DESIGNING INTERACTIVE SELF-LEARNING MODULES USING MACROMEDIA DIRECTOR

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ABSTRACT

This paper describes the use of Macromedia Director 8 Studio, a software program that allows professors to easily develop student interactive learning modules. A marketing based learning module is presented.

INTRODUCTION

The primary purpose of this paper is to disseminate information to the university world concerning the usefulness of Macromedia Director 8 Studio when developing interactive self-learning modules. The intended audience of this paper is Business professors who innovate, and, for a variety of reasons, need to place interactive type lectures onto a storable electronic medium. An interactive lecture will be defined as class time that requires student participation, such as experiential exercises. Participation can take on many forms, such as student perceptions being mapped on a blackboard during a product positioning interactive in-class exercise.

Macromedia Director Studio provides a software vehicle allowing professors to perform a variety of tasks. Macromedia Director Studio affords an opportunity for a designer/professor to create visual presentations, computer games, or interactive multimedia software containing audio and video that can be developed into interactive lectures. Macromedia Director Studio combines graphics, sound, animation, text, and video to create multi-user, interactive content that is easy to deploy into CD-ROM and future DVD technology. Macromedia Director Studio streamlines the authoring process with centralized, automated functions making it easier to manage assets, edit complex animations, build graphics on the fly, and create content for CD-ROM delivery.

In less complicated terms, " Director", is similar to a movie director who has the responsibility of assembling cast members, building a stage, and determining the sequential order of the scenes the audience will view. For our context, the cast members could be a lecture, text material, graphs, charts, tables, spreadsheets, databases, equations, JPEG still images or MPEG video images. Each cast member appears on the stage for a time period determined by the author/director/professor. Director also allows the viewer/students to select the time period by the use of click-able "next" or "Back" buttons.

The Director authoring *Metaphor* is based on movie production, complete with a Cast, Stage, and Score. A professor simply imports various media into the Cast window, and then places cast members onto the Stage. The Score controls the sequence of your presentation. To make movies quickly, just drag and drop media objects on the stage. To add interactivity, simply apply behaviors and view the actual media elements in action on the stage. Actually, it is as simple as pressing play on your home VCR. Seriously, as a first time user, I found Director to be very simple to learn, and within the first day I developed my initial movie/lecture.

The focus of this paper will be on Macromedia Director Studio's ability to allow a professor to easily create interactive lectures.

THE TECHNICAL SIDE OF MACROMEDIA DIRECTOR 8

The more germane characteristics of Director include: 1) The *Cast Manager* sorts cast members by name, size, creation and modification date, type, and comments, making it easy to manage the projects (with hundreds of assets). 2) *Image* compression. Multimedia productions consist of many media types, such as audio, video, images, text, and vectors. Image compression allows optimizing images individually or for the entire movie. (Set JPEG image compression per-cast member, or set JPEG compression for the entire movie.) 3) *Store and reuse* media objects in the cast. 4) *Drag-and-drop* cast members from the cast to the stage window. 5) *Lingo* a robust programming and scripting language. Lingo, Director's object-oriented language, includes over 800 commands to control things like imaging, sound, vector shapes, scaling, rotation, alpha channels, and internet connectivity. Lingo's dot syntax is extremely comfortable for programmers familiar with languages like JavaScript or Visual Basic. 6) The *"Authoring"* hardware and software required is the minimum System needed to author Macromedia Director Studio Movies: An Intel II Pentium 200 processor running Windows 95/98 or Windows NT 4.0 or later; 32 MB of available RAM plus 100 MB of available disk space, a color monitor, and a CD-ROM drive. 7) *Student Playback.* For Director Movie "playback", students require an Intel Pentium 166 processor running Windows 95/98 or NT version 4.0 or later; 32 MB of installed RAM; Netscape Navigator 4.0; Microsoft Internet Explorer 4.0, or America Online 4.0 Web browser and a color monitor. 8) *Macintosh.* For Macintosh authoring: A Macintosh 180, running System 8.1 or later; and for Macintosh playback:

A 120 Macintosh running System 8.1 or later. 9) Authors, or in this case, professors, are allowed by the company Macromedia to freely distribute 1000 copies of their work to students.

APPLICATION AND USE OF DIRECTOR BY STUDENTS

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To date, three MBA classes and one New Product class have experienced the use on interactive self-learning modules. It is important to note that the developed Macromedia Director movies/learning modules have been extremely easy for business students to use. Several self-contained modules (written in Director 8) have been developed and placed upon CD-ROMs. These modules play automatically when double clicked. I have been experimenting with this software, and students in four classes have had zero problems getting the interactive learning modules to work. This is because each module is a stand-alone executable file. **NO** software is necessary. There is nothing to download. Students need no software. Because the learning modules are interactive, students are able to input variables and instantaneously experience the resultant output. The inputs, for example, could be in the form of points plotted on an X and Y-axis. Students, working on their own in computer labs, or at home on their PCs, input data points, or answer questions and instantly view the resultant output. Students are also able to input Business variables into predetermined equations that calculate and output into visual or table form results.

The interactive experiential exercises are stored (written/burned) on CD-ROMs for distribution to students. CD-ROMs cost approximately .50 each, and store an enormous amount of information, 650 Megs. By using CD-ROMs there will be no involved lengthy download times for students, as experienced on the Web. This is because all of the student interactive portion of the course could be stored on a single CD-ROM.

