

Chapter 2. Opportunities in Multimedia Production

Chapter Objectives

After completing this chapter you should be able to:

- Understand the role of the multimedia communicator;
- Recognize the job opportunities in multimedia production;
- Understand the role of the multimedia development team members;
- Recognize potential applications of multimedia technology .
- Understand the basics on how to use the Internet as a tool for multimedia development.

You as the Desktop Communicator

When using a computer assisted presentation program you must be able to differentiate between the three levels of presentations: slide presentations, multimedia presentations and interactive multimedia presentations. Lets explore these different possibilities.

- Slide Presentations - these are linear presentations (one slide after another) which were developed primarily using text, graphics (clip art) and or pictures. No interaction or branching (connections or linkages between different parts or sections of the presentation) are possible in this type of program.
- Multimedia Presentations - these are presentations which can be developed using text, graphics (clip art), charts, sounds, digitized video, computer animation's and or pictures, in which no interaction between user and computer has been incorporated. The interaction, exchange of ideas or messages can take place between the presenter (communicator) and the audience.
- Interactive Multimedia Presentations - these presentations are developed the same elements as in the above category but they incorporate built-in interaction between user and computer. This interaction can be in the form of data entry (entering alpha numeric answers), selection of possible answers or alternatives (multiple choice or true and false questions), interacting with screen objects, requesting and receiving print-outs among other possibilities. This type of program format is appropriate for information kiosks, personnel training programs, and student instruction attending laboratory computer assisted education programs.

Open your CD-ROM in Chapter 2 of Interactive Guide to Multimedia to learn more about the communication possibilities using computer assisted multimedia applications.

Remember: As a desktop communicator you must decide the level of interaction that is required by your program in order to achieve its goals and objectives.

Where Jobs Will Be in Multimedia

As a individual interested in multimedia you have probably ask yourself, what is the potential of

having a job in fields related to this technology? The answer is simple, the potential is just great! More and more people with multimedia development skills will be necessary for the creation and maintenance of applications such as Web pages in the Internet such as the one presented in figure 2.1

Figure 2.1 An Internet virtual presentation of the city of New Orleans.

The following is a partial list of where the jobs might be, this list was compiled by AV Video magazine, April 1995.

Products Marketing and Promotion

- TV commercials

- Multimedia advertising (Internet)

- Video-based marketing and promotion

- Multimedia story boarding

- Multimedia resumes

Entertainment

- Film special effects

- Video animation's and special effects

- Television

- Multimedia (interface design, content generation, and special effects)

- Interactive TV (interface design, content generation, and special effects)

- Virtual-reality simulations and arcade-style virtual games

- Scene pre-visualization

Scientific Research

- Medical and dental research

- Physics simulations

- Chemical modeling

- Astronomical research

- Genetics research

- Mathematical research

Multimedia and Interactive Publishing

- Multimedia content design

- User-interface design

- Internet page design

- Multimedia consulting

- Multimedia advertising

- Kiosk design and implementation

- Multimedia books

- Multimedia (CD-ROM) magazines and periodicals

Real Estate Development

Site-use determination studies
Architectural design
Structural engineering
Construction planning
Utility design and engineering
Information-systems wiring
Interior design
Landscape design
Property sales and marketing

Law Enforcement and Government Services
Trial reenactment
Image compositing of suspects
On-line government services

Investments
Statistical modeling
Market simulations
Investment analysis

Education
Edutainment software
Educational software
Multimedia textbooks
Classroom instructional materials development
Multimedia yearbook design and development
Educational research
University and colleges promotional media

Application Design and Production: The Multimedia Development Team

Quality interactive multimedia applications are the product of the effort of a production team. Some people might argue that anybody can do a multimedia presentation. That is partially true. In the market there are several software applications that allows the average computer user to develop simple and effective presentations. But the production of quality high-end applications such as games, interactive information kiosks, commercial quality training and educational applications is usually the effort of a team of specialists. Typically this team will consists of the following members:

- Producer
- Multimedia Architect
- Content Specialists
- Instructional Designer
- Multimedia Architect
- Computer Graphic Artist
- Audio and Video Specialist
- Computer Programmer

It is important to remember that:

Multimedia is Team Work !

