

# Creating CD multimedia from the classroom

Murray Lawn

## Introduction

This paper provides an overview of how current media or multimedia can be created and published to CD. The focus is primarily technical for the not-so-technically orientated. The use of some technical terms is unavoidable, these are explained as they are introduced. The logistics of gearing up a class to create the multimedia material itself is the subject of "*Language education through the creation of CD multimedia: A pilot course*", a separate article in this Journal. This paper will focus on outlining the concepts, technical issues and deal with how to avoid many of the expensive and time consuming mistakes made by the author in the creation and production of CD multimedia from the classroom.

## Methods

### CD publishing

CD publishing sounds very "grand", what actually does it mean? What it means is that rather than saving your work files onto a floppy disk you save them to a CD. The only thing that is different is that once saved to a CD it cannot be changed, thus the technical name is CD ROM, that is Read Only Memory.

What special equipment is required to write your own CD? Some recent computers come with a CD-R (or CD-RW explained later) built in, if this is the case then you are already setup. However for most to be able to write a CD you will need to purchase a CD-R the R refers to "Recordable". There are a wide variety of CD-Rs available, and the range is constantly changing. But the kind of CD-R you will choose will depend on your budget and your computer. Firstly most modern CD-Rs' are actually capable of "ReWriting" CDs and are referred to as CD-RWs. Thus a CD-R can only Write a CD but a CD-RW can change the contents? Sounds too good to be true? and it is too good to be true. A CD-RW has CD-R functionality plus the ability to "ReWrite" or change the CDs' contents. While this is true the two functions CD-ROM (standard read only CD) disk and CD-RW (rewritable) disk media represent two distinctly different forms of CD media. A CD-R blank disk currently sells for about \$1US and a CD-RW blank disk for about \$3US and are labeled accordingly "CDR" or "CDRW". While having a media that can be changed is nice, CD drives in most computers at present cannot "read" a CD-RW disk. Thus at this point in time use of CD-RW media is not appropriate for the classroom.

A typical specification on a CD-R or CD-RW drive will look something like **CD-R/RW 4x4x32 Win/Mac IEEE1394**. A "drive" refers to the hardware used to read or write a media of some form, eg floppy disk drive etc. Key points in the selection of a CD-R/CD-RW drive are listed and explained as follows:

**CD-R** defines capable of writing a CD-ROM (read only)

**R/W** defines capable of creating a ReWritable CD-RW (a distinctly different medium of CD-ROM and not readable from the CD-ROM drive present in most computers at present)

**4x** The first digit usually refers to how fast the drive can write to a CD-R disk

**4x** The second digit usually refers to how fast the drive can write to a CD-RW disk in the case of a CDRW.

**32x** The final digit usually refers to how fast the drive can read the contents of a CD.

**Win/Mac** Refers to which type of computer this drive can be used with, that is

typically Windows or Macintosh

**IEEE1394** finally the means of connection (interface) to your computer, the range of options are typically SCSI, SCSI 2, USB, IEEE1394, or EIDE in the case of an internal drive.

Additional specifications may include "Internal" or "External" meaning whether the drive is installed inside your computer or just plugs into your computer. In the case of laptop computers PCMCIA. Most laptop computers use a "PCMCIA" card like interface to expand the computers' capability in the same way a card is used in a desktop computer only the size of the card is much smaller, does not required the computer to be opened up and can be relatively easily inserted and removed as required without restarting the computer.

