

Chapter 9. Structure and Function of Authoring Applications

Chapter Objectives

After completing this chapter you should understand and / or recognize:

- Understand the concept of multimedia authoring;
- Recognize the differences between various authoring tools;
- Recognize the different metaphors around which authoring tools work;
- Understand the major differences between Macromedia Director and Authorware Professional;
- Understand the basic operations of Macromedia Director;
- Understand the basic operations of Macromedia Authorware Professional.

Multimedia Authoring: The Concept

In order to illustrate the concept of authoring let's use two analogies. If you are in the business of magazine publications you will need to develop stories in the form of text, you need to take photos and digitize them, and you need to prepare graphics and charts. All of these components were developed using several different software applications as illustrated in figure 1. The tool of the publishing trade is the Desk Top Publishing (DTP) software. This is the software that integrates all of the components of a publication.

Figure 9.1

Another example is the television newscasts production, in this business you need to go to the field and shoot news video, graphics and on-screen text are developed, word-processing of news are prepared, audio is edited. All these components are put together in the editing suite of the television station and then broadcasted.

The tool of the trade of multimedia professionals is the authoring software. The authoring software is where the multimedia application is composed by the integration of all the multimedia building blocks as illustrated in figure 9.2. As you recalled from previous chapters, we discussed how to develop all the multimedia building blocks (text, audio, graphics, animations, and video). The authoring tool will allow you to import and integrate all these elements into a comprehensive and possibly interactive application.

Figure 9.2

This chapter will present the functions of authoring programs, the types of programs available, selection criteria for using the various types of commercially available programs, and will present and discuss the major features of two of the most widely utilized authoring applications: Macromedia's Director and Authorware Professional.

Functions of Multimedia-Capable Authoring Program

Keeping on with the comparison between the desk top publishing (DTP) and newscast production and the multimedia production, in DTP its software simplifies the labor intensive and

time consuming processes of page lay-out, paste-up, and camera work. The DTP software allows the user to expedite the production process by providing a medium where the user designs the page, import components, assemble the page, proof the publication and sends an electronic file to the presses; all of this by using the computer.

Open the CD-ROM Interactive Guide to Multimedia in Chapter 9 to gather more information and examples about this topic.

Authoring software allows you to perform similar functions with text, audio, digitized video, live video, graphics, animations, and other resources. Lets explore the functions of multimedia-capable authoring tools. These programs have four basic functions:

- Import - text, graphics, animations, audio files, and digitized video developed with other applications.
- Creation - designing, editing, painting, drawing, development of charts, capture of sounds, programming mathematical operations, and text input.
- Integration - sequencing, timing, linking, scripting, provide feedback, keep data bases of user responses, calling other applications and resources into the multimedia application.
- Delivery - development of self-running applications and encrypting the application.

This and the following chapters will discuss in detail the authoring applications functions.

Classification of Authoring Tools

In order to help you understand the differences between authoring tools available in the market we will use to classification parameters or systems. First lets discuss the metaphor that it is used by the authoring tool to help you develop the presentation and secondly we will explore the multimedia production capabilities or sophistication.

Classification by Metaphor Used

Based upon the metaphor use for organizing, sequencing events and delivering the multimedia application we can classify multimedia applications in four basic categories:

- Time-based;
- Card, page-based relational data bases;
- Icon-based, event driven tools (logic flow);
- Theatrical-time based.

Lets briefly describe each one of these categories and number some applications that falls into each one of these categories:

Time-Based Authoring Systems

In these authoring tools, the multimedia elements or events are presented and organized along a time line. In some cases the tie line has a resolution of 1/3 of a second. This type of multimedia tool is particularly useful when your message or information needs to be sequenced in function of time. Simply, this tool will help you time when each of the multimedia elements (text, graphics, audio, video, animation, etc.) is played, the speed to be played, and for how long it will remain on the screen.

An example of a time-based authoring system is Astound. Figure 9.3 presents an Astound time line.

Figure 9.3.

Among the authoring systems that use the time line metaphor are: Macromedia Action (Windows and Macintosh), Astound (Macintosh), Animation Works Interactive (Windows), Media Blitz! (Windows), Producer (Macintosh), PROMotion (Macintosh), and Cinemation (Macintosh) among others.