This section presents the production team and their roles.

To learn more about the roles of these team members please open the CD-ROM in Chapter 2 of the Interactive Guide to Multimedia.

Producer

Like in video productions, the role of the producer in a multimedia production is to define, coordinate and facilitate the “production” of the multimedia project. Among some of the tasks performed by the producer are to define the scope of the project, negotiate with the client, secure financial resources, equipment and facilities, and the coordination of the development team. This individual does not necessarily needs to be an expert in the authoring process, but needs to have a relatively high level of understanding of the capabilities and limitations of the technology. This will help he or she in the discussions with the client to define what is feasible and what is not.

In summary, the producer is the overall coordinator and facilitator of the multimedia project.

Content Specialist(s)

Program content can be defined as the specific information, data, graphics or facts to be presented throughout the multimedia application. The program content is provided to the multimedia architect by the content specialist. The content specialist is the member of the production team who will be responsible to perform all necessary research concerning the content of the proposed application.

Instructional Designer

In educational or corporate training multimedia applications the development team will need to incorporate a specialist that is capable to take the information provided by the content specialists and decide how to present this information using the best available educational strategies and practices. This individual is also responsible to determine how the information to be presented will appeal to a variety of learning styles. Also depending on the instructional level and age of the project target audience, the instructional designer must adjust the information to be delivered to the audience in accordance to their profile and needs. Another of the responsibilities includes the development of strategies to assess the learning of the users.

Script Writer

A multimedia production is very much like the production of a movie, a commercial or a documentary video in the sense that a script is critical to sequentially present the topic of the production. But in regards to the script development there is a significant difference between the production of a video or film production and the production of an interactive multimedia production. Videos and film scripts present a linear sequence of events. In multimedia production the medium has the capability of presenting events in a non-linear fashion by branching into different directions establishing linkages between different sections or components of the program. This will be presented in detail in Chapter 2.

The Script writer of a multimedia production needs to be able to visualize this almost three-dimensional environment and in occasions the ability to visualize the use and integration of virtual reality into the program.

Multimedia Architect (or Program Authoring Specialists)

The multimedia architect is the team member responsible of integrating all the multimedia building blocks (graphics, texts, audio, music, video, photos, and animation's) by using an authoring language. This individual or individuals oversee the work of other team members such as the graphic artists, audio specialists, musicians, video specialists, and computer programmers.

He or she don't need to be an expert in the craft of the other team members but it is important to have a basic understanding of the capabilities of the software's use by them. Also the multimedia Architect will advise team members about the file format needed and the resolution of such files.

Computer Graphic Artist

The Computer Graphic Artist is responsible of the graphic elements of the program such as backgrounds, buttons, photo collages, manipulation and editing of pictures, 3-D objects, logos, animation's, renderings and others. This team member works very closely with the multimedia Architect in the composition of screens, making sure that colors are in harmony, and that screens are not overcrowded.

When developing an interactive application where graphic elements when selected and click link with other screen or object, this individual needs to develop the object separately from the background but yet in harmony and in balance with the rest of the screen components.

Audio and Video Specialists

The audio and video specialists are needed when intensive use of narrations and digitized video are integrated into a multimedia presentation. The audio specialist is responsible for recording and editing narrations, selecting, recording or editing sound effects, recording and editing music (music composition and performance is the responsibility of a musician(s)).

The video specialists is responsible for video capturing, editing and digitizing. This individual is responsible for taking pictures, scanning pictures or slides, and editing.

Computer Programmer

The role of the computer programmer in a multimedia development team is the programming of code lines or “scripts” using the authoring language. These scripts are used to code to develop special functions or capabilities to the authoring program. Some of these additional capabilities might be: random numbers generator, size and shape of video windows, control of peripherals, call other computer software’s by the multimedia authoring program to execute an specific function and display a result among others.