So which should you choose and why? Good question, only guidelines can be provided. Classroom use will imply you may wish to create many CDs. Therefore the most critical specification will be write speed, however keep in mind that the CD blanks you purchase also have a write speed specification so be absolutely sure to choose CD blanks that support the write speed of your CD-R. To give some idea of what write speed means, firstly the memory capacity of a CD is typically 650 Megabytes. This compares with the 1.4 Megabyte capacity of a standard floppy disk. Usually not all this capacity will be required, thus the time to write a CD is mainly based on how much of this capacity you choose to use. Writing a 650 Megabyte CD to full capacity using a 4x Drive will take about 30 minutes, using a 2x Drive about one hour etc. If only a small part of the capacity is used the time taken will be approximately proportional to the percentage of the capacity you use. At present the highest speed CD-R is 10x using an IEEE1394 interface. The IEEE1394 interface is by far the fastest of all existing interfaces (400 MegaBits per second data transfer speed cf USB 4 MB) and will most likely become the future interface standard. This interface is coming out standard on all Macintosh computers and many high end Windows computers. This is also the standard interface used for Digital Video. Therefore if you are considering using multimedia (from a digital video camera) investing in this interface would be a natural choice. Digital Video using this interface (connection) is discussed later in this article. In terms of speed the next choice is using SCSI, this is quite fast and widely used. The lowest speed interface is USB (2 or 4 Megabits per second data transfer speed), however convenient as nearly all modern computers are equipped with USB port/s.

In summary regarding choice of CD-R, you need to match the connection your existing computer provides or upgrade your computer so that it can connect to the CD-R you desire to use.

A final and important point is creating CDs does require significant processing power and use a lot of hard disk space. Firstly the CD-R you consider purchasing will indicate recommended system requirements, take care, fulfilling these requirements may not guarantee operation at the maximum write speed. For example an 8x capable CD-R may only write CDs' reliably at 1x on a 260Mhz computer. 600Mhz or so may be required to use the 8x writing operation. Also the CD-Rs' that come standard on some laptop computers are notorious for not meeting their own specifications in this regard, specification of 4x but actually any speed above 1x resulting in producing unreliable or unreadable CDs. These unreadable CDs are in the computer world called Frisbees.. the author personally prefers to use them for as "Coasters", that is for putting hot cups of coffee on (be sure to put a little x on them or something so not to confuse them with usable CDs), friends love them. The second

aspect is disk space, for a start if you plan to create the contents of a 650 MegaByte CD you will require 650 MB of memory to be free on the Hard-disk of your computer. However part of the create CD process creates another copy of the CD on the harddisk thus this memory space requirement doubles to 1.3 GigaBytes (1300MB). If your computer is a few years old this may require a hard disk upgrade, or perhaps a computer upgrade may be a better long term investment, as outlined in the "Using Video" section.

### **Saving files to CD**

Once your CD-R is up and running you need to start thinking about what kind of save format is going to be usable by most of your students. This divides roughly into formats compatible to Windows only, Macintosh only or both, then further divides into compatible to respective Japanese OS (Operating systems) only computers or other language computers and then subdivides further into software specific files types and finally into software versions. The ideal being to "hit as many of the birds you can with just one stone" as the saying goes. Due to the advent of the internet a format that can communicate with certainty with nearly any type of Computer, any language of computer and is almost non- software specific exists. The technical name is HTML (hypertext markup language) more commonly known as the format of most material available on the internet (Web-pages). This is largely what has made the internet what it is today.

To reach the largest audience which starts with your class, the most certain approach to creating a CD that can be used by anyone anywhere is simply to use HTML format (homepage-like format). For example Microsoft word and most major word processing software providers facilitate "save as HTML format". Detail of HTML will be discussed later. Some points of extreme caution exist at this point. When you save a file you choose a file name, long file names are possible on both Windows and Macintosh computers, furthermore in the case of Macintosh computers the attachment of an extension, eg myLongFileName.htm that is the last 3 or 4 characters are optional. However for a Windows computer it "needs" that information. Also if Japanese characters are used in the filename, a non-Japanese system will result in meaningless characters and referenced html links will fail (detail later). The way to overcome these problems is to adhere to the following rules absolutely when naming files from any kind of computer:

1. Only use the characters a-z and numbers 1-9 in the file name.
2. In the case of a Japanese computer ensure "direct input" (直接入力) is selected, while writing the file name.
3. In the case of Macintosh users be sure to add the appropriate extension if it is not automatically being added eg ".htm or .html" in the case of an html file.
4. Never exceed 8 characters in the filename (this does not include the extension) if you do when crossing systems "myLongFileName.htm" will become "myLong~1.htm" and referenced html links will fail (detail later).

