Chapter VII

The Role of Training in Preparing End Users to Learn Related Software Packages

Conrad Shayo
California State University, USA

Lorne Olfman
Claremont Graduate University, USA

The aim of this chapter is to determine what types of formal training methods can provide appropriate “mapping via training” of a new but related software application (in this case, a database management system [DBMS]), given that “mapping via analogy” is also taking place. To this end, trainees’ existing mental models were measured, and then the trainees were exposed to one of the three training methods. Training methods were varied in an experimental setting across two dimensions: the training task context (generic versus relevant), and the number of DBMSs demonstrated (one versus two). Outcomes were measured in terms of learning performance and perceptions of ability to transfer skills to a new but related DBMS. The results indicate that both task context and the number of software packages learned are important training variables that influence trainees’ mental models of the software, their transfer self-efficacy expectations, and their perceptions about the usefulness of the training.

INTRODUCTION

Organizations always acquire new or related versions of end-user software packages, but little is known about how existing mental models (knowledge) acquired through previous training prepare them to learn a related package. For example, an organization that previously used a DOS-based database management system (DBMS) package like dBase IV might switch to a Windows 95 environment using Microsoft Access. The two DBMSs perform similar functions, but the interface and specific features are different. To what extent can previous knowledge or mental models of the dBase IV software package help or hinder users to learn the Microsoft Access software package? Moreover, what kinds of training methods can best build these mental models? Answers to these questions will help organizations determine their long-term software training strategy.

An end-user’s mental model of a software package is defined as the existing structure of knowledge (declarative and procedural) which is activated into working memory at any one time when the end user thinks about using or learning a target package to accomplish some task (cf. Rumelhart, 1980; Wilson and Rutherford, 1989). It is a mental representation of existing knowledge about the software package. Mental models are acquired and reinforced through a set of processes called “mapping.” Mapping is accomplished by formal training, usage, or calling upon other mental models. This later process, that is, “calling upon other mental models,” is termed “mapping via analogy” (Sein et al., 1987, 1993). For example, computer directory structures can be thought to be analogous to filing cabinets, or word processing is analogous to typing.

The aim of this paper is to determine what types of formal training methods can provide appropriate “mapping via training” of a new but related database management system given that “mapping via analogy” is also taking place. To this end, trainees’ existing mental models were measured, and then the trainees were exposed to one of three training methods. Training methods were varied in an experimental setting across two dimensions: the training task context (generic versus relevant), and the number of DBMSs demonstrated (one versus two). Outcomes were measured in terms of learning performance and perceptions of ability to transfer skills to a new but related DBMS.

The next section outlines the background to the study, relevant previous literature, and research hypotheses. This is followed by a description of the research methods, a presentation of results, and a discussion and conclusion of the value of these results.
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