRML.

Introduction

Multimedia refers to computer-mediated information that is presented concurrently in more than one medium. It consists of some, but not necessarily all, of the following elements: text; still graphic images; motion graphics; animations; hypermedia; photographs; video; and audio. Multimedia (Agnew & Kellerman, 2008) is any mixture of text, graphics, art, sound, animation and video with links and tools that let the person navigate, interact, and communicate with the computer. When you allow the viewer to control what and when these elements are delivered, it is interactive multimedia. When you provide a structure of linked elements through which the learner can navigate, interactive multimedia becomes hypermedia. 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.

All multimedia productions contain some amount of text, and even some might contain a large amount of textual matter. The text can have various types of fonts and type sizes to suit the professional presentation of the multimedia software. The standard software interface provided now a day's on multimedia is the windows interface. This interface allows large amount of fonts to be stored in multimedia. Another important and interesting component of multimedia is graphics

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(DiMarco, 2004). One of the basic facts in multimedia production is that, people do not like reading large amount of textual matter on the screen. There are two different ways in which graphs or images can be described, Bitmap and Vectors. A bitmap image assumes an image to consist of two dimensional squares which are called the pixel or dots on the screen. Vector images are formed as a set of straight or curved lines instead of

dots. A line can be represented by a mathematical equation, whose number can be stored as a set of binary codes. Animation also plays vital part in the multimedia program. The dedicated hardware and software built into the system increases the animation speed. An animation is just a continuous series of still images that are displayed in a sequence. There are mainly two types of animation used in multimedia, namely 2D and 3D animation.

The most common reason for using digital audio in computer is to exploit multimedia in its full potential. The most common requirement is to be able to input sound such as a spoken commentary on an image or a document. Digitized video is one of the many technologies used in the development of interactive multimedia. It is one of the ways to play back and record video in multimedia program. It offers a wide range of flexibility as compared to standard video signal. Although the definition of multimedia is simple, making it work can be very complex. Not only do you need to understand how to make each multimedia elements work, but you also need to know how to effectively blend the elements together using educational multimedia computer tools. If done properly, interactive multimedia excels in leaving lasting impressions in the learning process.

The term “Interactive” (Gehne & Jesshope, 2002) refers to users exploit variety of input devices to interact with the computer, such as a joystick, keyboard, touch screen, mouse, trackball, microphone, etc. Multimedia defined as interacting with information on computer. Students and faculty need to learn to create and use high-quality multimedia documents, including references, lecture materials, reports, programs and term papers. This provides a framework for understanding multimedia in its rapidly changing context on web. Interactivity is very common in all the e-learning process, but there should be attractive is needed on e-learning content to have long time accessing.

E-Learning Models

The term e-learning comprises a lot more than online learning, virtual learning, distributed learning, networked or web-based learning. As the letter “e” in e-learning stands for the word “electronic” (Naidu, 2003), e-learning would incorporate all educational activities that are carried out by individuals or groups working online or offline, and synchronously or asynchronously via networked or standalone computers and other electronic devices. These various types or modalities of e-learning activity are represented in Figure 1.

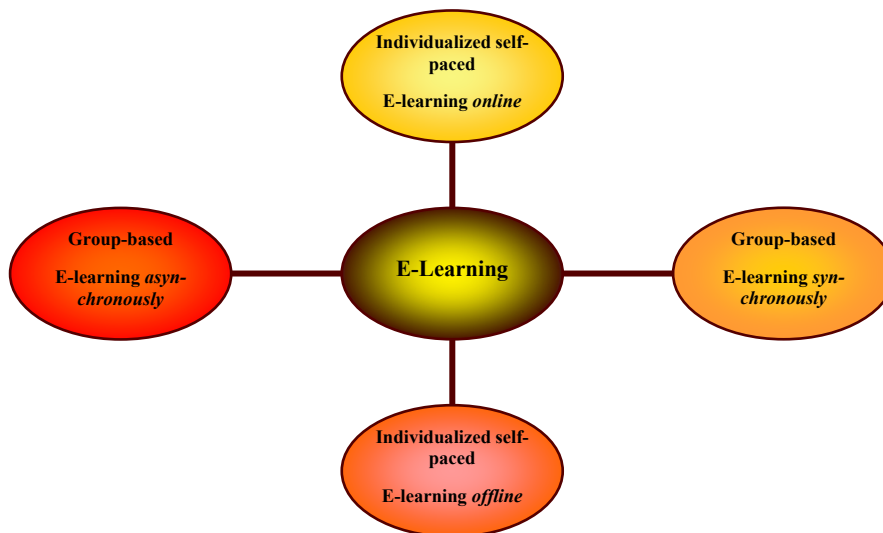


Figure 1: E-Learning Models

Individualized self-paced e-learning online refers to situations where an individual learner is accessing learning resources such as a database or course content online via an Intranet or the Internet. A typical example of this is a learner studying alone or conducting some research on the Internet or a local network.