To explore and experience a time-based multimedia tool open the CD-ROM and open the Macromedia Action Demo.

Card, Page-Based Authoring Systems

The metaphor behind the card or page authoring tools is very simple and intuitive. These systems are based on the idea of having card stacks or pages which contains information, graphics, audio, video or other multimedia elements. Different from a book on which you read the book usually one page after another, in these authoring systems the pages of the book or books are interrelated and connected. These metaphor allows the developer to design multimedia applications based on a logic flow of events by connecting these cards of pages. Navigation within these applications becomes, then, simply directives to go to a page or card which contains graphics, text, an audio clip or any other element and then go to another page once the elements within a particular page are played.

An example of a time-based authoring system is HyperCard. Figure 9.4 presents an HyperCard screen.

Figure 9.4.

Among the authoring systems that use the card or page metaphor are: Asymetrix Toolbook (Windows), HyperCard (Macintosh), SuperCard (Macintosh) and Visual Basics (Windows).

Icon-Based Authoring Systems

Icon-based authoring tools provides the developer with a visual programming approach to sequencing the events in the multimedia application. The icons provided on each of the authoring tools which utilize this metaphor gives the developer the capability of visually presenting a logic flow of events. This is accomplished by dragging icons from an icon menu. These icons represents graphics, audio files, animations, text, movies and other elements to be played in the logical flow represented by these icons.

An example of a time-based authoring system is Macromedia's Authorware Professional. Figure 9.5 presents an Authorware logic flow.

Figure 9.5.

Among the authoring systems that use the card or page metaphor are: Macromedia Authorware

Professional (Macintosh and Windows), HSC Interactive (Windows), and conAuthor (Windows).

To explore and experience an icon-based multimedia tool open the CD-ROM and open the Macromedia Authorware Professional Working Model.

The Theatrical Metaphor

Macromedia's Director is a very powerful professional authoring tool. This authoring system operates under a theatrical metaphor. Under this context, the multimedia building elements such as text, audio, digitized video, animations, graphics, etc. that have been imported into the application or developed within the application are classified as cast members (figure 9.6). The Cast window is a data base of all the multimedia building blocks available to assemble the proposed application.

Figure 9.6 Macromind Director Cast Window

After you have imported or created the multimedia building blocks into the Cast, cast members are moved into the score (figure 9.7). The Score is a sequencer where cast members are animated, timed, and linked. The Score offers resources to produce elaborate and complex visual effects, transitions, adjustments of color palettes and tempo control. To accomplish these tasks, the Score has two audio channels, a tempo channel, a palette channel, a script channel and 48 sprite channels. The functions and capabilities of the Score will be discussed in a subsequent section.

Figure 9.7 Macromedia Director Score

Director also has a full feature scripting language known as Lingo. This scripting language allows Director to develop interactivity and programmed control. Through Lingo you can use XObjects, these are special code segments that allow Director to control external devices, such as laser disk players, video cassette recorders, etc. Lingo also allows Director to call other applications into the multimedia presentation as necessary.

To explore and experience the theatrical metaphor multimedia tool open the CD-ROM and open the Macromedia Director demo.

Classification by the Tool's Capability and Complexity

As mentioned at the beginning of this section, the other way to classify multimedia tools is by their capability and degree of complexity. There are three classification categories that we can use:

- Multimedia-capable presentation tools;
- Dedicated media integration tools, and
- Professional multimedia development tools.

Let's briefly discuss these three categories.

Multimedia-capable presentation tools - In this book we are not dealing with slide presentation software, our goal is to discuss and present those which incorporate multimedia elements. Slide software are considered monomedia because they only present graphics (text included) in a

linear sequential form. Some of these slide presentation software have recently incorporated the capability of integrating audio files, display simple animations and incorporate digitized video. With these added capabilities they fall into the definition of multimedia capable presentation tools.

These applications are intended for non-professional applications, mostly educational or training related or for the development of quick business related applications. One of the advantages of these applications is their limited capacity to generate charts, graphs, and simple illustrations.

Some of the software applications that can be classified under this category are: Microsoft Power Point, Aldus Persuasion, Lotus Freelance, Word Perfect Presentation, and Software Publishing's Harvard Graphics.

