Tutorial, or Not Tutorial, That Is the Question . . .

“Tutorials are the wave of the future.”
—A speaker at the CIL ‘97 Conference

by
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OK, OK, I admit it. It was me. And no, it wasn’t when I was heckling people at the Dead Technology session. I said this during a short talk on tutorials during the training track. And it was something I echoed in the half-day pre-conference workshop that I presented, called “Teaching the Internet in 50 Minutes.”

Wave of the Future . . .

I loved the analogy that Jan Zastrow of Kapiolani Community College (Hawaii) used in her presentation at the CIL ’97 Conference. A surfer, she described the action of paddling a surfboard in order to move as fast as the water where the wave is starting to break, then getting up on the crest of the wave, then maneuvering with as much skill as possible to stay on top. She related that analogy to using the Internet for distance education, saying that we are just learning how to design and develop effective Web-based instruction that can be used in a variety of instruction and teaching settings. And I believe tutorials are an integral part of that. I think we are at the point where we are paddling our boards, preparing to get up on that tutorial part of the wave.

A Tutorial by
Any Other Name . . .

What do I mean by tutorial? Good question! In the past couple of months I’ve looked at descriptions of over 400 Internet tutorials. I’ve scanned or reviewed almost 100 of them. I thought I knew what a tutorial was, but found I had to broaden my definition.

When I started out, I wanted to find self-paced, directive tutorials on the Internet that included graphics and/or animation and described various aspects of using the Internet. I was looking for something I could point to and have people work through as a prerequisite to a training class, or as an assignment for reinforcement afterwards. The ideal thing would have been a series of short animated video clips that depict how TCP/IP, client/server architecture, or search engines work. I didn’t find any of those.

I found a lot of stuff related to the Internet (OK, I confess I was using an automated search engine), much of which was beyond the scope of my information needs—like how to program in C++, design circuit boards, or develop algorithms for robot spiders. There were some that were a little more in the ballpark, like how to use HTML and Java, make bookmarks or read newsgroups with Netscape, and get the most out of searching with Internet search engines.
What surprised me, though, was what the authors of these various pages considered a tutorial; it was different from what I envisioned in my own definition. The term was applied to everything from a page with a list of hyperlinks/URLs with no description, to outlines used in presentations, to what amounted to very lengthy articles. There’s nothing wrong with that; it’s just that I had thought a tutorial was a self-guided, self-paced, often intensive system of instruction, pertaining (usually) to a specific topic. Most of the things I found met that last criterion, although some covered very broad topics, and some were quite general (if not vague).

Now, it is not my aim here to put down any tutorials. They represent a lot of work in most cases, and truly a labor of love in some. I appreciate their authors’ dedication and willingness to share. But I was surprised not to find any tutorials of the sort described by my definition. Maybe it’s a little skewed.

Tutorial, Tutorial, Wherefore Art Thou?

By self-guided I mean there is some clear way to navigate back and forth through the tutorial. Some that I found included Forward/Back links, but most did not—which meant the user would have to know that after clicking on a few external hyperlinks, he or she would have to know how to get back to the main part of the tutorial. By self-paced I mean that the tutorial is conducive to setting up some kind of a pace for proceeding through it—divided into some logical structure—rather than simply being one long linear piece of text. Few of the tutorials I found prescribed a system of learning, by which I mean they did not explicitly cultivate critical thinking by emphasizing certain points in more than one way, fostering problem-solving, or literally asking questions or quizzes.

Compare that to instructional packages you find off the Internet or, perhaps more poignantly, to the ones for which you only find advertisements on the Internet. CBT (Computer Based Training) modules, many of which come on CD-ROM, incorporate all the whiz-bang bells and whistles of multimedia.

Or try something like the Microsoft Windows Tutorial (it’s under the Help menu option on the Menu Bar), which is very graphical and very interactive—a must as a prerequisite for any training that uses that graphical interface. You might even try programmed instruction found in the workbooks such as the Que E&T (Macmillan Computer Publishing: http://www.mcp.com/queue) or the “Essentials” hands-on learning series, which literally take you step-by-step through popular application packages. OK, but the Web is supposed to have all these capabilities of multimedia, so why don’t we see any of these things out there on the Internet?

First of all, remember that there are two kinds of things you won’t find on the Internet: things you don’t want anyone to see, and things from which you can make money. However, copyright protection and a strong communal sense among the Internet community have helped foster an environment that has produced some pretty wonderful (and often free) applications. Just because they aren’t out there now doesn’t mean they won’t be soon.

Second, the time and tools needed for putting such tutorials online may not be readily available to all who want or need them. It takes a lot of effort to plan and develop both the structure and content for a tutorial. As I mentioned, elements such as navigability and a logical structure are critical for making a tutorial easy to use, and they should be well thought out. As for content, anyone who has established learning objectives for training knows that it takes time to pull together content for a given topic. Often the trick is in knowing when to stop and what to leave out!

