Chapter 5.25
Online Behavior Modeling:
An Effective and Affordable Software Training Method

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ABSTRACT

Organizations need effective and affordable software training. In face-to-face settings, behavior modeling (BM) is an effective, but expensive, training method. Can BM be employed effectively, and more affordably, for software training in the online environment? An experiment was conducted to compare the effectiveness of online BM with that of face-to-face (F2F) BM for software training. Results indicate that online BM and F2F BM provide essentially the same outcomes in terms of knowledge near transfer, immediate knowledge far transfer, delayed knowledge far transfer, perceived ease of use, perceived usefulness and satisfaction. Observed differences were not significant, nor were their patterns consistent, despite sufficient power in the experimental design to detect meaningful differences. These results suggest that organizations should consider online BM as a primary method of software training.

INTRODUCTION

Investment in software training can improve productivity, boost employee morale (Bell, 2004) and reduce employee turnover rate (Heller, 2003). End users who have not received proper software training often feel insecure about their jobs, and this insecurity can contribute to turnover costs and productivity losses (Aytes & Connolly, 2004). The departure of a newly hired IT employee within 180 days of hiring can cost a company as much

as $100,000 (Brown, 2000). The departure of employees who leave their companies due to a lack of proper training can have a variety of negative consequences (McEvoy & Cascio, 1987).

In contrast, properly trained end users often feel confident and secure, with positive implications for productivity. Increases in individual performance can add up to substantial improvements for businesses. The American Society for Training and Development (ASTD) conducted a study of 575 United States (U.S.)-based, publicly traded firms between 1996 and 1998 to examine the relationship between organizational training investments and total shareholder return. This study found an 86% higher return on such investments for the top half of firms (in terms of training investment) than for the bottom half of firms (Bassi, Ludwig, McMurrer, & Van Buren, 2000).

Software training requires a significant financial outlay. The most effective software training at present involves F2F behavior modeling, but such training is expensive to deliver. One possible way to reduce delivery costs is by offering similar software training, but through less expensive online delivery.

Allen and Seaman (2003) forecast that online learning would grow at a rate approaching 20% per year. The world corporate online learning market has been predicted to grow to nearly $24 billion by 2006 from $6.6 billion in 2002, an annual increase of 35.6% (International Data Corporation, 2002). The continuous growth of the online training market has prompted discussion about the effectiveness of Web-based virtual learning environments (Piccoli, Ahmad, & Ives, 2001).

While it is commonly agreed that online software training is less expensive and more flexible, it may also be less effective. Online software training continues to be of great interest to organizations, but significant challenges remain in implementing online solutions. These challenges include: (1) the cost of acquiring online learning systems, (2) the time for developing online learning materials, and (3) the need to be convinced of online learning's effectiveness compared to other training models (Bloom, 2004).

Three general training methods have been compared experimentally in F2F settings: instruction based, exploration based and behavior modeling. Instruction-based training occurs when trainers tell trainees about software, but do not model the use of it. Exploration-based training teaches trainees through practice by trainees on relevant examples, also without trainer modeling of software use. BM training teaches trainees via demonstrations, in which trainers model the use of software for trainees. Evidence exists that BM is the most effective method for F2F software training (Compeau & Higgins, 1995; Simon, Grover, Teng, & Whitcomb, 1996).

This research compares experimentally the relative effectiveness of F2F BM and online behavior modeling. Since prior research has indicated that the BM method dominates the instruction-based and exploration-based methods in F2F settings, this study does not include the latter two methods. Online asynchronous methods of software training, because they allow more favorable ratios of trainers to trainees and do not require training participants to meet, have the potential to achieve significant cost savings over F2F approaches. On the other hand, given that live trainers are not present in online asynchronous software training, there can be no direct interaction between trainers and trainees. This difference in direct interaction could mean that F2F training might be more effective than online training. Knowledge about the relative effectiveness of these methods will be valuable to people who must make decisions about how to provide software training.