Chapter 17
Evaluating Knowledge Sharing Factors based on Web-Based Learning: An Activity Theory Approach

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ABSTRACT
In today’s competitive global economy characterized by knowledge economics, the concept of knowledge management is becoming increasingly prevalent in academic practices. Web-based technology facilitates knowledge management practices by allowing the dissemination of knowledge and making codified knowledge retrievable. Knowledge sharing is the behavior of disseminating one’s acquired knowledge with other learners in a learning environment. Based on activity theory, the authors attempt to investigate the predictors of knowledge sharing in the Web-Based Learning (WBL) environment.

The purpose of this evaluation is not only to help instructors to know if online learners are experiencing difficulties, but also to assist with individual needs. Results prove that learners’ self-efficacy and learner autonomy were two predictors that affected learners in constructing knowledge by using WBL. Moreover, WBL was an important factor affecting learners’ knowledge sharing.

DOI: 10.4018/978-1-4666-0137-6.ch017
INTRODUCTION

Practitioners of knowledge management have a common interest in knowledge construction and knowledge sharing. The knowledge in Web-based systems can be simultaneously represented in any combination of media formats into a Web-based learning environment, such as Wikipedia. In the Web, information and resources from around the world can be accessed by anyone from anywhere in the world as long as a learner has a computer with an Internet connection. Thus, WBL environments enable knowledge educators to capture and represent all types of knowledge, and then make it available to online learners. That is, learners can find the information and knowledge quickly and effectively. Thus, knowledge management is supported by technologies that encourage the obtainment, application and dissemination of knowledge (McInerney, 2002).

Online interactive technologies supporting virtual communities of practice is the most important strategy for knowledge management. Knowledge sharing has been a motivation for participation in interactive communities (Wasko & Faraj, 2005). The activity theory perspective (Hasan & Gould, 2001) provides us with a foundation to develop the evaluation criteria for knowledge sharing. The theory provides a framework to view the activities of knowledge construction and sharing from the perspective of learners participating in a WBL environment (Kim, Chaudhury, & Rao, 2002). Activity theory has an object-oriented activity system as its basic unit of analysis. The unit of analysis allows educators to observe the actual learning processes in the context of the activity systems. The activity systems integrate the subject, object, tools, rules, division of labor and the dynamic nature of learning activities (Lim & Chai, 2004). Because of these, activity theory can be used as a philosophical framework to develop Web Based Learning dealing with the individual and social aspects of the learning (Janssen & Rohrer-Murphy, 1999).

The paper attempts to explore the effective variables for learners’ knowledge sharing in the Web-based learning interactive environment. There were two main procedures conducted in this study. The first procedure, based on activity theory, was the development of an attitude scale that measures learner’s perceptions of knowledge sharing. The second procedure was an examination of the possible relationships among knowledge sharing and tools, rules, division of labor units of analysis analysis. Therefore, this study mainly employed a correlation research design and conducted descriptive, correlative and multiple regression statistics.

REVIEW OF RELATED LITERATURE

Activity Theory

Activity theory claims activity and consciousness are the central mechanisms of learning because conscious learning and activity are interactive and interdependent (Jonassen, 2002). Activity theory is a form of sociocultural analysis that focuses on the activity system as the unit of analysis, rather than the learner. An activity system is any system of ongoing, object-directed, historically-conditioned, dialectically-structured, and tool-mediated human interactions (Russell, 1997). Activity systems contain interacting components and are organized to accomplish the activities of the activity subsystems (Engeström, 1999; Jonassen, 2002). Interacting components include subject, tools, object, division of labor, community, and rules. Figure 1 presents the activity system.

In an activity theory system, the subject means the individual or group of members engaged in the activity. Objects in activity theory are artifacts produced by the system. Tools are what the subject uses for acting on the object. Rules, which operate in any context or community, refers to the explicit regulations, policies, and conventions that constrain activity, as well as the implicit social norms, standards, and relationships among mem-