Screen Design for Web-Based Training

Lawrence McIntyre

IT Project Manager eHR

GE Power Systems “InsideGEPS”

Over the past five years the marketplace has filled with hundreds of companies that claim to be "the leader in web-based training." But under close scrutiny, they are neither the leaders nor do they produce effective web-based training. The tendency for most companies is to do one of two things. First, in an effort to get a lot of "training" on the web quickly, they convert existing instructor led training (ILT) to HTML and publish it with little or no redesign to make effective use of the web's qualities. The result is nothing more than "page turners" that fail to provide an effective learning environment. The second strategy consists of digitizing existing video training programs and creating a succession of "talking heads" and then delivering it over the web. This technique fails to appeal to the learner, and more importantly, it fails to engage the learner in a meaningful experience.

The design of web-based training does not change the way people learn, but it does change how we teach them. (Allessi & Trollip, 2001) The basic responsibility of the instructor or teacher is unchanged. They still need to create an experience that helps the learner to learn and a large part of that need is to create visual elements that take advantage of the web's characteristics and avoids elements that strain the web's potential.

When designing the educational presentation for the web, we first need to ask what is the role of the visual display? We know that its role is to clearly present the content. In order to do that, the visual display needs to be carefully designed and components such as photographs, charts, and graphs should be used. Unfortunately some designers simply use bulleted words or a

sentence or two. Contrary to popular belief, I don't think text is visual at all, but rather an aural element. Even though the text is on the screen, I believe that because the user reads the words he either hears them out loud or hears them in his head therefore they are aural and not visual.

When we design a display for a web-based training module, we need to understand that we have an important responsibility. What we design may end up representing an idea so strongly that the user will always associate a learned fact with the visual that we used. "One role that visuals definitely play is to provide a concrete referent for ideas. Words don't look or sound like the thing they stand for, but visuals are iconic – that is, they have some resemblance to the thing they represent."(Heinich, et al 1996)

The most crucial role that "message design" plays in the educational process is to provide what is called a redundant channel. This means that when a visual is accompanied by audio and/or written text, the learner is provided with more than one chance to comprehend the content. It is accepted that people have different learning styles so if we design the presentation utilizing elements of visuals, text and audio we will increase the effectiveness of the program.

As teachers, we learned that it was our responsibility to understand how students learn and to appeal to those learning styles. One method of carrying out that responsibility is by developing visual aids that appeal to the learners "visual literacy" or their ability to interpret visual messages accurately. Cognitive psychologists teach us that learners process new information by

encoding it or transforming it into a format that can be stored in their memory. Our responsibility is to help them to do just that. As developers of web-based learning programs we are at an advantage because we can employ the "multimedia effect".(Allessi & Trollip, 2001) This effect manifests itself when we include text, graphics, photographs, animations and audio and design the presentation so that all of the elements complement each other. This enables the learner to perform the act of dual coding. The best example of this is when we build the presentation with narration and we fade in and fade out photographs and bulleted text that corresponds exactly to the narration. Without proper design some developers use photographs and bulleted text that contradict the narration. Well-designed combinations complement one another and facilitate learning while others contradict and impede knowledge transfer.

The theories that have been discussed here, encoding, dual encoding, and visual literacy as well as the learning styles of individual learners need to be the guidelines of the design effort. With that in mind what should the web-learning screens look like? Can we establish a standard or template that will take advantage of this important information? I think so.

Teachers, instructional designers, managers and anyone else who has to create instructional presentations can make a series of design decisions that will ensure that they get the best results. Heinrich, et al groups these decisions into three categories. The first deals with selecting and assembling the verbal/visual elements to be used. The second deals with choosing underlying patterns and the last deals with how to arrange the elements on the screen.

When addressing choices for specific elements for screen design, the designer can make selections from several different options. The choice is made based on the learning objectives of the presentation and how the choice can influence the objective. The first option is realism. With this choice the designer would use photographs that show the actual object. This would heighten the degree of realism and is best used when the topic is relatively unknown to the learner. As an example, a training lesson on the removal and replacement of a motherboard of a personal computer may best be taught utilizing photographs to demonstrate the step-by-step procedure. Bulleted text can be added to one side of the screen as the narration mentions each step.

The next option is one that uses analogies. An analogy is used when the use of the actual object is unlikely. An example of this style would be teaching the digital communication between the personal computer's CPU and the input/output components of the computer. A schematic drawing of the computer could be used with each component represented by an iconic drawing and connected by "wires" that carry "digital" (1100)ones and zeroes to show the communication.

The last option is one that helps with the organization of the screen. Using charts, diagrams, or drawings that show relationships between the main points or concepts of the learning objectives.

This paper only discussed a few design issues and there are many more to consider. Design issues need to be addressed based on the need to put the learner at the center of the instruction. Other learner-centered issues include

the design of the navigation, the usability, metaphors, color schemes and proper selection of fonts.

References

Alessi, S., Trollop, S. (2001) Multimedia for Learning.(3rd ed.) Boston, MA: Allyn & Bacon

Hall, B., (1997) Web-Based Training Cookbook. New York, NY: John Wiley & Sons

Heinich, R., Molenda, M., Russell, J., Smaldino, S., (1996) Instructional Media and Technologies for Learning. Englewood, CA: Prentice-Hall

Reisman, S. (1996) Multimedia Computing. Harrisburg, PA: Idea Group Publishing