Individualized self-paced e-learning offline refers to situations where an individual learner is using learning resources such as a database or a computer-assisted learning package offline. For example of this is a learner working alone off a hard drive, a CD or DVD.

Group-based e-learning synchronously refers to situations where groups of learners are working together in real time via an Intranet or the Internet. It may include text-based conferencing, and one or two-way audio and videoconferencing. Examples of this include learners engaged in a real-time chat or an audio-videoconference.

Group-based e-learning asynchronously refers to situations where groups of learners are working over an Intranet or the Internet where exchanges among participants occur with a time delay (i.e., not in real time). Typical examples of this kind of activity include on-line discussions via electronic mailing lists and text-based conferencing within learning managements systems.

The Information and communications technology also enables the capture and storage of information of various types including print, audio, and video. Networked information and communications technologies enable access to this content in a manner that is not possible within the spatial and temporal constraints of conventional educational settings such as the classroom or the print mode. In the context of this distributed setting, users have access to a wide variety of educational resources in a format that is amenable to individual approaches to learning, and accessible at a time, place and pace that is convenient to them. Typically, these educational resources could include hyper-linked material, incorporating text, pictures, graphics, animation, multimedia elements such as videos and simulations and also links to electronic databases, search engines, and online libraries.

Online Learning Course Development Models

Contemporary Online Learning Practices

Contemporary online learning environments (Naidu, 2003) are characterized by a growing use of commercially produced learning management systems, which enable online access to subject matter content, asynchronous online discussions, collaborative learning activities, and online assessment. Organizations which seek to adopt online education are quickly realizing that it is not a cheap or easy option. Online education requires a great deal of resources and careful planning. Some of the strategies used as part of this level of planning include breaking large numbers of students into smaller groups, assigning them specific tasks, and providing them with direction and specific guidance, and setting timelines for discussion. Educators are becoming aware that open, unguided asynchronous online discussion forums can be very ineffective. Students will not give open-ended discussions their time and attention if they are not directed at specific learning or assessment activities.

Most online learning management systems support collaborative learning and small group work, which are widely recognized as desirable educational practices. They enable students to be easily grouped to work on a range of learning activities either online or offline. More importantly, LMSs enable small group work deliberations and activities to be accessible to teachers and tutors to see, critique and comment on. In conventional educational settings, these important aspects of learning would have been accessible only to the group members. Having access to these deliberations gives teacher added insights into group processes and the contributions of individual mem-

bers to group work. This insight is critical in promoting fairer assessment practices of group work. Naturally, this kind of educational practice makes student work more visible and open to scrutiny just as the online learning and teaching environment breaks down the barriers to the lecture room walls and makes the teacher and the teaching more visible and open to critique.

Some of the operational and administrative issues that are central to developing and implementing a successful online-learning program include:

- Adopting cost-effective on-line learning management systems that are scalable, and hopefully customizable in order to cope with large numbers of students, and serve the needs of particular contexts and a wide variety of approaches to teaching and learning.
- An adopting learning and teaching designs that maximize the input of the teachers and tutors, and do not leave students floundering in an open and flexible learning space.
- Closely aligning learning and assessment activities in order to ensure that students are more actively engaged in their learning and taking responsibility for their own learning.
- Breaking down the distinctions between “teacher” and “taught” as computer-based conferencing enables students to take on a tutorial role as they learn how to learn from each other.

Models of Course Development

Online-learning environments (Naidu, 2003) with their dependence on technology are very different, in several important ways from conventional educational settings. In conventional educational settings much of the responsibility for teaching and learning is in the hands of the teacher who is also the subject matter expert. In online-learning environments, the teacher who may also be the subject matter expert is no longer in complete control of all the activities. The technology for instance is usually managed and serviced by someone else. Someone else may also manage the content that is delivered by the technology, even though the teacher in charge may have developed it.

