

## **AVICENNE WBT: DESIGN & IMPLEMENTATION STRATEGIES – II**

### **TOPIC OUTLINE**

#### **IDI 3 - Multimedia Design**

##### **3.1 Introduction to Components**

##### **3.2 Multimedia Components**

###### **3.2.1 Content**

###### **3.2.2 Features**

###### **3.2.3 Structure**

###### **3.2.4 Functional Controls**

###### **3.2.5 Look & Feel**

#### **IDI3 - CONCEPT MAP**

#### **Objectives of the lesson**

**At the end of this lecture students will be able to:**

- 1. Investigate a multimedia system with respect to components**
- 2. Assess which component is the most critical in which situations shaping by drivers**
- 3. Develop a draft multimedia system**

### 3.1 Introduction to Components

All multimedia products, regardless of user, venue, subject, or genre, are made up of the following components:

- Content
- Features
- Structure
- Functional Control
- Look & Feel

These are the moving part of the system. Some of them, like the engine of a car, are behind the scenes. Others are clearly visible and give control of the system to user. Taken together content, features, and structure make up multimedia application. Functional control and Look & Feel are the observable part of this application. They are known as user interface. All of these components must be considered as a whole. Nature of one component directly affects others' nature. In the following sections, all components are going to be explained in detail.

### 3.2 Multimedia Components

#### 3.2.1 Content

Content is body of knowledge, information, concepts, ideas, a story or a game. If a battle is a subject, content may consist of generals, soldiers, opponents, battle field, reasons and consequences of the battle, date and etc. Content is presented to use in text, picture, graphic, animation, video or sound format. In multimedia, every discrete element is called as assets because they are stored in an electronic file format. Too many assets give opportunity to determine content. Crucial determinants of content are threefold:

1. *Objective of the application:* Objectives determined based on needs of users are starting point of content determination. Content should meet objectives and needs of target group. MD should make some decisions about what content contain in the light of objectives.
2. *Cost, rights, and disc space:* The more amount and quality of content have, the more money is invested on a multimedia product. MD should be so selective that they can handle cost of content development. Assets are useful when organizing amount of content. Usage of existing assets by licensing may reduce your costs because sometimes extra labor forces are more expensive than licenses. However, intellectual property and copyright issues must be considered while you decide to use assets trademarks or popular names. To use trademarks or names, you have to pay something to owner of them. For example, if you want to use UEFA Euro-Cup for a game, you must contact and get a permission to use this trademark on your product.
3. *Creation of assets breakdown:* For all content, you should demarcate content to assets and create an assets library. This library should have general information regarding the assets, such as creation date, category, name, purpose and etc. Macromedia Flash Assets Library is a good example for this.

#### Extra Resources

1. Multimedia Content Analysis. Available at <http://inform.nu/Articles/Vol2/v2n4p87-100.pdf>
2. Audio and Multimedia. Available at <http://www.jimthatcher.com/webcourse6.htm>
3. Managing the Growth of Multimedia Digital Content. Available at [http://www.ercim.org/publication/Ercim\\_News/enw62/rueger.html](http://www.ercim.org/publication/Ercim_News/enw62/rueger.html)

### 3.2.2 Features

Features are product specific interactive experiences and capabilities. They have an influence on users' experience and level of interaction richness and sophistication. They are not a state of art concept in fact. It differs program to program or genre to genre. Actually, some of them are so common in genres. For instance, an educational multimedia product contains different types of features with respect to games or reference materials. Windows XP start button is a feature, as such. In educational software, a pop-quiz with an interactive activity or 3 dimensional modeled interactive video is a feature. It also tracks your records and makes recommendations on your performance.

In order to determine features of a multimedia product, MD should evaluate objectives and needs of target groups. For instance, educational software aims to teach new concepts so this program should include a tutorial, instructional interactive activities fostering learning-by-doing, a video in which a person narrating the content and etc. On the other hand, in a reference product, you can use more advanced search utilities or information box where users can save content and reach later easily.

The main point of features is that if you decide to use them, they should support your products general and specific goals. In this essence, they will really add extra values to your product.

The most commonly used features in different genres are always beneficial for a MD. Moreover, a MD can combine, adapt or create new features. General and specific objectives can be good source for your new designs. The following table is collection and classification of most commonly used features genre by genre.

