E–Learning for Knowledge Dissemination

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INTRODUCTION

What is E-Learning?

Today, most organizations need to extend lifelong learning opportunities to their employees in order to be successful in an increasingly competitive global marketplace. Organizations are turning to technological solutions to enable online in-house training and learning for their employees. An integrated approach to e-learning is important because it can be effectively used to analyze employee performance and also to gather information for continuous online and real-time learning of organizational goals to better tailor the educational product and its content. Online learning is made possible by advancements in network infrastructure and the development of voice and multimedia protocols for the seamless transport of information. E-learning involves encouraging the employee to spend time electronically to bring about learning, and to collect information and analyze it with respect to organizational needs, learning processes, and user preferences (Alavi & Leidner, 1999). E-learning ranges from simple computer use in a classroom where instructional materials are stored on a local-area network, to the use of simulation systems used to support teaching activities, or to distance education using broadband-enabled multimedia and shared electronic work spaces. E-learning styles include learner-centric, instructor-centric, and directed environments. E-learning communication modes include synchronous vs. asynchronous modes (time of interaction), and one-to-one, one-to-many, and many-to-many interaction modes. Presentation styles include voice only, voice and video, text only, text and animation, and voice, video, and text. Pedagogical approaches include objectivist, constructivist, and collaborative approaches and situated learning. Also, it is known that learning within organizations is affected by task complexity and the organizational environment (Argyris & Schon, 1996; Bhatt, 2002; Spender, 1996).

This article is organized as follows. We discuss why e-learning is important in creating a knowledge dissemination (KD) system, and why KD systems need a structured e-learning approach. We discuss the role of knowledge officers, practitioners, facilitators and mentors, and employees in enabling knowledge dissemination in such a system. Next we summarize the employee-centric and organizational metrics for evaluating e-learning systems. The main focus of the article is on studying critical factors that affect e-learning not only in the context of organizational requirements, but also in light of technological capability, pedagogical approaches, preferred learning styles, communication modes, and interaction styles across knowledge types. This article proposes an integrated e-learning system-design framework for knowledge dissemination across knowledge types. We discuss future trends in employing e-learning for KD and present conclusions.

BACKGROUND

Why is E-Learning Important in Creating a Knowledge-Dissemination System?

The developer of an e-learning system faces several challenges in designing systems for an online learning environment that ensures strong, effective, and secure learner interaction that best replaces the face-to-face interaction taking place on-site in the workplace and in training sessions (Alavi & Leidner, 1999). In addition to having a clear understanding of the knowledge-type requirements, the challenge is in supporting good pedagogy and learning practices given technical and other constraints. Technical constraints include bandwidth, quality of service (QoS), real-time interactions, support for multiple users, and security requirements. In parallel, instructional design that incorporates appropriate pedagogical techniques into a rich repertoire of learning resources is needed for creating a dynamic e-learning environment. These pedagogical techniques, if tailored to specific knowledge types, can improve productivity by sharing best practices within an organizational community (Agresti, 2003; Castro, Foster, Gunn, & Roberts, 2003; Spender, 1996). An enabling online knowledge-dissemination environment should allow for dynamic networked online interaction to create a non-competitive atmosphere that values both explicit and tacit knowledge dissemination, and the conversion of knowledge between these types to enable learning (Applen, 2002).

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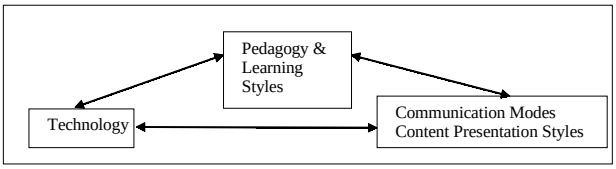
Figure 1. Knowledge-dissemination drivers

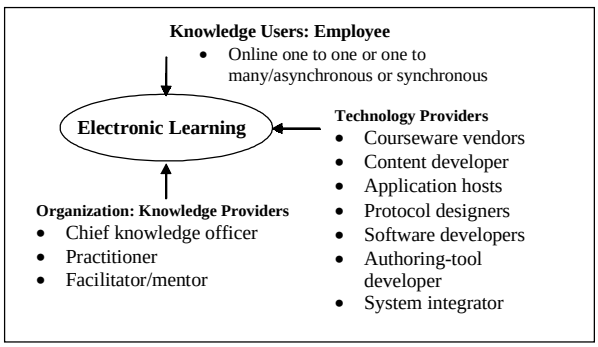


Why do KD Systems Need a Structured E-Learning Approach?

As shown in Figure 1, the rationale for adopting an e-learning technology for knowledge dissemination is influenced by the communication mode, content presentation style, and pedagogy and learning styles employed. However, the influence of organizational requirements and knowledge types on KD drivers (technology, communication modes, and pedagogy and learning styles) has not been studied.

As shown in Figure 2, the three stakeholders typically identified in an organizational e-learning framework are the employees or knowledge users, the knowledge providers in the organization (practitioners, mentors, and experts), and the provider of technology (IMS Global Learning Consortium, n.d). From the organizational perspective, an integrated knowledge-transformation framework for the structured diffusion of knowledge may consist of six processes for evaluating, acquiring, organizing, enabling, transferring, and using knowledge in organizations. In such an e-learning knowledge-management framework, knowledge providers acquire and organize knowledge from diverse sources, which is then suitably formatted and maintained in repositories and databases and is disseminated to users using formal knowledge-transfer mechanisms (Lytras, Pouloudi, & Poulymenakou, 2002).

Figure 2. Stakeholders in an organizational e-learning system



EMPLOYEE-CENTRIC AND ORGANIZATIONAL METRICS FOR EVALUATING AN E-LEARNING SYSTEM

This section discusses employee-centric and organizational metrics for evaluating an e-learning system. We identify metrics first from an employee-centric perspective used to evaluate employee expectations when interacting with a voice- or multimedia-enabled e-learning system. With these e-learning requirements for ensuring successful employee learning in mind, we propose a number of metrics that an organization may use to measure the effectiveness of the system in fostering learning.

The most important measure that an employee will use for repeat interaction with an e-learning system is the ease in using the system. From the employee viewpoint, the convenience of communicating with the system is critical and must be available all the time. The ease of using an e-learning system is a function of system design and is determined by several factors, such as its accessibility, its usability, its reliability, the help available online, having integrated touch points, support for many simultaneous users, the responsiveness of the system, and the appropriateness of system responses to queries (*The E-Learning E-Volution in Colleges and Universities*, 2001). In addition to e-learning objectives, such as tailoring learning modules to address how employees engage in learning (*IMS Learning Design Best Practice and Implementation Guide*, 2002), fostering effective e-learning strategies, and having a rich repertoire of learning resources and aids, instructional design must incorporate the latest techniques in pedagogical research that support learning at a pace that is comfortable to the employee.

The organizational metrics by which e-learning resources may be evaluated include (Janicki & Liegle, 2001; Schocken, 2001) (a) the curriculum content, (b) ease of use, (c) the flexibility of content presentation and management, (d) a continuous employee-assessment facility, (e) the ability to track employee performance through real-time feedback, (f) the ability to employ multimedia simulations, model building, and

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