Many of the online-learning environments are the result of a team effort, which brings together a wide range of expertise including subject matter experts, learning management system and web developers, graphic artists, and systems engineers to produce a course. This team approach to course development has been widely used especially by distance education institutions. Nevertheless, there are less collaborative approaches as well, in which a single subject matter expert might be able to do everything, or do it with minimal and occasional help.

The choice of a particular approach to the development of an online-learning course is based on several factors including the academic tradition and resources available to the organization. Institutions that are dedicated to online and distance education have tended to adopt a more collaborative course team approach. Conventional campus-based educational providers, on the other hand have tended to adopt a lesser collaborative approach. In any event, the development of an online-learning course comprises a new experience for many. It calls for new skills such as in e-moderations and some de-skilling as well. Old habits die hard, and when faced with circumstances that render some of one’s previous experience “irrelevant” there is quite a lot of uneasiness, loss of confidence, disillusionment, hostility, and at times withdrawal from the activity altogether.

Types of Online-Learning Courses

Robin Mason of the United Kingdom Open University has suggested that most online-learning courses sit on a continuum of a “partially online” or a “fully online-learning course”. A “partially

online” course is one that integrates existing resource materials that are available either in print or non-print form such as textbooks etc. with some elements of online learning. This might include the use of a learning management system or simply a mailing list for some asynchronous discussion. Such courses promote the concept of what is commonly referred to as “blended learning”, where more than one mode is used to teach a course. Most distance educators have known such courses as “wrap around courses” because much of the teaching and learning activities in such courses are wrapped around existing resource materials such as textbooks.

A “fully online” course, on the other hand, is one that will have most of its learning and teaching activities carried out online. I say “most of its learning and teaching activities” because invariably everything about a course could not possibly be carried out online. Moreover, it might not be advisable to do so. For instance, students would always be studying away from the computer from printed materials, textbooks and other resources from libraries. There would be no real need to put these online, and it might not be possible to do so for reasons that have to do with costs and copyright laws. Mason calls this “integrated courses”.

Online Learning Management Systems

Online learning management systems (Naidu, 2003) are a suite of software tools that enable the management and facilitation of a range of learning and teaching activities and services. In large-scale operations, online learning management systems (or LMSs as they are commonly known) can save costs and time. In conventional educational settings, online-learning management systems can help to improve the speed and effectiveness of the educational processes, communication among learners, and also staff and students. Use of LMSs in nontraditional educational settings (such as in distance education contexts) allows organizations to maximize their value by enabling flexible access to its resources and services. A few of the widely known LMSs are: Blackboard™, WebCT™, FirstClass™, Moodle™, and Lotus Learning Space™. Most online learning management systems also incorporate a learning content management system (LCMS), which is a set of software tools that enables the, storage, use and reuse of the subject matter content.

Methods

There are several methods, we may follow to produce attractive website for e-learning. The learning objects developed and delivered in this research project are digital and software or website based learning objects can be viewed as small interactive and attractive multimedia elements. Commercial multimedia authoring software provides many tools that can be used to develop learning objects and deliver them across a variety of platforms, for example Adobe Creative Suite. While a range of authoring applications were utilized in the development of the learning objects, can be created in interactive and attractive way of websites by using HTML, VRML, Animations.

Hypertext Mark-up Language (HTML) is a SGML application complete with DTD. It is designed to tell a browser how to display documents on the web. Unlike SGML, HTML has a pre-defined set of codes (Hayes, 2006) that are easy to learn and use and build tools for writing HTML pages. HTML codes are embedded into the text that communicates to a web browser such as, Netscape Navigator or Microsoft Internet Explorer. Like SGML, it also uses simple text or ASCII for text as well as for the HTML codes. An HTML page can thus be built using a word processing package or a text editor.

HTML files (Hayes, 2006) are tiny since they are simple text files. Further, the static HTML web pages can be transformed into vibrant, dynamic and interactive web creations using ever evolving

web technologies like CGI Script, Perl, Java, JavaScript, ASP, DHTML, XML and Open Database Connectivity (ODBC) for incorporating interactivity on a web page.