### **HTML – "web page" format**

The previous sections made reference to saving files to your CD in HTML format, this the format used for most information viewed on the internet. The reason for this is to ensure compatibility with the widest range of computer types, languages and requiring no special software except an internet browser (Netscape navigator or Internet Explorer) to enable reading of the files. As it is not the purpose of this paper

to explain HTML, only the concept will be outlined.

HTML (hypertext markup protocol) is in effect a very simply “computer language” that has been developed specifically to provide a means of exchanging information between computers. Initially developed in the early 1970’s by the US department of defense [Nader]. The concept of a common data format gradually gained recognition as being key to the successful exchange of information and with the development of a “Graphical User Interface” (GUI - that is you can visually see what you are doing cf DOS) has led to what is referred to as the “Internet”, meaning “between (inter)” “networks (net)”.

The visual result of HTML is what you see on an internet browser, but to see how it is actually written you select “view” (表示) and “source” (ソース) from your browser. The basic form of HTML is shown as follows:

```
<html>
<head>
<title>My title</title>
</head>
<body>
<p>My home page</p>
</body>
</html>
```

The “<>” symbols are referred to as “tags”, they serve to differentiate commands from content. The “/” within the tag serves to indicated the “end of” whatever the command was. The above example represents the minimum “source code” to output text in a browser. <html> says start of HTML, finally </html> ends the HTML etc. The <body> section contains the viewed contents, actually viewed words (lines) are contained between <p> (start of paragraph) and </p> (end of paragraph), in the above example the phrase “My home page” is the only text that will be visible. The title will be seen if you choose to “bookmark” this homepage. There are a large number of different kinds of tags but usually just an appreciation of this tag concept will be sufficient. The reason being the widespread availability of software which automatically generates all the tags etc, and can be used similar to word-processing software (eg Microsoft Frontpage). However there are distinct limitations when creating an HTML document (web-page format), compared to the average word-processor. To create a simple document is very easy, but creating the same “fancy” effects (eg tabs, placement of images, special fonts etc) we have come to take for granted in even a paper as this are difficult to achieve and sometimes not possible. Many word-processor software packages support “save as HTML” or “web page” (eg. Microsoft word), when this save option is selected you will see many of the “fancy” effects you used disappear. A major difference between word-processor software and web-page software is how it deals with graphics, that is anything other than typed characters (photos etc). When you look at any web-page in source mode (view – source) you will never see anything other than text. This is because all graphics are saved as separate files and “referred to” in the source code. That is the HTML simply tells the browser where to find the graphic file. Reference to such an image may look as follows:

```

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The “img border=0” says “no border”, “src=...” tells the browser where to find (detail later) the graphic image called in this case “MyPic.gif”, the “.gif” defines the type of image (two common types are gif and jpeg explained later), finally width and height

define the size of the image when displayed in “pixels” (one pixel represents the smallest dot your screen can display – ie. Graphical resolution). The average computer screen’s resolution is about 800 pixels wide and 600 pixels high (older computers 600x480). When creating images for web pages this average screen size becomes a critical issue to consider.

Using a web-page software such as “Microsoft Frontpage”, three viewing formats are provided. Firstly an input mode (標準), this functions similar to a word-processor. Secondly, an HTML mode (HTML) for viewing the source code (tags) etc. And finally a preview mode (プレビュー), to see what the result will look like in an internet browser. Most work occurs in the standard mode, the result in preview mode is checked occasionally and on relatively rare occasions the HTML mode is edited to correct problems that cannot be resolved in the standard mode or for advanced users for fine tuning or for special effects. If you use web-pages often many things can be done more efficiently in HTML mode.

HTML links, that is the concept of being able to simply click on something within the web-page is another major feature of the internet. This is also achieved by a reference and operates in like manner to reference to a graphical image except that the reference is to another web-page. A link’s tab typically looks as follows:

```
<p ><a href="http://www.family.org">Focus on the Family</a></p>
```

The <p> and </p> tags start and finish the paragraph, the “a href=..” gives the link “URL” and the text (in this case) between the <a href..> and </a> is referred to as the “active text”. That is in this case “Focus on the Family” will appear in the browser (perhaps in blue), when you place the pointer over it, the pointer will change to a little hand indicating it is “linked or active text”. URL means “Uniform Resource Locator” and simply gives the address of that web-page on the internet, in much the same way as a postal address works.

### Care in handling HTML links

When using web-page format for your CD publishing care in handling your references or HTML links is critical. Firstly with regard to file names the 4 essential rules outlined in the section “saving files to CD” apply, that is file names of all files must be 8 or less characters using only a-z and 0-9, for a Japanese system direct input (直接入力) and use the appropriate extension in the case of Macintosh users. Next care must be taken to ensure all the necessary files involved in your project are in the local directory. Local directory refers to the folder your files are saved in. For a single web page with no images only one HTML file will be involved, this however is very rare. Usually your project will involve multiple pages and some graphic or image files. Thus a safe approach is to save all material relating to your web-pages in the same folder, therefore when you create your CD you choose all the files in that folder. In the case of a complex project you may use subdirectories that is use folders within your main folder. In the case of reference to files in the same folder a reference will look like the following; <a href="MyPage.htm">Murray's page</a> that only the file name is present in the “a href=..” in this case to a file called MyPage.htm. Be sure never to make reference to any file outside of your folder, if you do the web-page will work fine when you test it, but when copied to a CD and operated from a different computer a broken link or image will result, in the image case a correctly sized box with a red x in it will appear. In the case of a link to a web-page an appropriate message, indicating the page can’t be displayed/ found, or doesn’t exist. As indicated earlier these CDs make for great Frisbees or coffee coasters but don’t help your project. There are various ways to check for these link problems, the simplest is to copy your project

folder to a floppy disk and test it from a different computer, if the file size exceeds 1.4MegaBytes as it usually will you can copy it to an alternative media, CD-RW (remember previous caution regarding CD-RW) or to a remote computer via your local network (if your school uses a LAN - local area network). You may require assistance to set this up initially. An example of an absolute reference is as follows;