AN INTERACTIVE SELF-LEARNING MODULE

Featured in the exhibits #1 and #2, will be the essence of an interactive self-learning module, "Product Positioning", designed for the marketing courses, New Product Strategy and the MBA Marketing Management class.

Exhibit 1 illustrates the "score" for the Director movie. Cast members, such as text material, lectures, graphs, illustrations, equations, still photos, videos, sound clips and other material, are easily dropped into a frame sequence. In this example, cast member #4, a red 911 Porsche, makes an appearance on-stage in frame 16. The other cast members

on stage will be the grid component of an X and Y coordinate drawn on a perceptual map. When viewed in total, the topic of Product Positioning will be presented. In the first scene, designed to grab attention, a tire screeching (audio) red 911 Porsche zooms through the grid. (Via animation, it took a minute to program.)

The intention of presenting Exhibit 1 is not to confuse the novice user of computer software. The purpose is to illustrate the simplicity in the process of designing interactive self paced lectures on CD-ROM. Anyone using a Window computer environment today understands the ease of "Drag and Drop" technology.

Another point to examine in Exhibit 1 would be the sound capabilities. Notice the tiny speaker icons located in the upper quarter of the exhibit, labeled with a 1 and 2 channel designation. Director Studio allows sound to be incorporated easily into the learning module. I simply found a sound clip of a Porsche 911 car racing its engine, on a free web site. Then, I downloaded the AVI file to disk, opened the file as a cast member, and "dragged and dropped" the sound into the *Score*. Alternatively, I could have "dragged and dropped" the AVI file directly onto the *Stage*.
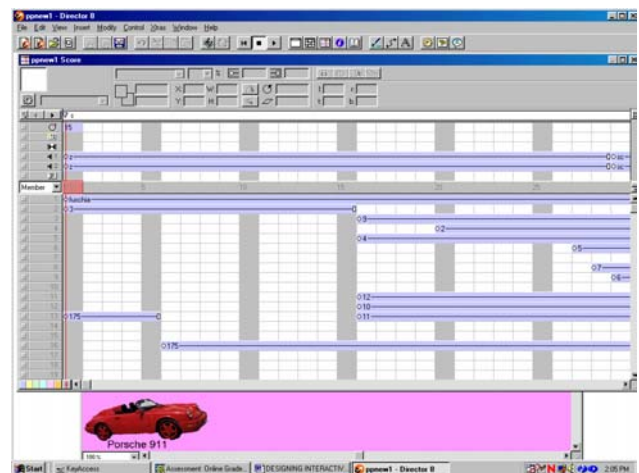
Exhibit 1

Exhibit 2 illustrates the windows available to the user in Macromedia's Director 8 Studio. Each window mirrors the operational functions of a movie director, included are: The stage; Score; Internal cast; Control panel, controls similar to a VCR; Text, a place where a professor can insert lecture material; Paint, for the ambitious and artistically talented program designers; and the property inspector.

I know what you are thinking, "What a confusing state of affairs this is! It's such a complicated mess!" But, Exhibit 2 is not as complicated as it appears to be. Every window screen has a purpose. A professor/designer does not have to simultaneously open each window. Director 8 Studio has been developed with various levels of built in sophistication. Professor at all levels of ability are able to

navigate through the system of commands. With a mentor's assistance, a novice professor can create a lecture and stored it on CD-ROM in one day.

Exhibit 2
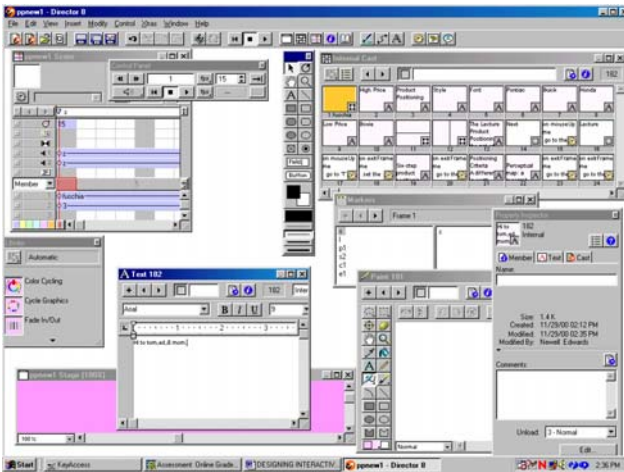
SUMMARY AND CONCLUSIONS

Using CD-ROM technology versus web download technology generates enormous timesavings for the student, at least 100 times faster, and theoretically (I've been told) approaches1000 times as fast. For example, when a student accesses a large file on a CD-ROM taking 6 seconds, the same file would take at least 600 seconds (ten minutes) to download over the Web. I can't imagine waiting 10 minutes for anything to download. With CD-ROM technology, this is not much of a problem. It only takes an additional 6 seconds to download the correct program. This is not the case with Web downloads. Any error would mean an additional 10 minutes of waiting for the students. Not much learning would occur for today's MTV's now generation in the latter example.

In conclusion, based upon twenty years of developing experiential interactive classroom exercises and computer based business simulation games, the next decade will witness the majority of University professors using Macromedia Director Studio, in some type of capacity, as a source of supplemental lecture material. The Macromedia Director studio software is simply too easy for professors not to develop interactive lecture material. However, the merits of using Director must be disseminated to academia, which has been the primary purpose of this paper.