HTML is competent at presenting multimedia elements in a reasonably decent layout on web browsers readily accommodate a multitude of plug-ins that allow inclusion of audio, video, 3-D and other specialized files. Any of these can also be included as a link in a standard HTML page. Clicking the link loads the plug-in to view or play the file. HTML is basically a series of mark-up tags that identify the elements and content of a web page. As we have already seen, a tag name is enclosed in angle brackets (<>) and most tags are a pair a starting tag and an end tag. The end tag includes a forward slash (/) after the opening angle bracket (<). There are some tags, which are significantly used to access multimedia elements.

Course Study Provided Visually Than Textual

As we know, multimedia consists of text, image, audio and video. We can prepare any course lessons on webpage using multimedia elements. Actual text of any lessons will be described as hypertext. This hypertext can be created and enhanced on web page using several tags such as <P>, , <i>, <u>, , heading tags and etc. The competency of HTML (Deidre Hayes, 2006) at presenting text has further been enhanced with use of Cascaded Style Sheet (CSS). People in general prefer image over words. Images are more powerful than words as a means of communication, because they can convey more meaning in a more concise unit of expression. Images do not have the language barriers that natural languages have. Human visual system and human visual information processing is clearly optimized for multi-dimensional data. Visual style of representing information can be easier to read and understand.

Most of the books have images that are printed still images. But in the webpage, image can be placed as still or animated, which can be created through tag. One of the ways to enhance e-learning webpage is adding more animated image, which help learner's to understand the subject in an easy way. An animated image can be created through animation software's such as Adobe creative suite, 2d & 3d animator and etc.

An animation is just a continuous series of still images that are displayed in a sequence. This animation enables us to create attractive website to be used in e-learning websites. These animations can be categorized in two ways:

Interactive computer animation

It is interactively used by users e.g., games. Sprite animation is interactive and used widely in Computer games. In its simplest form, it is a 2D graphic object that moves across the display. Sprites often have transparent areas. Sprites are not restricted to rectangular shapes. Sprite animation lends itself well to interactivity. The position of each sprite is controlled by the user or by an application program (or by both). It is called "external" animation. We refer to animated objects (sprites or movies) as "animobs".

In games and in many multimedia applications, the animations should adapt themselves to the environment, the program status or the user activity. That is, animation should be attractive and interactive. To make the animations more event-driven, one can embed a script, a small executable program, in every animob. Every time an animob touches another animob or when an animob gets clicked, the script is activated. The script then decides how to react to the event (if at all). The script file itself is written by the animator or by a programmer.

Passive computer animations

It has no option for users to use computer graphics today is largely interactive e.g., movies. Frame animation is non-interactive but attractive animation and is generally used in generating Cartoon

movies. This is an “internal” animation method, i.e., it is animation inside a rectangular frame. It is similar to cartoon movies: a sequence of frames that follow each other at a fast rate, fast enough to convey fluent motion. It is typically pre-compiled and non-interactive. The frame is typically rectangular and non-transparent. Frame animation with transparency information is also referred to as “cell” animation. In traditional animation, a cell is a sheet of transparent acetate on which a single object (or character) is drawn. There are software’s which are exploit to generate computer animations. Two of them are here:

Adobe Flash CS3

Learning Adobe Flash (Adobe Creative Team, 2007) can quite complex, but you can do almost anything with it. You can develop presentations, websites, portions of websites, games, or full-length feature, animated cartoons. You can import just about anything into Flash. You can drop in images of almost any file format, video clips, sounds and more will enables us to create attractive website to be used in e-learning websites.

2D & 3D Animator

2D&3D Animator produces high-quality images, titles, banner ads and buttons for your Web page or for a presentation. It comes with an object-oriented design interface that enables you to edit graphics, manipulate text and layers (graphic animations), apply special effects, and then compile the animated graphic all from within the same program. You can add shadow to object, make it glow, and draw it with opacity. Further add cool deformation, transition and color adjustment effects. You can create animations from your own pictures (JPG, GIF, BMP, AVI, ICO, and PNG) and add 3D text and shapes. In addition to font size and color, you can use colored lighting, textures and more. The layers technology helps to control over the object's placement, size, motion, and appearance. The ready-made templates make the product easier to use. You can choose one of several ready-made templates for banners, buttons or logos. Once you select a template, you can begin to alter it any way you want. By double-clicking on objects you bring up tool bars and options. To cut loading time for your visitors, have the program optimize your graphic by removing extraneous material. Once finished, output may be exported as GIF or AVI clips as well as JPEG, ICO, PNG or Bitmap images. Finally, those animated image can be used to appear on web page using tag. The basic syntax for this tag is: . We may also create flash animation (Adobe Creative Team, 2007) and place over webpage by using <embed> tag. The basic syntax for this tag is <embed src="*.swf" quality="high/low" width=x height=y type="application/x-shockwave-flash" />. For example Figure 2 shows the textual information with image representation. It can be created using flash and place on webpage using <embed> tag.