What are the Possibilities of Multimedia Technology?

You might have ask yourself, what can I do with multimedia technology? The possibilities are endless. As a student of multimedia you can develop a career based on this technology and become a multimedia architect or you can use it as a tool to enhance the communication process in a variety of scenarios in your professional field of choice.

Multimedia technology was first utilized in advertisement. It was its power to enhance communication and its afford ability that open the way of this technology into the marketing agencies. This same power was the one that brought this technology into the classrooms of America. Its capacity to appeal to a variety of learners makes it a very powerful and exiting teaching/learning tool.

Some of the possibilities and potential applications of multimedia technology are explored in this section. Please note that all these applications are developed to appeal to different needs, markets and interests. Hardware and software development requirements changes for each of these applications as well as playback equipment configurations are different.

To experience and understand each one of these applications please open the CD-ROM in Chapter 2 in the Interactive Guide to Multimedia .

Marketing and Advertising

Almost of all advertisement and marketing that we experience in TV and the film industry is developed with multimedia authoring tools and workstations. Presentations that incorporate flying logos, morphs (change of one object into another), video transitions, animation’s, walkthroughs (moving through a building or location that does not exists), sound and image manipulation and all kinds of special effects are elements used in composing or authoring a marketing multimedia advertisement. All these elements are incorporated in order to appeal to the consumers in a way never done before. An example of a marketing multimedia application is presented in figure 2.2

Figure 2.2 Apple Computer multimedia application marketing Apple Quick Time.

Due to the recent developments in the Internet, interactive TV and the additions of cable TV channels new ways of marketing and sales have been developed. Interactive marketing take

advantage of these developments. This marketing and sale modality is based on interactive multimedia technology connected to various databases and credit cards charge systems. In the implementation of interactive marketing, the user interface connects the user with the support databases.

One of the advantages of the introduction of multimedia into the marketing arena it is that it has immensely increased the creativity of the marketing agencies while make production more affordable. Computers have replaced expensive sound and video editing facilities with relatively affordable equipment. In a number of applications, the same computers utilized for sound, video, animation's and graphics can be used for desktop publishing and multimedia authoring. This makes sense when considering the capital investments of marketing agencies.

Staff and Program Development Training Presentations

Corporate America invests millions of dollars in training. Consider the following: a major corporation sends a group of trainers using traditional training tools (videos, slides and overhead transparencies) to different locations throughout the country. This training team incurs, in travel expenses, training facilities expenses, food, cost of corporate personnel, cut in personnel productivity while in training, and the trainers salaries. It is estimated that a major corporate training program costs approximated \$250,000. When considering the multimedia alternative for corporate training a training program can be packaged in a CD-ROM for a production cost of approximately \$100,000. Not only is the multimedia option more economically sound but it can also be revised and updated at a low cost.

Figure 2.3 Corporate training multimedia application.

The multimedia training program can also serve as a reference tool to the employee in the production line to see how is the correct manufacturing practice or to an office employee that can review an office procedure through their desktop computer. The possibilities and applications are endless, the computer in this setting can become the virtual trainer. Thus the opportunities for the multimedia authoring professional very exiting.

Sports

Today's sports telecasts and training is heavily supported by the use of multimedia technology. Animation's, digitized videos, simulations and computer graphics overlays have greatly enhanced sports presentations and athletes training.

As television viewers we are accustomed to see replays, graphic overlays, slow motion replays, and statistical analysis with animated charts. More and more we are experiencing the use of computer simulations developed with multimedia workstations. This is the case of the America Cup sailing competition. The integration of multimedia in sports help us better understand and visualize sports techniques and rules.

Development of applications used in this area are usually developed in workstations such as Silicon Graphics, Video Cubes and others. These machines are highly specialized in graphics, with large amounts of RAM and high processing speeds.

