Interactive Course Conversion

The purpose of this document is to outline an overall method by which existing course materials can be converted into effective, interactive training modules for digital distribution. The criteria for the use of this method are as follows:

1. Cost effectiveness of the conversion process
2. Effectiveness of the resultant training modules
3. Reduced course development costs

An underlying premise of this document is that by applying interactivity to the course materials in a coordinated manner; the above criteria can be met. Specifically, these areas of interactivity include:

1. Navigational interactivity
2. Interactive content
3. Interactive Training and Testing

Navigational Interactivity

Navigating through a website or desktop application can be a very frustrating experience. Users may have entirely different needs associated with accessing the content and therefore need different access points. Someone wanting a quick review of the materials may have to wade through long presentations, while someone wanting detailed information may get hopelessly lost in irrelevant information.

Flexible access, therefore, is a prime consideration during the interactive course development process. This benefits not only a wider range of learners, but also the producer who will want a standardized, manageable production process. The following diagrams demonstrate how interactive navigation can work:
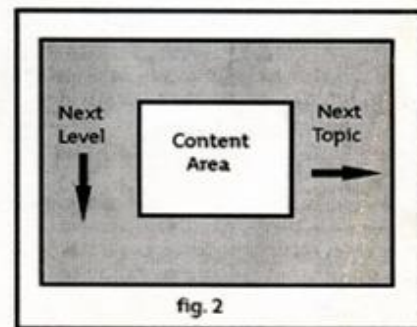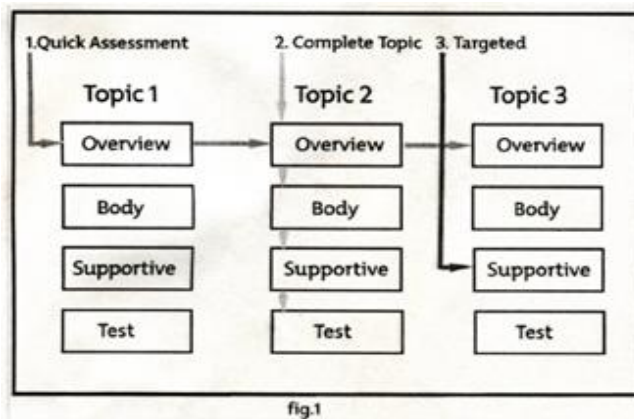

fig.1

fig. 2

Figure 1 shows three different topics that have been segmented according to complexity and focus. A test segment is provided as a re-inforcement.

The Overview segment would cover general aspects of the topic and discuss elements related to its external environment, thus providing a high level context with which to support subsequent learning.

The Body would cover the Core Concepts of the topic and its internal environment and systems with occasional reference to the higher level context mentioned above.

The Supportive segment could include a number of different types of content, such as documentation or case studies, and is intended to provide real world information that would tend to dilute or shift focus from the topic's core concepts.

The test segment acts as a reinforcement for all the information presented. Although in this example it is placed at the end of each completed topic; it could itself be segmented and presented throughout the various topic segments.

Once the topics are segmented this way; navigation throughout the course is greatly facilitated. For instance, an individual who needs a quick assessment of the content merely needs to "travel" to the Overview level and navigate laterally throughout the course. Figure 2 shows how this might occur at the interface level: Clicking to the next topic keeps us at our current level, but moves from topic to topic.

Another individual, who needs to focus on only one topic, navigates to the topic and clicks to the Next Level (see Figure 2); increasing their understanding of the topic as they go.

Someone else, already familiar with the course and only needing to review a specific aspect of a topic; targets the information needed and goes directly to it, either by clicking through levels, or accessing it from a Main Menu.

In this way, access to the information contained in the course is made available to the Learner according to their needs.

Interactive Content

Interactive content, in this context, are multimedia elements that change according to the needs of the Learner. This can include both a "filtering" process whereby the course automatically selects specific content, or a "feedback" process whereby the content changes according to the performance of the Learner.

Filtering can occur by dividing each topic segment into sub-segments. For example, imagine that the Body of Topic 1 demonstrates the installation of a module into a switch or router. The first part of the Body discusses SIMM expansion cards, the second part demonstrates module port configurations, and the third part shows a power connector being installed. After taking the complete course, the student could then decide to review the port configuration procedures by making a selection on the interface. Navigating through the course would only present configuration procedures. By extension, the test would only ask questions related to port configuration. In this way, students can focus on weaknesses and easily use the course in a remedial fashion.

A course structured this way can also provide feedback to students in the form of altered content. If a student takes a test and does poorly on a particular topic, as determined by a score threshold, the content can be changed to present the information in an alternate fashion or with additional information. If, for example, a student demonstrates a weak understanding of a particular sub-segment; that sub-segment is replayed with an alternate audio track that includes an addition example.

Interactive Training/Testing

During technical training, text based instruction goes only so far. Ultimately, the student will need to perform a variety of tasks in order to complete the course and be certified. Typically an instructor will demonstrate a procedure in the presence of the student and then ask the student to repeat the task.

This instructor/student interaction can be simulated in a distance learning environment/ For example, an instructional animation demonstrating a hardware installation and configuration could be played in sync with a narration describing the process. The student is then asked to duplicate the process by dragging hardware components into place on the screen or by typing appropriate software settings. Incorrect input would give the student feedback and another opportunity to implement the correct solution.

In a pure testing environment, the student would be presented with the same task but without the initial instruction or feedback.

Reduced Production Costs

Content is rarely multi-media ready and often requires significant re-work to take full advantage of an interactive environment. This greatly adds to the project costs and generally invites large numbers of correction that, in turn, add even more to the overall cost.

By providing a standardized template for the conversion or initial development of interactive content, and by making all major reviews prior to production, these costs are greatly reduced. The general procedure would be as follows:

1. The course materials are assembled from pre-existing content or from a content expert.
2. The course materials are organized according to:
   a. Topics
   b. Core Concepts
   c. Supportive Information per topic
   d. Overviews derived from the Core and Supportive Information.
   e. Sub-topics per segment
   f. Testing topics

3. An organization flow chart of the project is prepared outlining the course structure, the production plan, and the interactive paths.

4. The project can now be reviewed prior to production for any corrections or additions.
5. Once the project is approved, the script is written and the project moves into the production phase. With the project organized in this manner, the script no longer represents the key instructional element and therefore only requires reviewing to the extent that the visuals and audio need reviewing.
6. With all key decisions having been made, production can now proceed unimpeded, further reducing costs.

Although it may seem counterintuitive, reducing costs in this manner actually increases the value and effectiveness of the course. Course components that once required significant rework are now executed only once and put into place once with no intervening decision making to slow down the process. Time once taken up by unclear organization is now used to enhance the interactivity of the course and extend both its user base and usability. And all overall economies inherent in such a project organization now make for improve training effectiveness.