Chapter 3.2
Knowledge Management as a Reference Theory for E–Learning:
A Conceptual and Technological Perspective

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ABSTRACT

E-learning as a scientific field is in an era of transition. In the last decade, several scientific fields worked as reference disciplines for the promotion of the value delivery that new technologies offered to learning. In this paper, we will emphasize the role of knowledge management as a reference theory for e-learning.

INTRODUCTION

E-learning provides an extremely challenging research context. The facilitation of learning through technology requires a multifold consideration of issues that fall into the categories of cognition, behavior, beliefs, attitudes, and social constructions such as networks, communities, group formations, recommendations, and utilization of human capital.

Knowledge management, on the other hand, poses a critical question to researchers: How do we justify abstractions that provide a systematic way for the management of knowledge? Extremely interesting literature covers a wide range of issues that relate to knowledge management processes

and knowledge category models, as well as to knowledge networks and communities. From another point of view, the discussion of knowledge management strategies is based on a five-layer approach: Artifact, Individual, Group, Organization, and Interorganizational Network are recognized as critical locations where knowledge can be identified and utilized.

This chapter summarizes the importance of knowledge management for e-learning. In the past, researchers have tried to investigate the role of knowledge management for e-learning. The convergence of these approaches is visualized in Figure 1.

In Figure 1, knowledge management is presented as a critical diode, where a plethora of knowledge objects have to be managed and adopted in order to fulfill the requirements for learning utilization. The issue of learning utilization is not a linear function nor even guided from a well-defined cause-and-effect formula, where learning outcome is directly related to independent variables. Knowledge management can be utilized in many different ways in the context of e-learning. A first point of argument is the direct linkage of knowledge to learning content and, thus, the need to justify the ways that diverse knowledge objects are used in an e-learning system in order to provide learning material. The downsizing of knowledge in reusable parts, the annotation of

relevant knowledge objects, and the establishment of effective management mechanisms require the promotion of standards as well as the specification of a clear learning strategy. These issues are critical milestones for knowledge management and e-learning convergence.

In this article, two general pillars from the knowledge management literature are discussed further:

- The *knowledge artifact* approach, where knowledge management's main emphasis is on the epistemology of knowledge and the specification of relevant types of knowledge. As depicted in Figure 2, there is a direct linkage of knowledge types to learning content types. The debate on tacit and explicit knowledge provides an epistemological background for the analysis of their implications in an e-learning environment: In the past years, the e-learning community seems to have been dominated by the learning objects research stream, where the relevant research agenda includes semantic annotation, embodiment of instructional design, and guidance on the transformation of learning content to the learning object metaphor.
- The *knowledge process* approach, where several value-adding processes summarize

Figure 1. Investigating knowledge management role in e-learning
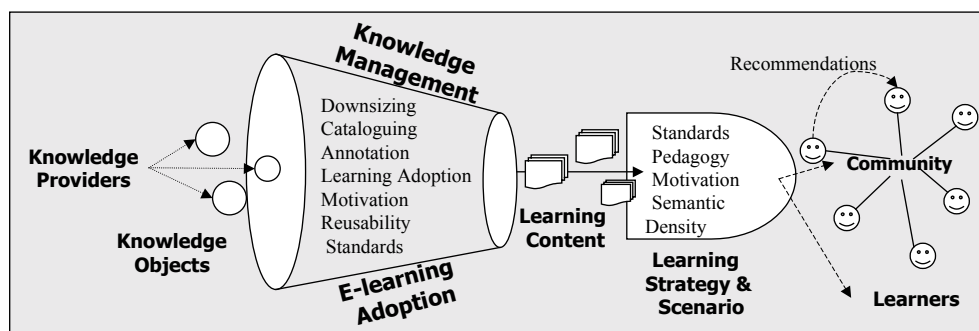
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