Chapter 10
Effectively Integrating Graphics into E-Learning

ABSTRACT

Pedagogical theories and practices inform the effective integration of digital graphics in e-learning. This chapter examines how digital images may enhance e-learning at critical junctures, based on the learning context, learning objectives and learner needs. This also offers some insights on the procurement and/or creation of existing digital imagery to fit the learning context. This offers strategies for updating e-learning graphics for continuing applicability to a learning situation. Diana Marrs addresses how to maximize digital content quality in live interactive television and video conference courses, in a sidebar.

CHAPTER OBJECTIVES

• Suggest some ways to integrate digital imagery with the electronic learning
• Differentiate between loose and tight coupling of images in an e-learning situation
• Explore the learning roles of visuals in e-learning
• Show how digital imagery may enhance learning at critical junctures
• Offer a method to effectively integrate digital visuals into an e-learning context and learning path
• Introduce some applied theories and practices to the integration of digital imagery in e-learning
• Show the importance of consistent aesthetics in the use of digital imagery
• Demonstrate the importance of efficacy testing of digital imagery with live users
• Discuss ways to maximize digital content quality on live ITV and video conference courses

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• Recommend how to update imagery effectively
• Explore how digital imagery needs to be archived effectively for later reference

INTRODUCTION

Digital imagery may be inherited from a number of sources. They may be open-source, royalty-free works or those in the public domain, hosted off of websites or repositories. These may be images released for various uses through Creative Commons™ or other types of releases. They may be imagery that have been integrated into reusable learning objects (RLOs) that have been created using various instructional models. They may be images that may be created live from websites that offer access to satellite imagery or visual captures.

Effectively integrating digital graphics and imageries into a learning trajectory depends on the learning context, the learning objectives, the learners (and their needs) and the domain knowledge. Whether the imagery is used in a training experience, a simulation, a short course or a long course, it is important to consider how digital imagery adds value pedagogically. Digital imagery costs money, time and effort to create, find, purchase, and integrate. Having a strategic approach in deciding how to use digital imagery will be critical for effective e-learning.

Imagery may be freestanding or integrated with other contents for learning. Loose integration or loose coupling means that the visuals are not innately connected with other images. These may be “loose” digital slides, slideshows, diagrams, a screenshot, or a video still. These may be experienced in a range of different orders and with or without any organizational structure.

Tight integration or tight coupling means that the visuals link inextricably with other contents, as in an immersive space or simulation, a video, or a visualization. Ontologies and taxonomies of images involve defined inter-relationships between them.

Figure 1, “Imagery Types and Integration Methods,” illustrates this concept. Discrete visuals are more flexible in versioning for different uses. The atomistic sizes of these images make them more interchangeable and able-to-be-integrated into multimedia builds. The smaller the granularity, the fewer dependencies (on context, on technologies) there are, the better. Discrete visuals may be used at a point-of-need or juncture in the learning. Tightly coupled visuals may have less applicability for a variety of learning applications but are more pre-packaged for particular learning purposes. These images would be contents related to reusable learning objects, for example, or imagery integrated with compressed video sequences. Some visual resources may be used only for reference, for additional learning or enrichment.

Figure 2, titled “The Integration of Digital Imagery in E-Learning: Loose to Tight Coupling Continuum,” gives a range of digital imageries as they fit on this continuum. It is important to view the imagery as its own form before analyzing how it connects to the larger gestalt for contextual learning.

As noted in the diagram above, digital visuals may be use anywhere along the Virtuality Continuum by Milgram and Kishino—from the real environment to augmented reality to augmented virtuality to fully virtual environments (Milgram & Kishino, 1994, as cited in Christian, 2006).

Digital imagery used in an e-learning training or course may be in various states of completeness. They may be non-existent but only textually defined (or defined as a set of directions), partially created, or complete (either static or evolving). Some imagery for assignments may not even be pre-defined; they may be a requirement for a learner assignment that hasn’t yet been designed or engineered. In other
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