

## Chapter 5

# Hardware and Software for Multimedia Development

### INTRODUCTION

According to Peggy (2008),

*It's relatively easy to transfer raw content from paper to technology delivery. But it's much more challenging to put material into a format that helps people learn.*

The aforementioned statement is essential to ponder when it comes to multimedia hardware and software consideration. Computers are now making it possible to blend or integrate together multimedia elements such as audio, video, graphics, images and animation into a single learning package. However, blending these multimedia elements together to develop a learning package does not mean that student's proficiency in the subject matter could be enhanced. Furthermore it is not necessary to convert the entire textbook into a full working multimedia package for students to learn. Selected problems that are difficult to explain to the students from the textbook could be more appropriate and beneficial to the students if shown in the form of motion. On the other hand selecting appropriate multimedia elements and authoring tools could be difficult tasks for a new multimedia author. This is because proper development

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design process and careful selection of multimedia elements should be used appropriately to develop a high quality and cost effective package that could engage learners in their learning. Understanding the overall development process is an essential part for a multimedia learning package.

In general, five components are crucial for the development of a multimedia package, namely:

- Hardware (the multimedia computer)
- Authoring software (tools for developing multimedia learning packages)
- The multimedia author (the conceptual understanding and creative skills)
- The subject matter expert for example an engineer (if the domain is engineering)
- Students (the potential users of the multimedia package) as discussed in Chapter 2.

In addition to the above it is important to choose a suitable computing platform to run the final product. Although a number of platforms exist such as Silicon Graphics, Apple Macintosh, Sun Microsystems and Mainframes, this book confines only to Microsoft Windows platform. Windows-based system (or Windows operating systems) is selected as the choice for operating the TAPS (technology assisted problem solving) packages because it has a worldwide presence, availability and affordability. An operating system (OS) is the program that is responsible to manage all the other programs in a computer, once it is loaded into the computer's memory. The other programs are called the applications programs. The OS determines the distribution of time and order for multiple application programs running simultaneously. It also manages the sharing of memory among multiple applications. It communicates with the attached hardware devices about the condition of operations and errors that may have occurred (Usha, 2003).

The inventions in the field of hardware and software for multimedia are being upgraded and changing rapidly. The description in this Chapter is only informative (and does not necessarily claim to be exhaustive) for enabling the reader to familiarize with the concepts and capabilities of some of the software used in developing the TAPS packages which runs on Windows platform.

This Chapter attempts to describe the hardware and software which enable the developer to develop the end product called 'multimedia packages' or referred as TAPS packages for engineering in this book.

## **HARDWARE REQUIRED FOR MULTIMEDIA**

Selecting multimedia hardware such as a computer often entails many conflicting issues and concerns. When considering a multimedia personal computer (PC) (a computer equipped with high main memory, CD-ROM, speakers microphone, PC camera, scanner and software tools for implementing multimedia applications) the main issue is usually related to budget. It is therefore recommended that a decent computer with adequate hardware is considered. Hardware interprets user commands into computer activity. When developing a multimedia application, a high speed computer and storage capacity is recommended. There are many more things that need to be considered such as which device makes a computer fast (processes information quicker), what is the device for storage, etc. The hardware devices thus can be divided into five categories namely system devices, memory and storage devices, input devices, output devices, and communication devices. This is further discussed in Table 1.

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