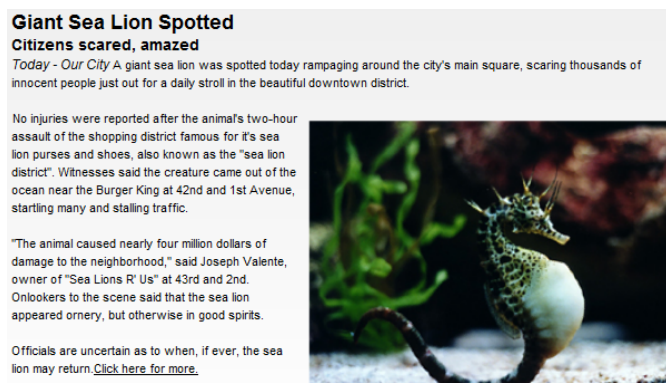


Figure 2: Textual information with image representation

Course Study Provided Using Audio/Video

The second way to enhance e-learning webpage is adding more sounds or videos. Lecture speech will be recorded through microphone and placed on e-learning webpage. Hence, it helps learners to listen and understand the subject without teachers. Sometime only hearing audio may not be fruitful. Hence, class room presentation given by the teacher will be recorded through video cameras and placed on e-learning webpage. The <object> tag will enable to access both sound as well as videos. The tag syntax usually allowed to access through <param> tag, which will pass the input to <object> tag.

```
<object id="MediaPlayer" width=400 height=200
      classid="CLSID:22D6F312-B0F6-11D0-94AB-0080C74C7E95">
<param name="FileName" value="audio/video filename ">
<param name="AutoStart" value="0">
</object>
```

For example, the following program 1 contains video and audio in single page, which can be more attractive to learner. Figure 3 shows it.

Program 1: Audio-video.html

```
<!-- Loading Video -->
<h3 align=left>Loading Video</h3>
<h3 align=right>Loading Audio</h3>
<object id="MediaPlayer" width=400 height=200
      classid="CLSID:22D6F312-B0F6-11D0-94AB-0080C74C7E95">
<param name="FileName" value="video1.dat">
<param name="AutoStart" value="0">
</object>
<!-- Loading Audio -->
<object id="MediaPlayer" width=400 height=200
      classid="CLSID:22D6F312-B0F6-11D0-94AB-0080C74C7E95">
<param name="FileName" value="MUSIC.MP3">
<param name="AutoStart" value="0">
</object>
```