```
<a href="file:///C:/StangeP/MyPage.htm">Example bad link</a>.
```

In this case the link will work only on the computer on which it was created because the file must find the "MyPage.htm" file on the users "C" hard disk within a folder called "StrangeP". Looking at the web-page in HTML view mode is useful as an initial check for questionable links. Also take care in what web-pages you refer to. If you have used the internet for even a short period of time "broken links" are very common. This occurs when the page made reference to has been moved somewhere else or the file name changed. Thus avoid linking to temporary pages eg. News items, use top directory references if possible. Most web-pages are constantly upgraded if the company or organisation wishes to stay competitive or relevant. Therefore sub-directory pages often change, however they rarely change the top level web-page address, to do so could result in serious lost business etc. If essential an automatic link forwarding will be arranged, in much the same way as can be arranged for change of postal addresses.

## Graphics

Previous sections have made some reference to how to include graphics files, that is anything other than text of a picture nature (cf. audio files etc). Creation of graphics is facilitated on Windows for example using "paint" without special software but is very limited in functionality. Choice of software to create graphics will vary on the nature of the graphics, quality and your budget (if you have 40 computers in your class multiply the price by 40.. site licenses are a little cheaper). The subject of graphics is very wide and therefore will not be covered in any detail here. However the two most common image types used on web-pages are "gif" and "jpeg", broadly a gif file is typically used for smaller images of a simple computer graphics nature. Whereas jpeg is used for images of a more photo like or complex nature. There are many different kinds of image types, each type being used by different software providers, and based on the type of image data, varying in precision etc. The reason gif and jpeg are mainly used is "compactness", that is how much computer memory they use for a given size picture. An uncompressed picture is called bitmap and has the extension ".bmp". The compression is of serious consideration for a web-page on the internet as it relates to how long the person accessing the page will have to wait for the graphics to be transmitted. To give some feel for how much memory a picture uses the following comparison is made for a file created in "paint" as a bitmap file.

Bitmap (.bmp) = 1MegaByte (640x512 pixel, 256 colors) No compression

Gif (.gif) = from 2kiloBytes (compression of up to 500 times)

Jpeg (.jpg/.jpeg) = 10 to 30 KiloBytes (compression 30 to 100 times)

Each type of compression and level of compression within the type offers a tradeoff with the picture clarity, and acceptability will vary widely with each specific type of image. The compression is achieved by applying a given algorithm (set of mathematical formulae) to each pixel usually in relation to surrounding pixels, and thus rather than storing say 1000 white pixels with a white value just send white once followed by the 1000 times multiplier (actually not this simple). The amount of compression achievable will also vary for every picture or image, based on the detail present. However for the purpose of creating a CD memory is usually low on your list

of concerns so quality over compression is recommended. Typically a jpeg at a mid level compression setting will give an acceptable image quality for moderately low memory usage.

Good photo editing software must include Adobe Photoshop (currently version 6.0), but is expensive (~\$1000US). Recently a “lite” version has become available and 1/10<sup>th</sup> the price, “...lite” in software means some functions are not available compared to the “full” version. Most scanner’s or digital cameras come packaged with image editing software. Image creation and editing varies with software widely, however most images are either created in the software, scanned in (from a scanner) or come directly from a digital camera. The desired image is edited, to suit the requirement and saved as “jpeg” or “gif” format, and of course the image copied to the same folder as the web page.



Figure 1. Video plugs from the left IEEE1394 (firewire) small format, IEEE 1394 large format, 3x phono plugs (yellow-composite video, red and white audio), 3.5 mm combined composite video and audio (used on small video cameras)

### Using video

Finally video, the last subject to be dealt with, creation of video footage using a video camera is now relatively easy. But firstly a definition of “what video is”. Video differs from “still” pictures in two respects, the addition of sound (audio), and that instead of taking “one” picture you take “~30 pictures (frames) per second” (30fps). A wide variety of video cameras’ and tape formats exist. Firstly video “systems”, this refers to the way physical attributes of the video that is picture resolution, how it is recorded (encoded) etc. There are three basic systems, “NTSC” used in such countries as Japan and USA, “PAL” used in the UK, Australia, New Zealand and finally “SECAM” used in Europe and China. It is possible to convert between systems using a multisystem Video cassette recorder such as the Aiwa MX100 (~\$1000US), however quality is always compromised. The next aspect is the type of media (primarily tape), this ranges in size from VHS format to the Digital Video mini cassette, used in modern video cameras. Others in between include VHS-C (identical system to VHS just smaller cassette), the 8mm system and variations thereof, Hi8, S-VHS etc. These formats further break down into “analogue” systems and “digital” systems. Much as audio cassette tapes are analogue (excluding DAT), while audio CDs and MDs are a digital media. The merits of digital media are perhaps self evident, but the main advantages of a digital media is Zero distortion, a copy is identical to the original etc, in essence a perfect system (assuming appropriate sampling and quantizing is used – outside the range of this paper), made possible through modern electronics. In the video world at present two basic connection (interface) systems exist, the main system to date is referred to as “composite video”, it is an analogue system and typically uses a “phono” plug, and audio channel/s are separate phono plug/s refer to figure 1. “Composite” refers to the fact the all 3 colour channels (Red,