Features and genres

Features	Games - Adults	Games - Children	Reference	Education	Office Utility
Multiplatform		yes	yes	yes	yes
Single or multi-user	yes	yes		yes	
User sign-in	yes	yes		yes	yes
Customize world	yes				
Personalize experience	yes	yes	yes	yes	yes
Searchable database	yes		yes		yes
Tutorials				yes	
Drills				yes	
Tests				yes	
Artificial Intelligence	yes			yes	
Control Difficulty	yes	yes		yes	
Link to online	yes		yes	yes	yes
Re-playable	yes	yes		yes	
3-D real-time	yes				
Scoring	yes	yes		yes	
Rewards	yes	yes		yes	
Print screens		yes	yes	yes	yes

Taken from Elin, L. (2001). *Designing and Developing Multimedia: A Practical Guide for the Producer, Director, and Writer*. Allyn and Bacon: Boston. p. 28.

Features have another important purpose. Additional or new features increase the competitiveness of multimedia products in the market. Most of new software released with their new features. If you are a MD, you should more focus on features to sell your product. The cost of features is main problem of development process. Sophisticated features increase your software engineering and programming load. These loads may exceed your planned budget. It is, therefore, a consideration point for MDs. The more complex features are, the more investment is required. As a result, if you tend to use more sophisticated features like sounds, video, voice record, a professional scenario, you must estimate your additional expenses carefully. Again this is one of the main responsibilities of MDs.

Extra resources

1. The intelligent multimedia authoring system "SHIVA". Available in [PDF format](#).

### **3.2.3 Structure**

Structure is the most critical component of multimedia. It organizes content and features. Without structure, neither content nor features makes any sense to users. Moreover, appearance of multimedia is unimportant unless there is a well-structure. A multimedia product which cannot have a good structure is not used and enjoyed by users.

Regardless of what content is, users need to see a general organization about the presentation of content to reach, seek, and explore effectively and efficiently. In computer world, splitting content into small chunks and presenting these chunks in a whole picture is the most common type of structuring technique. Structure is a presentation of content with the beginning and the end. Type of structure depends on your criteria.


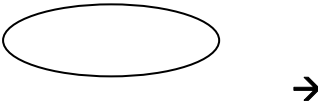
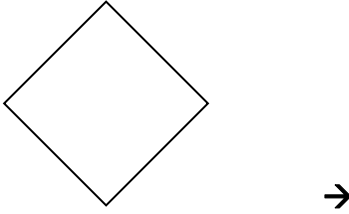
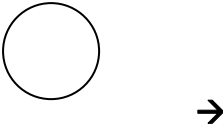
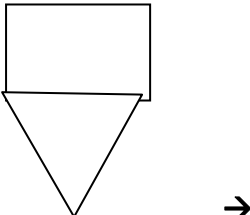
Structuring shows not only shape of serving content but also relationships. Every multimedia product has its own structure. It is related to content and features of product. To understand multimedia structure better, we can compare it to linear sequencing the most common structure type used in books, movies, journals. Linear structure includes a beginning, an improvement, and a finish and every process works based on this mentality. Sequence has been never changed. In contrast to linear sequencing, multimedia structure contains possible pathways for the objectives. Users do not have to follow one type of way. However, users are not completely free in multimedia structure. There are some tools which are directing users behind the system. Multimedia structuring also provides wide-range of choices. There is a start point but there is no precise point where the user can finish. Of course, finish points are limited to capacity of products.

Complexity of structure depends on both content and MD's decisions. If you have large scope of features, your decisions tend to use more complex structure. However, MD must give priority to content in the first step.

#### *Steps for Constructing a Structure*

1. *Analysis of your content:* Designer must analyze content of multimedia product. (S)he must make some decisions which part of content is going to be whether included or not. These decisions can be made easily, if designer determine some sub-categories of content. Sub-categories help you to organize and determine relations. At the end of this stage, MD gets a list of topics and determined relation among them.