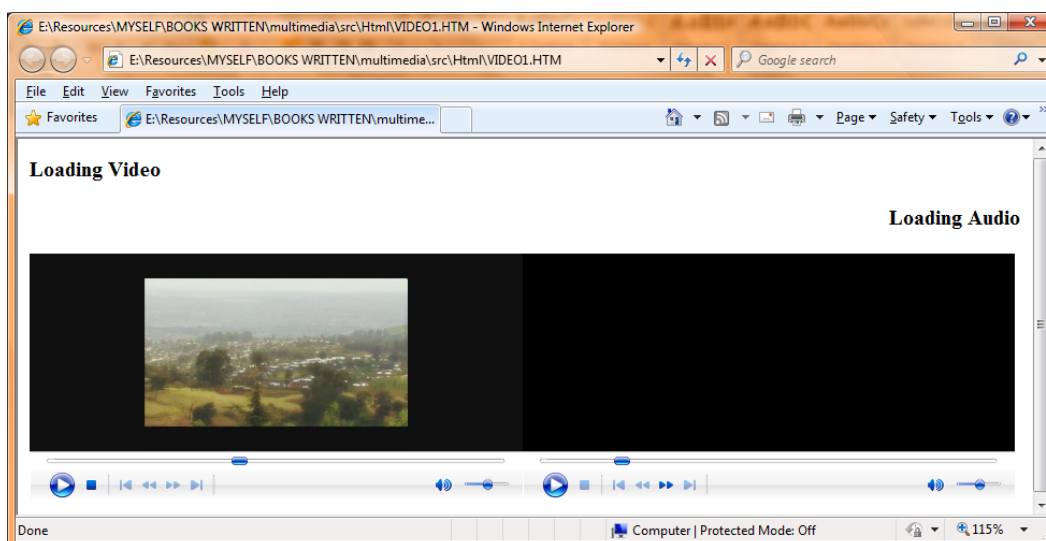


Figure 3: Audio/Video Representation on web

Course Study Provided Using Virtual Presentation

The third way to enhance e-learning webpage is adding virtual presentation (Adobe Creative Team, 2007). Virtual presentation can have hypertext, image, audio and video together. You create a virtual presentation by creating a self-running slide show that includes a voice narration. Most people find PowerPoint to be a convenient software tool they can use to create their presentation, but you are welcome to use other tools, such as Adobe Creative Suite. PowerPoint includes tools for recording your voice for each slide and then advancing to the next slide at the end of each narration. If you are more technically inclined, you can create more advanced presentations using other tools, such as Producer for PowerPoint, a free tool offered by Microsoft. Presentation software's allows all the multimedia elements to place on the presentation. Hence, this method is best suited for e-learning.

Course Study Provided Using VRML Scene

The very last way to improve the e-learning webpage is adding VRML scene. The Virtual Reality Modeling Language (VRML) (Schneider & Martin-Michiellot, 1998; Brutzman, 1998) can be seen as a 3D visual extension with animations of the World Wide Web (WWW). Since, it can construct websites with very attractively to be used in e-learning process such as virtual class rooms. People can navigate through 3-D space and click on objects representing URLs. VRML inserts itself seamlessly in the Web's connectivity. VRML browsers can access other VRML files via an URL. They can access any other format that then is passed to another application. On the other hand HTML browsers can be configured to fire up VRML helper applications (or plug-ins). HTTP servers, finally, can be configured to tell the client that a VRML (*.wrl) document is transferred. There are three major ways for producing VRML, they are written bellow

1. Code VRML by hand. If you like to hand code VRML considers getting a VRML assisting editor like PSPad.
2. Use a VRML supporting Modeler. There are basically two types of tools you need:
 - a. A object creation tool
 - b. A space (or "walk thru") creation tool such as Cosmos' Home Space Builder.
3. Use a Filter to transform other 3D Formats into VRML.

VRML browsers don't have all the same functionalities and they don't have the same interface. The most common navigation means are:

1. Walk (6 degrees of freedom)
2. Plane Walk: restricted walk in x-y or x-y-z axis, heads up/down in y-z axis, etc.
3. Flight: start/stop flying and accelerate/decelerate.
4. Point at (or "Seek"). Jumping to an object, or selecting on with a harpoon and get closer in several steps
5. "Examine" mode is special. It can be used to examine (rotate and zoom) either the whole scene or a selected object (or both).

Also, in our opinion browsers ideally should have a "map view" Builder, i.e. show the user where he is on a map (2D) or within wire frame map (3D) of the whole scene. The structure of a WRL File or VRML (*.wrl) files have 3 basic elements:

1. A header which tells the browser that the file is VRML and which version also. A header line is mandatory field.
2. Comments are preceded by #.
3. Most everything else is nodes. Nodes generally contain the following
 - a. The type of nodes. Nodes always are in Capital letters.

- b. A set of curly braces {...}
- c. A number of fields, all or some of which are optional.
- d. Fields with that can have multiple values require braces [...].
 - i. Fields always start with lowercase letters.

Typical VRML program 2 (simple.wrl) written with a single node to draw box with blue color.

Program 2: simple.wrl

```
#VRML V2.0 utf8
Transform {
  translation 0 1 0
  children [
    Shape {
      geometry Box {}
      appearance Appearance {
        material Material { diffuseColor .3 .5 9 }
      }
    }
  ]
}
```

#VRML V2.0 utf8 is the header, which tells the browser that the file is VRML. Transform is a parent node and Shape, Box, Appearance and Material are the nodes are child of Transform. Likewise Shape is parent for Box, Appearance and Materials. There are numerous kinds of nodes available in VRML, which are enables us to build-up attractive websites. Basically, VRML file can be loaded on the web browser in two ways. The first way is directly through html <embed> tag. For example, <EMBED align=center src="simple.wrl" border=0 width=180 height=180>. The output of the above program displayed in Figure 4.