Tools for Tutorials

Judging by some of the tutorials I’ve seen, all it takes to make a “tutorial” is the means to create a Web page—some kind of text editor and a little HTML coding. However, the better tutorials I’ve reviewed incorporate some graphics, such as icons to depict navigation: Forward, Back, Up, or Previous buttons. Such icons are often found on the Internet in archives for graphics and images. (Remember, check copyright before adding them to your page.) In addition, new tools coming out on the market allow you to create entire online courses. Some of them, like Webc+ (http://homebrew1.cd.ubc.ca/webc+), allow you to use your Web browser to build the course, which could include progress tracking, self-assessment, timed quizzes, and other sophisticated features.

In addition, some tutorials include graphics that help illustrate a point made. In some cases, as in many of the Netscape tutorials, these are screen captures of part of the application package that the tutorial covers. For instance, in a tutorial introducing Netscape, the menu bar might be displayed along with a description of the various options found there. To create such a graphic, tools are needed to make a screen capture and to convert the image into a format for the Web, such as gif. In other cases, an original graphic is created using some kind of drawing package. Often the basic “paint” program that comes with a computer can be used, as long as it can be saved as gif or jpeg format. (If not, you’ll need a conversion package.) A select list of tutorials that include such graphics can be found at http://thorplus.lib.purdue.edu/~techman/tuturls.html.

The Importance of Animated Graphics

Surprisingly, animation is something I didn’t find in any tutorial on the Web. Animated graphics can make a point in a very vivid way. If one picture is worth a thousand words, how many words is an animated sequence worth? Look, for instance, at the animated graphic at http://thorplus.lib.purdue.edu/~techman/explode.gif. This is a series of graphic images (about a dozen of them), created with Aldus Superscape. Basically, the pictures are pulled together in a sequence and displayed quickly, one after the other, much the same as several frames of a motion picture.
This animation is called GIF89a. It can be used to produce some interesting effects, as you may have noticed by the blinking smiley faces or flying letters on the bottom of Web pages. But it is time to develop graphics that have a more direct relationship to the content of a page. Ann Scholz-Crane at Rutgers, for instance, has used GIF89a animation to depict a moving Venn diagram that demonstrates the concepts of the Boolean operators AND and OR. I am in the process of developing one that animates the concept of the interaction between a client and a server—a short series of about 20 images showing a browser retrieving a page on the Internet.

How do you create such graphic animation? Again, you may need a package for drawing original art. Then you’ll need a package to tie together the several pictures as frames in the GIF89a. You can “find out everything you need to know” (well, a lot, anyway) about GIF89a animation at Royal Frazier’s INTERcoNNeCTions page at http://www.ecafe.org/tools/gifanim/royal.htm.

Now, I don’t want to sound like I am disgruntled by what’s out there on the Net. It is, after all, part of paddling to get up to speed. But what will it look like once we get up on the crest of the wave?

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Good tutorials use graphics to illustrate their points.

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O Brave New World That Has Such Tutorials in’ . . .

What I hope to see in the next couple of years (or months!) is more tutorials on Internet-related topics on the Internet. I hope that creators give more attention to structure and a systematic learning environment. And I especially hope to see much more use of animation incorporated as part of tutorials.

The “perfect” tutorial would be structured to include navigation so the user won’t get lost. Although not viewable with all browsers, HTML frames provide a suitable framework for a tutorial. Two or three frames are used to section off the Web page into window-like partitions—one section can be used to show navigation links or icons, one section can provide context-sensitive help, and a larger section can be used to display content, including Web pages from external links.

Part of the content in the “perfect” tutorial would include graphics, animation, or video to visually depict important points. Those points could be scenes showing how to do something (such as editing a bookmark file in Netscape) or illustrating concepts (such as the client/server interaction). I am working in an area of research to show how analogy—a powerful tool for learning—can be delivered via animation. That is, showing how throwing a football depicts a client making a request of a server, which is something I’ve done in presentations to favorable reviews from non-technologically minded audiences.

And, of course, as far as I’m concerned, not only would there be a trove of tutorials to choose from, but they would also foster systematic learning. These could be used as requisite material either before or after a given training class. They would be designed well enough to stand on their own, and pertinent enough to fit topics not covered in class. Quizzes, given to review or to test the ability to apply knowledge to other situations, would be optional, but welcomed.

I’ll keep you posted on what I find on the Internet. If you find something that fits (or approaches) my idea of the “perfect” tutorial, let me know!

Whether ’tis nobler to suffer the slings and arrows of outrageous training or to take arms against a sea of tutorials and by altering them, ride the wave. ▲

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