Green and Blue) are combined into one signal, most computer monitors use separate signal lines thus called RGB. The second system which will likely become the future standard is "Digital Video". Digital video uses the IEEE1394 (firewire) interface discussed in the CD-R section refer to figure 1. This is a very high speed digital transmission system created for among other things the connection of digital video.

How do you get video into your computer will be the first question to be dealt with. Until recently only high end (high performance) Macintosh computers have been produced standard with video capabilities, however currently many high end Windows computers also come with video capabilities as standard. The reason why digital video editing etc. has only recently become feasible at a consumer level is the speed and memory capacity of modern computers. A standard video takes 30 or so pictures per second, 5 minutes of video means 9000 pictures plus sound, this represents a task only possible on a very high speed computer equipped with vast amounts of memory. Video editing is possible on a 200Mhz computer but not recommended, even a 600Mhz P3 (Pentium 3) computer takes 30 minutes to save a 5 minute video (in an mpeg format). So for many investment in a modern computer to make video possible, and choice of a computer that has video input and output ability built in will be essential. Alternatively the addition of some hardware to your existing computer. Dual "Digital and Analogue" cards are readily available for most computers, addition of a card to a desktop computer does require opening up the computer (card manufactures provide detailed instructions). In the case of notebooks "PCMCIA" cards are used to provide the same functionality and simply plug into the "PCMCIA" slot (again details provided by the manufacturer). For lower budgets and computers with no spare card slots (in the back) a variety of adapters exist to get the video into the computer, quality compromised though (eg. using USB or such).

Some points of caution with regard to digital video, no digital video cards support all digital video cameras. You need to choose which card supports the digital video camera that you plan to use. Most recent video cameras will be supported but for older models take care. If however you use analogue input (composite video) issues of compatibility largely disappear (most digital cameras provide analogue output as well as digital output). The loss of quality is not a major issue on this point as any difference will disappear when you compress the final edited video for your CD (discussed later).

Video editing software is required. Key things to look for in your choice of video software will vary based on your project but will most likely include ability to insert "titles" or graphics, insertion of sound effects (from a sound effect library or from clip art), the insertion of background music and narration. Adobe Premier software provides excellent editing, text and graphics insertion capability but currently does not support the insertion of narration while you watch the video (synchronised narration or voicing over), neither the ability to "use" sound tracks from audio CDs. Only the most recent version of Adobe Premier (6.0) supports digital video input. As with digital still cameras, many digital video input cards come packaged with video editing software. One of the most common "packaged" video softwares is "Ulead Video Studio", this is the software the author used to create the multimedia CDs outlined in "Language education through the creation of CD multimedia: A pilot course" (packaged means comes with another product at no extra charge). Ulead Video Studio 3.0 DV SE (old version) provided support for all of the above discussed points except somewhat limited graphics ability. The Ulead software was noted as being very user friendly.

Creation of a video (multimedia) entails "video capture", "video editing", the

addition of text, sound effects, narration and background as required. Finally the result is saved in a form that can be inserted into a web-page.

1. Video capture, this involves using your computer to “record” the segments of video from your camera which you plan to use. Points of caution: Macintosh and Windows computers support a maximum files size of 1 to 2 GigaBytes (ie 1000 –2000 MegaBytes). A 5 minute segment of uncompressed video “.avi” which is the standard video format for Windows consumes about 1GigaByte (GB). For segments longer than 5 minutes you will need to split them and rejoin the segments in the editing process. Also keep your computers memory capacity in mind, for large projects an additional external hard disk may be required. The author used a 20GB IEEE1394 external hard disk, even this required constant cleanups. Further if you need to re-record a section (often required) be sure to delete the old files, and finally on the memory front in the case of Windows it creates “temp” files which are temporary files, which become valuable backup files “when” it crashes. However a 1GB temp file consumes 1GB of your hard disk so actually recording a 1 GB file uses 2 GB of memory unless you clear the temp files (under the Windows/temp directory).
2. Video editing, this is inputting the previously recorded video clips into the project in the order you require, one clip can be used more than once. Each clip is trimmed that is the start and end frames are carefully chosen. Transition effects are added if desired, that is how transition between clips occurs.
3. Text is inserted, typically a Title, perhaps sub titles and credits at the end.
