Chapter I

Designing Web-Based Training Courses to Maximize Learning

Traci Sitzmann, Advanced Distributed Learning Co-Laboratory, USA

Katherine Ely, George Mason University, USA

Robert Wisher, U.S. Department of Defense, USA

Abstract

This chapter presents results from a meta-analysis that compares the effectiveness of Web-based instruction (WBI) to classroom instruction (CI). The results suggest that when the same instructional methods are used, WBI and CI are equally effective for teaching declarative knowledge. However, the instructional methods and course design features incorporated in WBI are critical factors in determining trainees’ knowledge acquisition. Specifically, the chapter examines the influence of lecture, human interaction, and learner control on the effectiveness of WBI. Based on the findings, the authors provide...
the following recommendations for increasing learning in WBI: (1) require trainees to be active, (2) incorporate a variety of instructional methods, (3) offer computer and Internet skills courses, (4) provide trainees with access to lecture notes, (5) incorporate synchronous human interaction, and (6) provide trainees with learner control.

Introduction

Web-based instruction (WBI) is becoming an increasingly popular delivery medium for training and education. Recent surveys report that 37% of companies used technology-delivered instruction in 2005 (Rivera & Paradise, 2006) and 63% of traditional undergraduate institutions offered undergraduate courses online in 2004 (Allen & Seaman, 2005). The Washington Post reported that in 2007, 1.78 million college and university students were enrolled in online courses (Mendenhall, 2007). When properly employed, WBI can reduce training costs while simultaneously increasing training accessibility and strengthening human capital for organizations (Welsh, Wanberg, Brown, & Simmering, 2003). Due to the potential benefits and increasing prevalence of WBI, it is important to understand how instructors and course developers can design Web-based training programs that optimize learning outcomes.

The overarching goal of the current chapter is to examine the influence of instructional methods on the relative effectiveness of WBI and classroom instruction (CI). Specifically, this chapter will address three important issues relevant to the effectiveness of WBI. First, we will examine if any observed differences between WBI and CI are driven by the delivery media (i.e., WBI vs. CI) or the instructional methods (e.g., lecture, tutorials). Second, we will investigate whether the incorporation of lecture, human interaction, and learner control during WBI influence the extent to which trainees learn during training. Third, we will synthesize our findings and present practical implications for designing Web-based training courses that research suggests will maximize learning. Specific examples of training courses that follow the recommendations from the study results will be provided to help instructors visualize how training courses can incorporate the current guidelines.

A few key terms are necessary to understand the study results and their implications. WBI refers to courses where all of the training materials are delivered via the Internet, whereas CI refers to courses where the training materials