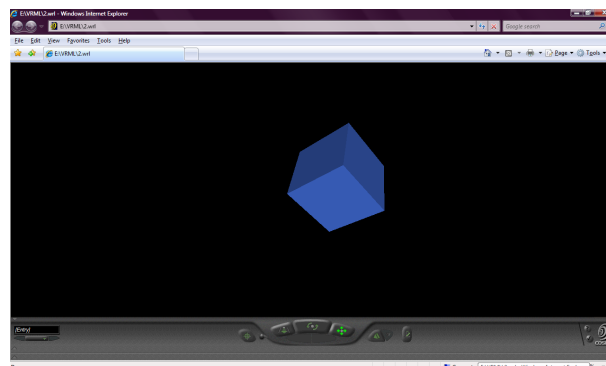


Figure 4: Sample VRML Output

The <embed> tag allows us to insert any VRML scene with 3d animation to construct attractive to be used in e-learning websites. The second way is through JavaScript. The program 3 is written bellow to show VRML scene. The output of the above program displayed in Figure 5.

Program 3: JavaScript.html

```
<HTML>
<BODY>
  <SCRIPT LANGUAGE="JavaScript">
    function onadd() {
      window.open("simple.wrl", "answerWindow", "width=500,height=500")
    }
  </SCRIPT>
  <input type=button value="view VRML" onclick="onadd()">
```

```
</BODY>
</HTML>
```

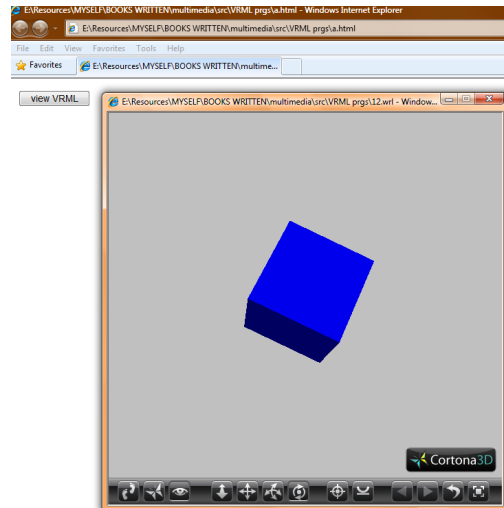


Figure 5: VRML accessed through JavaScript

Advantages

E-learning uses information and communications technology (ICT) that enables the presentation of subject matter content in an alternative forms, as such freeing up lecture time which can now be more usefully devoted to the facilitation and support of learning activities. E-learners can be easily attracted by e-learning websites. Hence, they will be continuing their study for long period of time by the e-learning websites. Attractive learning methods will enhance virtual class room for studying.

Limitations

However, e-learning in itself does not guarantee efficient or effective learning and teaching. For it to be efficient and effective with more attraction, a great deal of care and attention needs to go into its implementation. The efficiency of multimedia in online training can also be measured by evaluating the bandwidth, i.e., the speed through which data is transferred. Basically, the larger the multimedia file, the more time it will take to download. The amount of information that can be sent over an analog telephone line is limited by the bandwidth of the transmission. Most consumer telephone lines have very limited bandwidth. They are too slow to deliver large files acceptably. An online training course must be designed and developed for all individuals, not just the ones with quicker connections. It is up to the developers to make e-learning web site as more attractive, sometime the developer creates unattractive e-learning websites.

Conclusion

In conventional classroom-based educational settings, teachers spend a great deal of their teaching time in subject matter content presentation. This activity usually takes the form of lectures where teachers go through a body of subject matter content. Students on the other hand, spend a great deal of their study time in sitting in lectures taking down lecture notes. Irrespective of whether this is a good or bad educational practice; it is certainly an inefficient and ineffective use of teachers' and students' time. If subject matter content needs to be presented, then there are surely several more efficient and effective ways of presenting it. Sitting students down in a lecture room and having them take down notes, often not so accurately, is certainly not one of those

ways. Hence, e-learning has become major role on teaching and learning process. Usually e-learning sites come up with interactive basis. If e-learning websites are come up with an attractive basis then e-learner's can spend more time with e-learning sites. As a result, e-learner's can be trained more on any subject matter.

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Biography



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