4. Sound effects are added, Macintosh uses such as “.aif” audio files, and Windows such as “.wav” these are widely available from the internet or often included with Digital Clip Art (bleep, click, explosion etc).
5. Narration is inserted, that is while watching the previously created video you speak into the microphone. The new sound track is created and added to the project, this ability is essential for the creation of language related multimedia projects. This functionality is referred to as “voice over”, or synchronised narration.
6. To really set the scene the insertion of appropriate “BackGround Music” (BGM). Each of the above stages requires experience with regard to fine tuning, for example ensuring the audio levels from the original video, sound effects, narration and background music are synchronised in level with respect to each other throughout.
7. The final stage is saving the finished production in a format that can be used in a web-page. A variety of formats exist, the most common is perhaps “mpeg”. Mpeg format is a highly compressed video format supported by both Windows and Macintosh. Creating an mpeg file until about 3 years ago was only possible using very expensive dedicated hardware. Now this task is possible using modern computers but takes processing time, typically about 30 minutes to create a 5 minute video clip, about 5 hours for a 30 minute production (if the computer stops part way you restart and start again.. an intensely frustrating process). Mpeg compresses the video data in like manner to graphics compression outlined previously except the reference includes comparing previous and following frame data, thus very processor intensive, compression ratios will vary but a 1GB avi file may be reduced to say 35MB, thus about 1/30<sup>th</sup> the size. This compression reduces picture quality significantly but is usually acceptable. In the same way standard TV resolution is very low (~600x450 dots) but the movement

compensates. A 35 MB mpeg file is great for a CD based web-page but inappropriate for using over the internet itself, due to the time taken to download (get the file to your computer), some recent video editing software can compress further for use over the internet by reducing the resolution (that is tiny image size) and reducing the frame rate (no. of pictures per second), the impact of quality and smoothness is unavoidable. An alternative means is streaming video (not appropriate for a CD) whereby the video data is sent on an as needed basis, however the software required to create streaming video for the internet is very expensive (Ref. realplayer.com).

To insert the final mpeg file into a web-page the file must be copied to the appropriate folder and then inserted using the web-page software. In the case of Microsoft FrontPage this is Insert(挿入)/ Picture(画像)/ Video(ビデオ).

### **CD Cover and Read Me file**

The finishing touches on your CD include a CD case cover, and recently the availability of stickers (for the front or non-data side of the CD) and associated positioning devices has made production of professional looking CDs relatively easy. Software designed for this is available but again any graphics software can be used in association with a good quality colour printer. Powerpoint presentation software is excellent for this type of graphic work as the output size can be set from within the application "File (ファイル)/ Page setting(ページ設定)", and set the size of the CD cover you require (~121x121mm).

The inclusion of a "Read\_Me" file at the top level of the CD directory is useful to give the user detail on how to use the CD, define minimum software and computer speed etc requirements, the Read Me file must be written using a text only word processor such as a "memo pad" (メモ帳) with a ".txt" file extension ensuring readability from any computer. The Read Me file content used in the Junshin Media English 2000 CD is included in Appendix A.

### **Discussion**

The work involved in planning for CD publishing from the classroom will require time and effort (study), but is possible. The other essential facet is the working to a stringent timetable with your class, this is detailed in "*Language education through the creation of CD multimedia: A pilot course*", a separate article in this Journal.

### **Conclusion**

In conclusion the creation of CD multimedia from the classroom has become feasible on account of high speed computers. The process requires CD writing hardware, video capture capability, web-page creation software if the finished product will be presented in web-page format, graphics software for the creation or editing of any graphics and Video editing software to create multimedia from video.

Future work on the subject of CD publishing includes finding a means of getting Powerpoint (presentation software) files into the video editing software.

### **References**

Nader, Jonar, *Illustrated Dictionary of Computing*, Prentice Hall, 1995.  
Ulead VideoStudio 3.0 DV SE, Handbook.

## **Appendix A**

### **Contents of the Junshin Media English 2000 "Read Me" text**

Welcome to the Junshin Junior College Media English 2000 multimedia CD.

This CD contains MPEG multimedia files. To run the files Mac or windows OS "Quicktime 4" or similar is required, available free from <http://www.apple.com/quicktime/download/> it is a large file though (8.6M). Slower computers (under 200MHz) may not play the files smoothly. Internet Explorer 5 is required to run the files directly from a browser.

This CD contains a number of Video files which can be accessed via the "MedEng2K" file which runs on an internet browser. However to be able to fully control (stop, pause, ff, Rew etc) the video files the video files must be opened separately.

You will find the video files at the top level of this CD's directory.

I hope you enjoy the student's "creative works of art".

Murray Lawn

A disclaimer.. the producers of the Parfait video accept no responsibility to any increase in weight that may occur as a result of watching the video clip, which is liable to inspire persons to indulge in such.