Chapter XVII

Cheap Production of Multimedia Programs

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The importance of multimedia in distance education has increased steadily over the last few years. This fact implies a growing need for the production of large quantities of multimedia programs with a high level of user interaction. As the production of sophisticated multimedia programs is rather expensive, the question can be asked if it is possible to produce educational multimedia programs in a cheaper way. This could be achieved in two ways: either by simplifying the educational contents in such a way that there would be no high demands for graphics, videos and a high level of interaction, or to use some existing products that could be modified into a multimedia form. Two systems will be presented that will allow us to create interactive multimedia programs both in a CD-ROM environment and in a network environment as well. These multimedia programs have been created from already existing videotapes that were digitized and enhanced with interactive features.

PROBLEM DESCRIPTION

Distance education is becoming an increasingly important issue. This type of education concerns not only the traditional forms of education but is also used when training employees in companies in the case where they need to acquire new skills. The use of distance education helps both students and professionals of all kinds to stay up-to-date and productive in their field without the constraints of campus attendance. There are many educational institutions around the world that offer a large selection of distance educational materials in various forms (e.g., Stanford, 2000). The use of video in multimedia educational programs could help substantially in this form of education (White, 1999). Audiovisual materials offer a more personal touch, which helps learners feel less isolated throughout the learning process. The learning curve improves for most learners, as they are drawn into the learning process, because audiovisual materials allow learners to view and/or hear instructions, demonstrations and simulations (Porter, 1997).

There are two possible approaches:
- to videotape a lecture delivered by a teacher (preferably by a distinguished expert)
- to use interactive video.

The first case is oriented towards passive perception of the lecture. Such an approach has been used for many years. After the lecture has been played by a student, a set of questions—e.g., in paper form—should be answered by the student. The problem in this case is that the student has no immediate feedback during the learning process. This drawback is removed when we use an interactive video.

Interactive video may be defined as the use of a video delivery (e.g., videodisc or CD-ROM) in which the user has control over the presentation. The use of interactive video has a long history. At its beginning, interactive video was understood to be a video instruction with the computer as a control device (Iuppa, 1984). Nowadays the interactive video is used as computer-based instruction augmented by video sequences (Alessi, 1991).

In our case, we will deal with this case as it offers the most flexible approach to the interactive learning process. In this case we could also speak about the interactive multimedia approach. Interactive multimedia is a generic term that denotes any system in which the computer is capable of controlling and delivering multiple media. Most often, the term is used to describe a PC-based system involving CD-ROM, DVD or the Internet.

In many cases—when interactive multimedia are used—there are strong require-ments on having an extensive video part in the educational programs. This is particularly true when users are trained in some specific skills—mostly in some industrial environment. Usually they like to get the "entry level information," which means that they need to see actual situations and examples of problems and solutions packaged into a visual "on-site" training program about a real application. In general, videotapes themselves are a convenient and easy way to learn about something. To make the learning process more effective, it is necessary to include some feedback for the user.

This approach needs to "insert" video sequences in an interactive program that was created by means of some authoring system like Director, HyperCard, HyperStudio, etc. The problem is that these authoring systems are expensive, which could create a problem for some potential users. Another problem is that producing a video (or a set of video sequences) with some specific contents might be either problematic (e.g., some dangerous environment) or expensive (the use of some special and expensive equipment in the application under investigation). The solution is to use some already existing videos that are available (and convert them into an interactive program with costs as low as possible). This approach is suitable first of all for companies or institutions that produced a number of videotapes in the past (in this case there should be no problems with copyright).

In the past many educational videos have been produced. These videos usually present some topic that is part of some curriculum either at the high school or university level. The basic property of a video of this type is the absence of any interactivity as the student just watches the video and s/he is asked a question (or more questions) when the video is over. The question is: would it be possible to process the video in such a way that an interactive multimedia program would be the result of such processing?

Such an approach could be applied to videos that comply with some basic require-ments. The most important requirement is the possibility of dividing the whole video into several segments that deal with some subtopics. After presentation of such a segment, it would be possible to enhance the video by some accompanying text or graphics that explain the topic in greater detail.

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