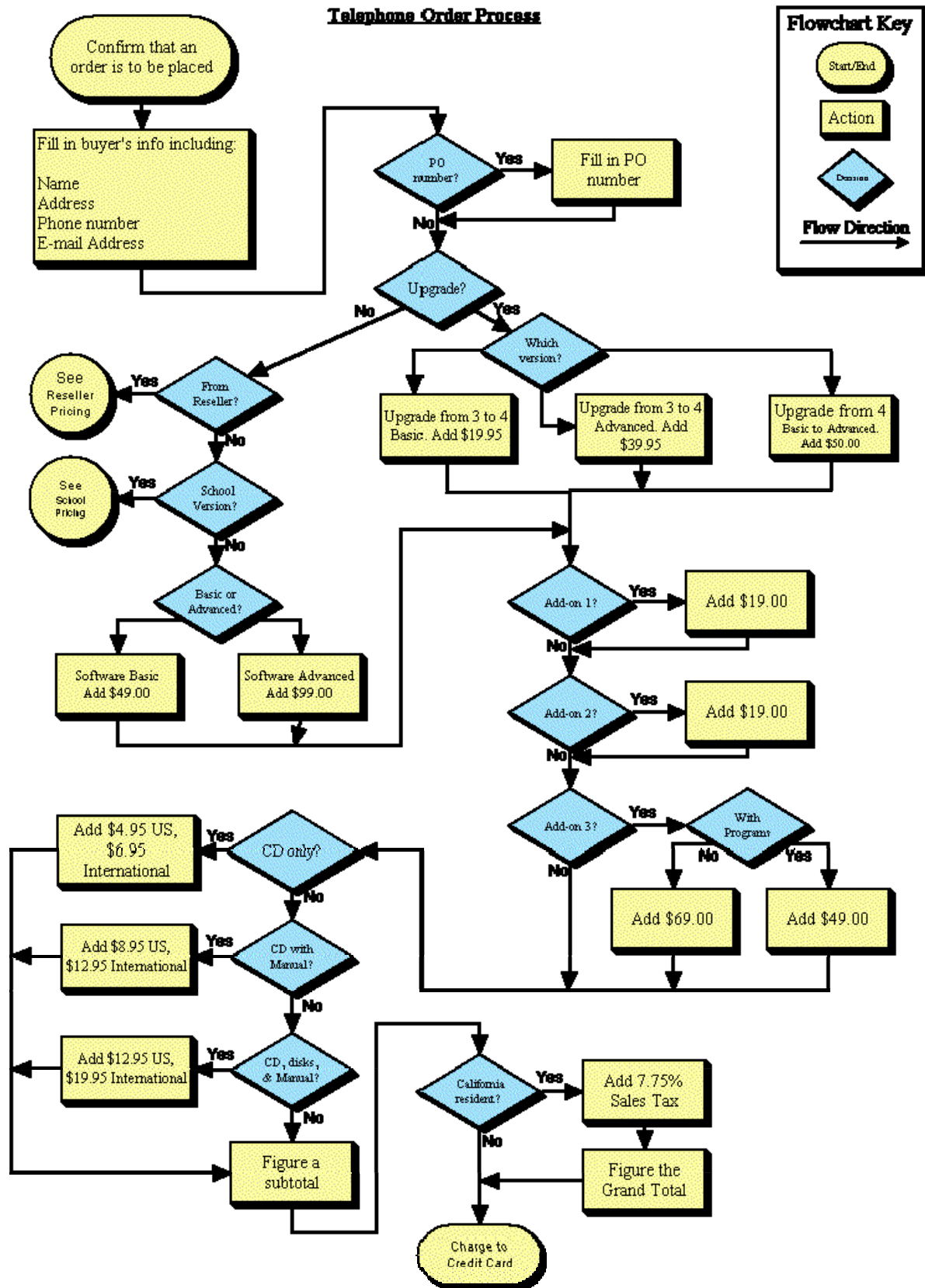
2. If sub-categories are a few numbers, selection of them is not difficult. However, having too many numbers of sub-categories requires special attention to selection process. At this stage, target groups and the purpose of multimedia product are your important criteria for the selection. This process needs empathy. MD should put himself to average users' shoes. The questions "Is this content beneficial for me?" and "Is this content really related to objectives?" are beneficial for this step.
3. If everything is O.K. up to now, MD must determine structure and linkages with respect to features, functional controls, and look and feel components. The most commonly used tools for this purpose are node-maps, site-maps, flow-charts, and in some cases concept maps. In fact, they are similar tools. For instance, this lecture is structured based on concept of content. User can see all concepts and relations at one look. You can use some graphical representations to show type or function of each node. Here are sample of graphical shapes with respect to their functions. They are used for follow charting.

	<b>Representation of interactive nodes</b>
	<b>Representation of linear nodes</b>
	<b>Representation of if/then or decision nodes</b>
	<b>Representation of connectors node in the same page</b>
	<b>Representation of off-page connectors node</b>

### Extra Resources

1. Padfield, G. (2004). Chaos Theory Modeling in Multimedia Planning. Available at <http://www.ascilite.org.au/aset-archives/confs/iims/1994/np/padfield.html>
2. Multimedia Technologies. Available at <http://edtech.uis.edu/MM/models.htm>
3. What is Flow Chart? Wikipedia online free encyclopedia. <http://en.wikipedia.org/wiki/Flowchart>.
4. Flowcharting. Available at <http://www.nos.org/htm/basic2.htm>

5. Flowcharting. Available at <http://www.hci.com.au/hcsite2/toolkit/flowchar.htm>



Sample of a flowchart  
 Taken from <http://www.free-software-download.com/flowchart-software/images/process-flowchart-big.gif>

### 3.2.4 Functional Controls

Functional Controls are devices to use interactivity of multimedia applications. They are categorized as virtual and real. The following table illustrates examples of virtual and real functional controls.

