

The Relationship between Knowledge Management and e-Learning

Jehad Al-Sadi, Bayan Abu-Shawar, and Taleb Sarie
Information Technology and Computing Dept.
Arab Open University, AMMAN, Jordan

Abstract- *Today's world of information technology has two of the most growing fields, Knowledge Management and e-Learning. This paper will explore the relationship between e-Learning and Knowledge Management in more details. We will present a discussion to achieve better understanding of this relationship, similarities and differences. Furthermore, we will investigate and underlining the necessity of filling the gap between e-learning and knowledge management, the importance of linking between e-learning and knowledge management including its reflections on the organization success, and the relationship between Knowledge management and e-learning components. Finally, a case study will be presented to link the discussed concepts with a practical and well known learning management system.*

Keywords: Knowledge Management, LMS, CMS, e-Learning

1. Introduction

Knowledge management is one of the main factors that have become extremely popular in recent years. It is a concept that has been paid a lot of attention, but in fact it has been existed for a very long time. Friedrich von Hayek observed decades ago that the organizations most important asset is its ability to process information [7]. Peter Drucker 40 years ago invented the term knowledge worker [5]. In the 1960s Kenneth Arrow; an American thinker; emphasized the importance of informal knowledge to organizations back [10]. There are many leading theorists who contributed to enrich this field such as Michael Polanyi [12], Chris Argyris [2], Peter Senge [15], and Ikujiro Nonaka [11].

Knowledge Management is not easy to define. It involves the acquisition, retention, storage, distribution and use of knowledge in the organization and therefore addresses the full range of processes by which an organization deploys knowledge [3].

The interchangeable use of information and knowledge can be confusing, if it is not made clear that knowledge is being used in a new and unusual sense. It also tends to obscure the fact that while it can be extremely easy and quick to transfer information from one place to another, it is often very difficult and slow to transfer knowledge from one person to another. In assessing attempts to define knowledge it can be helpful to remember that the human mind has often been seen as capable of two kinds of knowledge the rational and the intuitive.

Many factors have transformed the way in which organizations now view knowledge, but perhaps the greatest development has been focused on the dramatically extending reach of know-how and the growth of knowledge through the new information technology.

e-Learning has also its historical background in about 30 years of development in computer based learning and education. With the growth of the internet this kind of learning became much more accepted and the creation of multimedia contents and systems to manage learning activities which went on faster. Additional e-learning is based on a long tradition of teaching and learning experience.

Information technology, education, and learning influenced the new term e-learning. e-Learning became a subset of all these areas. Nowadays, e-learning refers to learning that is delivered or accessed via electronic technology. It encompasses learning accessed via a range of technologies such as the internet, WAP, SMS, IP-telephony, multimedia, teleconferencing, videoconferencing, and computer-based learning platforms. In principle, e-learning is a kind of distance learning. Learning materials can be accessed from the web or intranet via a computer, tutors and learners can communicate with each other using e-mail, chat and discussion forums.

Therefore, e-learning can be used as the main method of delivery of learning or as a combined approach with classroom-based learning. It can be valuable when used as a part of well-planned and properly supported education and learning environment, but e-learning is not a magic principle that replaces existing pedagogical theories and approaches. Nevertheless, it has almost everything that those theories need to get implemented [13].

2. Differences and Similarities

It is important to outline the differences between e-learning systems and knowledge management systems because they are intended to be very different approaches to different topics. The most important difference is that e-learning systems and knowledge management systems are focused on two totally different goals.

- e-learning systems try to support learners in expanding their knowledge by providing structured learning content and intercommunication facilities to specific topics while knowledge management systems provide knowledge by using content management systems (CMS) with search and sort facilities and in addition some kind of collaboration with experts and other users on various topics.
- e-Learning systems provide information for enterprise and human resources systems by gathering information about each learner using progress information in combination with tests and examinations. This can be used for skills management and a sort of career planning which is a component of the knowledge management system

On the other hand, there are a lot of similarities of the two concepts, e-learning and knowledge management systems provide knowledge in different forms to the users. This content can be reused, annotated, modified according to what is needed for different approaches. The system architecture is almost the same for both concepts. It is a client-server-architecture with high complexity in the server-part whereas the clients are having less complexity.

For both systems it is very important to provide communication and cooperation facilities. These vary from e-mail, chat rooms, forums, to other forms of cooperation. Also personalization plays an important role for both approaches. Relevant systems for both

concepts support some kind of personalization either role-based or personal oriented.

To design content that can be used for both systems is one of the most important goals to get a better conjunction between those concepts. e-Learning content should not be just content designed to teach people but provide information in a sorted and structured context. This is exactly what knowledge management systems main target. Content of the knowledge management system can be seen as a kind of repository for content used in the e-learning approach.

3. Integrating Knowledge Management and e-Learning

In the modern business environment, integrating knowledge management and e-learning has become the main determined tool of many organizations. Given that organizations survival depends on their ability to innovate, organization needs to have knowledge to learn, adjust and make changes [1]. Several authors in the knowledge management field (e.g. Allee [1], Edvinsson & Malone [6]) stress the importance of making knowledge a strategic issue in the organization in order to stay competitive in the market. Today, every business is a knowledge business and almost every employee is a knowledge employee, that is why integrating knowledge management and e-learning have come into focus and key element for investigation in various disciplines.

Technology is giving us the ability to access knowledge and learning any place and any where. Technology is changing the barriers to acquisition [4].

Integrated systems could support knowledge gathering using the knowledge management component of the system which could be provided as course for the e-learning system. Statistical evaluations show that one specific topic could have many knowledge management users who are interested in and need more information about it. Therefore, sharing of learner information and integration of enterprise systems could be relevant to both components. The e-learning system gathers the information needed to manage a kind of workflow as part of the knowledge management system to build the base for career-planning. Such a workflow could also be used to implement a sort of learning paths in e-learning systems.