The trend at this point is for software falling into this category to incorporate tools that allow interactivity (branching). Among the software applications displaying these capabilities are: Assymetrix Compel, Macromedia's Action and Gold Disk Astound.

Dedicated media integration tools - these tools can be seen as an events and multimedia elements sequencing tool. In general, they lack the capability of developing graphics, text or recording audio within the application. As a result they can only import multimedia elements. Among the software applications that are classified under this category are: IBM Storyboard Live!, Assymetrix Media Blitz!, and Passport Design Passport Producer.

Professional multimedia development tools - these are complex and powerful development tools. They are used by power users to develop highly interactive applications such as games, instructional software, and interactive training packages. The software applications under this category are intended for the multimedia weekend warrior (casual user), they are intended for professional use. The learning curve for these applications is usually very steep and are designed to be used by a team of professionals.

Professional development tools are characterized by built-in programming and multimedia elements generation capabilities. Examples include Macromedia's Director and Authorware Professional, Assymetrix Toolbook, Apple HyperCard, and Aimtech IconAuthor.

Selection of an Authoring Program

In the market there are a number of different authoring software packages as we have seen in the previous section. The question is which one you should use. To answer this question you must ask yourself the following:

- What is my expertise in programming?
- What is the expertise within my team?
- What is the purpose of the proposed application?
- How fast my client wants this done?
- What is the budget?
- How fancy it needs to be?

The answer to the above questions will help you guide your decision. In our opinion the key

question is related to the purpose of the program. If the proposed application to be developed is a business or training related application you should select an authoring program which has built-in capabilities for developing spread sheets and charts. We have seen multimedia development groups which only use Macromedia Director as their authoring tool struggling to develop charts. They have to use a spread sheet to develop a chart, then take a screen shot of the chart, import the picture into a image editing program and then into a 3D-graphics program to animate the chart. All of this could be prevented by using the appropriate authoring tool.

The following table presents some recommendations for authoring software selection based on the intended use of the application:

Proposed Use Suggested Application

Business	Astound Macromedia Action Macromedia Authorware
Education	Macromedia Director Macromedia Authorware Assymetrix Toolbook HyperCard Super Card Hyperstudio
Games	Macromedia Director HyperCard Super Card
CyberArt	Macromedia Director

Pros and Cons of Macromedia's Director and Authorware Professional

Two of the most widely use authoring applications are Macromedia's Authorware Professional and Director. Each one of them has their pros and cons. Lets explore their pros and cons. This will help you appreciate the strengths and weaknesses of each one to make decisions of which one to use. Remember: the selection of the authoring tool will ultimately depend upon the job needs.

The following table presents a comparative analysis of the capabilities of both authoring tools.

Function	Director	Authorware
Sound	It is easier to synchronize	Lacks capacity to effectively synchronize sound.

It can play two sound files or tracks simultaneously and call at the same time AIF sounds from outside of the application.

Interactivity Needs to use Lingo to establish links or provide user feedback. It is very simple, it is icon driven. Provides the developer a number of ways to develop complex user and machine interaction without need to engage in programming.

Animation It provides a extremely powerful environment and tools to develop animations. Animations are not as good as in Director.

Charts and Has no built-in capabilities. Has electronic spread sheet and charting capabilities. Spread Sheets

Video and Control of External Devices It is accomplished by using Lingo and XObjects. It is icon driven, the application contains all drivers, it can control the playback of specific frames with ease.

Mathematical Operations It is accomplished by using Lingo. It is icon driven, users can enter alphanumeric responses.

Call Other Applications It is accomplished by using Lingo. It is icon driven, developers can different applications, specially Director and play specific frames within a movie.

Based upon the above we would recommend that if you are to develop a business, training or educational application to use Authorware and when necessary develop some components in Director and call the Director movie from Authorware. This feature will give the capability of using the best of two worlds.

It is recommended that if you are currently using any other authoring tool to perform a similar analysis of your preferred authoring packages.

If you like to learn more about the differences between these two authoring tools open your CD-ROM.

Exercise

1. What authoring means to you?
2. Which are the differences between a slide presentation application and a multimedia authoring application?
3. Based on the information provided in this chapter which type of authoring language best fit the development needs of your application? Why ?
4. If your client needs a simple multimedia application, and he or she wants it for “yesterday” which type of authoring application would you use? Why?