Real Functional Devices	Virtual Functional Devices They are stimulation of real functional control tools.
<ul style="list-style-type: none"> <li>• Keyboard</li> <li>• Mouse</li> <li>• Joystick</li> <li>• Touchpad</li> </ul>	<ul style="list-style-type: none"> <li>• Buttons</li> <li>• Arrows</li> <li>• Sliders</li> <li>• Dials</li> <li>• Levers</li> <li>• Hypertext</li> <li>• Combo box</li> <li>• Links</li> <li>• Image maps</li> <li>• Hotspots: It is an area that functions like a button but it does not seem as the same of buttons.</li> </ul>

They are starting point of interaction. They help users to start moving in predetermined structure. If structure is supposed to as an ocean, functional controls are the transportation vehicles to go one location to another location. Each functional control has commands based on their determined functions. Users command them to change or see content of screen in the application. They have some specific actions to be run, such as single click, double click, dragging, moving mouse over, move, and etc.

Features are the main determinant of functional controls. In general, features of multimedia products provide most of the functional controls.

### 3.2.5 Look & Feel

Look and feel component is related to art and sound design. Together, they are creating ambiance or appearance. Graphic design of your product is the place to touch users. Users' first experience most of time is influences by your product's look. For instance, good packing style is one of the most important impacts to sale a product. Do you buy a game sold just a CD? Up to now, we discussed that content driven by cost, features and functional controls driven by competitive market. Here is another relation that target market drives a product's look and feel component. In other words, as a MD, you must understand, feel, look, think, taste or need like your target people. It is true for both a professional CD production specialists and a teacher aiming to teach new concepts in different ways. If we consider the principle that a person get 90 % of ideas about a person in a 90 seconds of their first meeting, a multimedia application must be thought as wonderful with respect to its appearance.

There are too many elements for look and feel component. Being familiar each of them gives you a freedom to decide how your product will be appeared. Each element adds different impression on the users.



### *Graphic Design*

- **Style:** Each art product has a style, such as modern, classical, postmodern, ancient, Western, Eastern, industrial, space-age, and business like and etc. Of course, you can create new styles your own or use variations of existing ones. Selection of style should be appropriate to users and content.
- **Color:** Colors are source of mood in multimedia. MD should play with colors when he needs to send a feeling, mood or emphasis. There are unlimited numbers of colors on the earth so you have a number of choices for using colors. Some special rules are effective to use colors. There are covered in Chapter 2 – visual principles.
- **Texture:** In nature, texture can be observed everywhere. For example, on a cloud, a tree, a wall, a metal, or skin. It shows the tone and sense touch feeling of a thing. You can send messages what this product would like to give with texture, such as using wall texture while presenting urban area life.
- **Line:** Lines can design, orient and place your graphic elements in some styles jagged, curve, broken, horizontal or vertical. They can generate feelings of conflict and tension or order and control. They can be used for relations, directions, and emphasis.
- **Lighting:** Lighting emphasizes your scenes or screen's mood. For instance, low-key light generates heavy and mysterious but bright-light generated light-hearted and cheerful environments. Shadow effects are another tool for lighting. You can arrange amount and direction of light via shadows. Deep-shadow is the sign of low-key light. Bright-light, in contrast to low-key light, produces less shadow.

### *Icons and Controls*

- **Icons:** They are graphical elements to inform user wordlessly. They can label everything on the screen, such as buttons, hot-spot and etc. They are not only informative but also a consistent part of product style. For instance, in all Windows operating systems, “My Computer” icon is so simple that it is easily understood by too many people in different countries.
- **Buttons, sliders, dials, and levers:** They are also part of both look and feel and functional controls components. While they have graphical property, their functionality is also important. They support product style.

### *Type Font*

Main purpose of fonts is making legibility well. There are too many different fonts. They have special characteristics, such as serif and sans serif (This topic is covered in Chapter 2 – Visual Principles). Purpose and target group of the product is very important during selection of font types. For instance, if you are designing an application for airport flight screen, you should use large and bold fonts.

### *Screen Layout*

Screen layout shows general appearance of itself. It is a kind of blue-print that designer determines some areas for components. It fosters consistency along screens of your multimedia application. Moreover, you can use your screen layouts during development process of the product.

### *Sound Design*

In addition to visual materials, you can increase your screens' mood with sound effects. For instance, a sound after clicking a button or a narrator voice which is reading text on the

screen, a smooth music while serving content. They also add a kind of cheerfulness to your product, like this page.

1. Graphic Design Web Portal. Available at <http://www.allgraphicdesign.com/>

### **Assessment Questions**

- 1. Which one of the components are the most effective? Please support your answer.**
- 2. Select a topic and write a draft for components what elements should be included or how all components can be arranged.**

# IDI3 - CONCEPT MAP

