10. AUTHORING

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Methods to Integrate Multimedia

⊘ **PROGRAMMING**

- Languages specify how media is presented and user interactions carried out.
- Requires command of the language.
- Is time consuming.

⊘ **AUTHORING APPLICATIONS**

- Applications specially designed to integrate and present media elements.
- Developers can concentrate on design, interactivity, and functionality of the project.

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WHAT ARE THEY?

Authoring Applications

Software designed for creation of multimedia projects.

USES:

- Assemble media elements
- Synchronize content
- Design user interface
- Provide user interactivity

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Authoring Metaphors

Card Metaphor

Icon Metaphor

Timeline Metaphor

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AUTHORING METAPHORS

Card Metaphor

Media is organized in sequential order on a stack of cards or slides.

Appropriate for static media that is normally experienced in sequence.
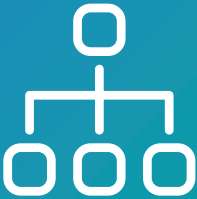
Ex: Toolbook & HyperCard

CONSTRUCTION

Cards have at least two layers:
- Background layer contains shared elements.
- Foreground layer contains content specific to that card or slide.

BENEFITS OF CARD LAYERS

- Background content is created once, which saves development time.
- Common background layer provides consistent design.
- File sizes are minimized by sharing background elements.

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AUTHORING METAPHORS

Icon Metaphor

Icons define media and forms of interactivity.

Ex: Authorware by Macromedia

CONSTRUCTION

- Icons define media and forms of interactivity.

- Icons are placed on a flowline to create the application structure.

- Each icon has a dialog box with properties and parameters identified by the developer.

- Flowlines let developers visualize and adjust the structure of the application.

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AUTHORING METAPHORS

Timeline Metaphor

Organizes media and interactivity as sequence of frames.

Best used when animation or video is central to the application.

Ex: Director & Flash

CONSTRUCTION

- Each frame can have multiple layers.

- Layers define the stacking order of the content to be displayed.

- Appropriate for dynamic media as the media can be synchronized precisely over time.

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The Authoring Process

- Application Design

- Importing/Creating/Editing Content

- Integration, Synchronization & Playback

- Navigation

- Programming & Database Support

- Preview, Test & Debug

- Delivery

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Application Design

Authoring software supports the design process.

- Outline view in PowerPoint structures presentation.

- Storyboard development is common in complex applications.

- Storyboard is a series of screen sketches to guide development process.

Importing Content

Media is generally created in media-specific applications and imported into the authoring environment.

- File formats for imported media are important.

- Conversion utilities within the application are useful.

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Create & Edit Content

All authoring applications include some tools for creating and editing media content. For example:

- Text adjustments to font size and color.

- Paint tools to add shapes and edit image features.

- Sound adjustment on volume, duration.

- Animation changes to speed and direction.

Integrate, Synchronize & Playback

- Techniques for integration are based on the metaphor (card, icon, timeline).

- Sounds, animations and transitions must be synchronized to present a unified flow of information.

- Playback of the content is often dependent on hardware factors. Timing controls can be established to ensure correct playback.

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Establishing Navigation

Authoring software can establish the order of the content on playback.

Basic navigation structures include:

- Linear or sequential
- Hierarchical
- Networked
- Conditional.

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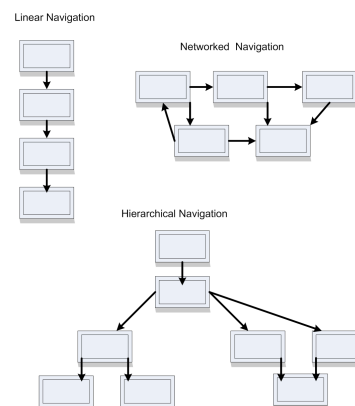- Conversion utilities within the application are useful.

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Linear Navigation

Networked Navigation

Hierarchical Navigation

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Programming Capabilities

Method 1: Scripting
- Series of commands specifying properties or behavior of an element in the project.
- Ex: Lingo Scripting Language in Director, ActionScript in Flash

Method 2: Icons
- Dialog boxes allow the developer to specify parameters for icon's use.
- Does not require programming knowledge but does limit commands to icon parameter

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Database Support

Some projects may require access to a collection of related files to store and retrieve user input.

- Tutorials have databases of related facts to test comprehension.
- User stores answers for future reference and scoring.
- Authorware and Director applications offer an interface to a database.

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Preview, Test, & Debug

Projects are created in the development mode.

- Necessary to preview the project as it will appear in the final product and test the components of the screen displays.
- Authoring applications often have a preview mode to test the assembled project during development.
- Debugger tools can identify errors in program code.

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Project Delivery

Projects are published so they play outside the authoring environment. Two approaches to publishing.

- Project requires a separate player program to present the multimedia content.
  - QuickTime, Flash, Media Players
- Project embeds the player in the multimedia project.
  - Larger files, but project is a stand-alone application.

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Choosing an
Authoring Application

No single authoring tool is suitable for all projects.
To select the right application:

- Consider the subject (static or dynamic media).

- Consider the media (source file formats compatible).

- Consider delivery (where used, means of distribution).

- Consider maintenance (expertise needed to revise content, frequent update cycles).

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