

## Knowledge Management Perspective on E-learning Effectiveness

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### Abstract

The synergies, functional effectiveness and integration of KM within an E-Learning environment have attracted little interest for serious research, despite the overarching importance of knowledge acquisition by students for fostering their innovation and creativity. Learners often fail to reach their desired learning objects due to the failure of indexing methods to provide them with a ubiquitous learning grid. The aim of this paper is to discuss how knowledge management can be used effectively in e-learning, and how it can provide a learning grid to enable the learner to identify the right learning objects in an environment which is based on the learner's context and personal preferences.

**Keywords:** learning grid, knowledge management

## **Introduction**

The new era of e-learning services is mainly based on ubiquitous learning, mobile technologies, social networks (communities) and personalised knowledge management [2, 3]. “The convergence of e-learning and knowledge management fosters a constructive, open, dynamic, interconnected, distributed, adaptive, user friendly, socially concerned, and accessible wealth of knowledge” [8]. The knowledge management tools such as community [5], social software [7], peer-to-peer [4] and personalised knowledge management [1, 6] are now commonly being used in ubiquitous learning. Learners use these tools to generate and share ideas, explore their thinking, and acquire knowledge from other learners. Learners search and navigate the learning objects in this knowledge filled environment. However, due to the failure of indexing methods to provide the anticipated, ubiquitous learning grid for them, learners often fail to reach their desired learning objects. This paper will discuss the effectiveness of using these knowledge management tools for e-learning and will provide a learning grid to assist learners to identify the right learning objects in an environment based on the learner’s own context and personal preferences.

## **Knowledge Management to Improve E-learning Effectiveness**

From a knowledge management perspective, learners need to go through the processes of knowledge collaboration, exchange, sharing, acquisition, creation, distribution, dissemination, storage and personalization in order to acquire knowledge.

Knowledge management tools assist learners to learn in an ubiquitous learning environment. Collaboration and community tools, that have the functions/features of groupware, workflow systems, email communication, chat-rooms, workspaces, discussion rooms, forums and bulletin boards, help the learner to create knowledge through knowledge collaboration and sharing. Learners brainstorm and share ideas during social interactions, which results in knowledge transfer through knowledge externalization and internalization. A Community links those learners who share the same interests and cultivates in them the ability to learn through such interaction. Thus, learning is actually a highly social activity and the implementation of social interaction by electronic means helps learners to acquire and exchange knowledge through socialization.

Social Software has the following features: social network analysis, topic maps, WebLogs, really simple syndication (RSS), PodCasts, photo sharing, people networking, social bookmarking, virtual reality, gaming and co-editing. Learners distribute, disseminate, exchange and share the information in different multimedia formats such as voice, movie, and peer-to-peer, or to a group. By collecting together all the learner's shared information, a virtual, distributed, personalised knowledge repository is created. This is personalised as it is based on the learner's needs and expected learning outcomes. This repository speeds up the learners' learning processes and facilitates the achievement of learning outcomes.

Search engines and taxonomy tools provide the features for searching, information classification and indexing. Since there is a lot of learning content on the internet, it is time consuming for a learner to navigate and search to find the required knowledge.

Taxonomy tools assist the learner to classify and index the knowledge in a well organized structure, so that the learner can navigate or search for the required knowledge using a search engine. Thus, taxonomy tools and search engines support knowledge distribution and dissemination. The learner can search for the required knowledge effectively and efficiently which speeds up the learner's knowledge acquisition processes.

Peer-to-Peer knowledge management tools provide the features for searching, using a workspace, file sharing, content distribution and synchronous communication. Learners can collaborate, exchange, share, distribute and disseminate knowledge with each other. These tools simulate the real learning environment of peer interaction, communication, learning material sharing and group work, so that learners can learn from each other and motivate other learners to learn in this peer-to-peer e-learning environment.

Personal knowledge management tools provide features for searching, information classification and indexing, contact management, and knowledge mapping for individual knowledge workers. Based on learners' own preferences, learners can select, store, navigate and search the learning content from their personal repository, so that search time is reduced. Through various collaboration tools, learners can seek other domain experts, or related knowledge, to help them with problem solving. Thus, personal knowledge management tools also assist learners to store and personalize the knowledge as well as to acquire new knowledge through knowledge externalization, internationalization, combination and personalization.

## **Learning Grid for Identifying the Right Object in E-learning**

The learning grid shown in Table 1 assists learners to identify the right learning objects, based on learners' context and personal preferences, as discussed below.

## **Conclusions**

In conclusion, knowledge management cultivates a knowledge sharing and collaborative environment for learners to learn. It speeds up learner's learning processes through such interaction. By using the learning grid, learners can plan and select the appropriate learning objects, based on their own needs and preferences.

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**Table**

<b>Categories</b>	<b>Features of the knowledge management tool</b>	<b>Corresponding knowledge management processes for e-learning</b>
Collaboration and Community	Groupware, workflow systems, emails, chat-room, workspace, discussion room, forum and bullet board	Knowledge collaboration, sharing, and creation
Social Software	Social network analysis, topic map, WebLog, really simple syndication (RSS), PodCast, photo sharing, people networking, social bookmarking, virtual reality and gaming, and co-editing	Knowledge exchange, sharing, acquisition, creation, distribution, and dissemination
Search Engine and Taxonomy tools	Searching, information classification and indexing	Knowledge distribution, and dissemination
Personal Knowledge Management	Searching, information classification and indexing, contact management, and knowledge mapping	Knowledge acquisition, storage and personalization
Peer-to-Peer Knowledge Management	(Distributed) Searching, workspace, file sharing, content distribution and synchronous communication	Knowledge collaboration, exchange, sharing, distribution, and dissemination

Table 1 Learning grid for identification of learning objects