Educational Multimedia Programs

When considering the use or installation of computer assisted instruction (CAI) systems, there are two fundamental issues that educational institutions face : will the teachers use the CAI system and will students benefit?¹ The introduction of multimedia computer assisted instruction (MCAI) in the teaching and learning environment provides answers to both dilemmas. multimedia computer assisted instruction is not necessarily a high-tech, low-touch (voided of human intervention) technology. MCAI appeals to teachers because its ease of use and its instructional effectiveness. On the other hand, students preferred MCAI to traditional text only CAI because is a multisensory experience which takes advantage from the familiar game like interfaces that they are so much used to.

In MCAI there are two primary types of applications: classroom presentation applications (designed to support instructors lecture) and the individualized or small group laboratory instructional applications. The classroom presentation application is designed to support and enhance the instructor presentation of a subject making full advantage of multimedia technology. One of the most important characteristics of this application is the minimal use of text. The laboratory instructional application makes extensive use of text and audio (narrations).

Figure 2.4 The Grolier Multimedia Encyclopedia is an educational multimedia application.

Training Programs

The market for training programs is very large. Applications range from foreign language training programs, software applications training programs, programming languages, diets and nutrition, self-help programs, cooking programs, do-it-yourself construction programs, hobbies and crafts programs, music education, and the list goes on. The majority of these products use

¹Student Assessment of an Electronic Learning System, Mark C. Fissel, Mid-Wester Educational Researcher, Vol. 6, No. 3, Summer 1993.

some form of multimedia technology. Most of them are available in the video format or CD-ROM.

One commonality to these products is the use of computer graphics, animation's, simulations, and text overlays. The integration of computer based graphics and video is accomplished by means of "printing to video" techniques which will be discussed in proceeding chapters.

Edutainment

Edutainment is a new word coined very recently which means education and entertainment. Edutainment programs are designed mostly as educational games which appeals to children attending elementary and middle schools. These programs presents topics such as writing, reading, typing, math, spelling, science, history and geography among others. Some of the titles in this area are: Math Blaster, Sim City, Mario Teaches Typing, and Where in the world is Carmen San Diego among others.

Figure 2.5 Sim City 2000 is an edutainment program which simulates the development and management of a city.

From the design and programming aspect, one commonality of these programs is their size and RAM requirements. They are usually relatively small in size and require 1 MB of RAM to run. The rationale for this is the market of this product. They are designed to be purchased and playback in schools and homes. Usually computers acquired for these settings have small size hard drives and minimum RAM configuration.

Games

Games are one of the most popular and known interactive multimedia applications. Computer games have evolved from the "ping-pong" games of the early seventies to today's virtual reality games. Most popular game titles have been developed using authoring languages such as Macromedia Director • or applications developed with programming languages such as C++. Production and development of these games require a team approach. These teams are composed by script writers, graphic artists, computer programmers, audio recording specialists, video specialists, actors, and musicians among others. These programs can be developed using high end personal computers, work stations and or the combination of mini computers or main frames connected to personal computers. Play back of these applications are possible through personal computers with RAM in the order of 5 to 8 MB, sound boards, speakers and double speed CD-ROM (minimum).

Figure 2.6 Scene from Battle Chess

CyberArt

Multimedia provides to the visual artists a vast new medium to express their creativity. Using this technology, the computer screen is transformed in a three dimensional virtual canvas capable

of displaying objects, video as well as sounds effects, voices, ambient sounds and music. In the hands of an artist this virtual canvas has unlimited potential.

Some of the applications developed by graphic artist are works in virtual sculpture and animated graphic portfolios among others.

Figure 2.7 Visual Verses a CyberArt multimedia application integrating 3D-virtual ceramics and poetry.

Magazines and Newspapers

Literary magazines, computer magazines and newspapers are increasingly appearing on CD-ROM and in the Internet format. These magazines and newspapers use multimedia applications to display articles and other works. But the advantage of using the CD-ROM media as compared to the print media is the fact that by means of the multimedia capabilities the electronic catalog is able to display not only text and graphics, but sounds, music, video, animation.

