Chapter 6.4

Managing Case-Based Learning with Interactive Case Study Libraries

Hao Jiang
Pennsylvania State University, USA

John M. Carroll
Pennsylvania State University, USA

Craig Ganoe
Pennsylvania State University, USA

ABSTRACT

This chapter discusses a particular pedagogical methodology, case-based learning, and introduces an application that supports case studies. It suggests that authenticity, social interaction, community of practice, and resource accumulation are especially important for design and implementation of case-based learning systems. To make the arguments more vivid, the chapter also introduces a case study library that supports usability engineering education. Some of the suggestions are more related to case libraries or systems alike in particular, and some are valuable for learning management systems in general. The authors hope their study can invoke further research of computer-supported case studies in educational and CSCL communities, and more applications supporting this pedagogical approach will be developed.

INTRODUCTION

In a broad sense, distance education is an environment where teaching/learning activities happen when students and teachers are not locally engaged such as in the traditional classroom (Galusha, 1997). Advanced information technologies are an increasingly important component of this educational model. Traditional mass media such as TV has been used to deliver course contents and lectures to learners sitting in front of their television. In this context, Computer-Supported Collaborative Learning (CSCL) is another im-

portant an promising area (Stahl, Koschmann & Suthers, 2006).

Taking advantage of information technology, a series of applications have emerged in the educational domain, addressing various needs and visions. For example, large scale systems such as learning management systems have been used at universities in the United States. With these systems, users (instructors and students) can share learning materials and have various interactions, such as chat, email and synchronous collaboration like BRIDGE (Ganoe, Somervell, Neale, Isenhour, Carroll, Rosson & McCrickard, 2003). There are also applications that have specific focuses. For example, Baker, Quignard, Lund and Séjourné (2003) described the tool they developed to help students mastering argument skills.

Since learning is constituted by many different activities, what should be managed in learning is also multifaceted. Online teaching can take many different forms, and a learning management system can: provide a single user with content management functions (e.g., storing and retrieving); provide simulation of learning subject matter where learners can practice with a simulated object; or build an environment that supports various learning activities and keeps history and context of these activities. However, in this chapter, we will lean toward a collaborative, interactive aspect of an online education tool. Our assumption is that learning outcomes will be improved in an environment that engages learners and teachers in interaction and collaboration.

In this chapter, we will pay special attention to a specific area in teaching and learning, *case studies*, and contribute to this field by elaborating on a type of computer-supported case study applications, case study libraries. Case studies have been employed traditionally as a major and effective pedagogical approach in both formal and informal education. Exploiting contemporary information technology infrastructures, cases have increasingly been put online. We advocate creating interactive case study libraries (Carroll, Ganoe & Jiang 2008) to support learning and education.

This chapter will be organized as following. In the background section, we will briefly discuss the use of case studies in broad educational domains and highlight the pervasiveness as well as importance of case studies, and then we will present challenges and limits of current web-based case collections. Those challenges and limits are, for example, the lack of supporting interactions between users and systems, as well as interaction between users through systems. The resources for case materials are also limited by the nature of case accumulation and the limited means of authoring in current web-based case collections.

To tackle problems faced by computer-supported case studies, we will first analyze this type of activity to identify what is essential to case-based learning/education, and then we will elaborate four key aspects of case studies in the section that follows. In short, we have found that *authenticity, social interaction, communities of practice and resource accumulation and updating* are critical for case studies to succeed. Thus, we take a broader view on the managerial part of learning management system, in which we believe that a system should assist learners and teachers to manage their learning material; and more than that, it should allow users to practice learning activities and wider social interactions.

After analyzing activities in case studies, we will turn our focus to designing technology affordance for those activities and examine how they meet the four requirements enumerated above. To illustrate our analysis, we will describe an interactive case library we are developing, which was designed to support usability engineering education. At the end of this chapter, we return to these four requirements with a more synthetic view and discuss possible directions for future research.

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