Figure 2.8 Apple's Chronicle electronic magazine.

For example, the electronic magazine will be able to present a video of a dance performance, the voices of critics discussing the performance, written reviews, animation's of the choreography among other features. This potential opens new doors and present new challenges to magazine editors.

Multimedia Interactive Kiosks

Multimedia kiosks are automated information, data entry and transaction centers. Some of the first information kiosks were developed for Epcot Center in Walt Disney World in Orlando Florida, These first applications allowed the user to browse information about the park attractions, restaurants and other information of interest.

Interaction between the user and the computer has evolve from the use of a keyboard, then track ball, touch sensitive screens, use of audio and music to voice recognition in the nearby future. These kiosks allow the user to receive information, seek and select services, perform bank transactions, and pay for services or products.

One of the best known applications are the ATM machines, specifically those with animation's, voice and text. By definition, the front end or user interface of ATM machines are multimedia applications that interact with data bases and financial applications via a network system.

Multimedia kiosks technology is finding applications in a number of different settings, such as video stores (for video information queries), retail stores (for products specifications, availability and acquisition), government services and transactions (services information, transactions, service requests, tax and fees payments among others), colleges and universities (course selection and enrollment, payment of fees, academic and student services advisement).

Multimedia and the Internet

Multimedia technology is finding its way into the Internet. A large number of Internet sites are making use of multimedia building blocks such as text, graphics, audio, animation and digitized video. These sites are interactive allowing users to search information, select topics, send comments and purchase goods and services.

Sites which make the most frequent use of multimedia are those related to virtual cities tours, museums, libraries, galleries, on-line marketing and advertisement sites among others.

To seek information through the Internet you can use several search engines such as Infoseek (<http://www2.infoseek.com/>). Once you have access to the Internet, when looking for a specific address you must be very consistent when entering Internet site locations, for upper and lower case must be used and periods and slashes must be accurate, or you will not be able to locate a specific site.

Some examples of the use of multimedia on the Internet can be found in the following home pages:

Homepage	Internet Address
Franklin Institute	http://sin.fi.edu
Yahoo	http://www.yahoo.com
Multimedia Archives	http:// sunsite.nus.sg/ftpmultimedia.html

The above homepages can be reach by using their electronic mail address or URL (Uniform Resource Locator). The URL not only indicates where the site is located but also indicates the method you use to reach it. The following represents the anatomy of a URL.

In order to explore and enjoy the full potential of multimedia in the Internet users must be aware of hardware and software requirements. Minimum hardware configuration requirements requirements are follows:

- Modem with speed of 14,000 bps
- Computer CPU with a processor speed of 33 MHz or higher
- Communications software
- Connection to a Internet service provider

Figures 2.8 and 2.9 presents two Web sites that delivers information using multimedia elements. Other site as the ones presented in appendix 2,3, and 4 provide information and resources useful to develop multimedia applications.

Figure 2.9 The Franklin Institute Science Museum web page featuring a button that will allow the user to make a virtual visit to the museum by means of a digitized video (<http://si.fi.edu>)

Figure 2.10 Blue Sky is an interactive application. This application provides the user information making use of some multimedia elements.

Exercise

As you remember from Chapter 1 in this exercise you will have to develop an interactive multimedia presentation for an imaginary client. As part of the process of planning the application you must define the role of the development team members, and the kind of multimedia application you will develop. With the support of you instructor answer the following questions. At the end of this process you will have developed an additional component in the planning of you first multimedia application. It is recommended to have available a three ring binder to keep and organize all documents regarding the development of your presentation.

1. What role in the multimedia development team would you like to assume? Why?
2. If you have access to the Internet at home, work, or school, use Netscape® use Infoseek® as search engine and search for jobs in multimedia using the search strings +jobs, +multimedia. Discuss with your classmates your findings.
3. What role in the multimedia development team would you like to assume? Why?
4. From the various kinds of multimedia applications, which one would you like to develop? Why?