Looking at the above mentioned similarities and intersections, essential and obligatory features of integrated systems can be seen. Supporting of standards describing and managing the different modules and features of such systems seem to be the best solution to build cooperating e-learning and knowledge management systems that are able to satisfy the market need for integrated e-learning and knowledge management systems.

3.1 Knowledge management system disciplines:

Knowledge management is a cross-disciplinary domain and draws from a wide range of disciplines and technologies including [9].

- Cognitive Science: insights from how we learn and know will certainly improve tools and techniques for gathering and transferring knowledge.
- Artificial Intelligence: AI and related technologies (expert systems, artificial intelligence and knowledge based management systems have acquired an undeserved reputation of having failed to meet their own and the marketplaces high expectations. In fact, these technologies continue to be applied widely, and the lessons practitioners have learned are directly applicable to knowledge management.
- Groupware: this means computer-supported collaborative work. In Europe, knowledge management is almost synonymous with groupware. Sharing and collaboration are clearly vital to organizational knowledge management with or without supporting technology.
- Library and Information Science: we take it for granted that card catalogs in libraries will help us find the right book when we need it. The body of research and practice in classification and knowledge organization that makes libraries work will be even more vital as we are inundated by information in business. Tools for thesaurus construction and controlled vocabularies are already helping us to manage knowledge.
- Technical Writing: Also under-appreciated as a professional activity, technical writing forms a body of theory and practice that is directly relevant to effective representation and transfer of knowledge.
- Document Management: originally concerned primarily with managing the accessibility of images, document management has moved on to

making content accessible and reusable at the component level. Early recognition of the need to associate meta-information with each document object prefigures document management technologies growing role in knowledge management activities.

- Semantic Networks: are formed from ideas and typed relationships among them a sort of hypertext without the content, but with far more systematic structure according to meaning. Some additional information can be found at [8]. Often applied in such arcane tasks as textual analysis, semantic nets are now in use in mainstream professional applications, including medicine, to represent domain knowledge in an explicit way that can be shared.
- Relational and Object-Oriented Databases: although relational databases are currently used primarily as tools for managing structured data and object-oriented databases are considered more appropriate for unstructured content, we have only begun to apply the models on which they are founded to represent and manage knowledge resources.
- Simulation: knowledge management expert Karl-Erik Sveiby suggests simulation as a component technology of knowledge management, referring to computer simulations, manual simulations as well as role plays and micro arenas for testing out skills. [16]
- Management of Information: researchers and practitioners in this field have their education in computer and/or information science. They are involved in construction of information management systems, artificial intelligence, reengineering, group ware etc. To them, knowledge is identical to objects that can be identified and handled in information systems [16]
- Management of People: researchers and practitioners in this field have their education in philosophy, psychology, sociology or business/management. They are primarily involved in assessing, changing, and improving human individual skills and/or behavior. To them, knowledge is identical to processes, a complex set of dynamic skills, know-how etc, that is constantly changing. Level: Individual Perspective. The focus in research and practice is on the individual [16].

3.2 e-Learning disciplines

Many learning and technology professionals believe that e-learning will have become state of the art when we will stop referring to it by a separate name and begin considering it as an integral part of a complete learning environment.

One great benefit is the flexibility of e-learning because it is easy to implement the following really necessary disciplines of learning [13].

- e-Learning brings proven benefits to your business, providing learning with savings in both time and cost.
- Encouraging staff to take responsibility for their own learning will also benefit your business because flexible learning in the means of organizing and delivering the learning activities to suit their own circumstances means that staff is more motivated to learn.
- With e-learning there are options for learning at any place, any time, any space, and also any style:
 - Place: at home or at work, away from their usual workplace.
 - Time: at exactly the right time when needed for a particular activity before, during or after work.
 - Space: learner can spend longer on a topic with no peer or tutor pressure and also can progress more quickly, if familiar with topic - studying only what is required to improve his motivation.
 - Style: learning by doing activities, learning through reflection before taking action, group learning or let s say collaboration for team working to meet both business and learner needs.
- e-Learning can be used for learning at initial stages, to get new skills, or for continuous updating learning.
- Learners also have the possibility to get access to experts on special topics to ask questions and get additional information and support.
- e-Learning covers the complete cycle of the teaching and learning process.
- It can also be focused to different points of view referring to different kinds of learning and teaching

3.3 Case Study

In order to implement the above concepts and principles to a real integrated knowledge management and e-learning systems, we investigate the Moodle e-learning platform [14]. It contains a content management system which is a set of tools that manage various forms of content materials, and also a learning

management system which contains various tools and activities needed to organize different activities and extract information and reports such as quizzes, grades, activity reports, and forums. It is obvious that the CMS is much related to the e-learning disciplines while LMS is much related to the knowledge management disciplines. At the same time there are a lot of intersections and similarities of the knowledge management disciplines in the CMS and also e-learning disciplines in the LMS tools of Moodle. For example, the recourse files are e-learning related concept where we can access it any time and any where, but we always can search and extract information out of these files which are knowledge management related activities. Another example, the online quiz is a knowledge management activity but it is always based on the content materials which is an e-learning related that can be accesses anytime and anywhere. We could conclude that knowledge management is a result and e-learning is an action, the knowledge management is activated by the e-learning.

4. Conclusion

In this paper we have presented two of the most growing fields of information technology, Knowledge Management and e-Learning. We have explored the relationship between e-Learning and Knowledge Management in more details. We also presented better understanding of the similarities, differences, and principles of both knowledge management and e-learning. Our contribution is intended to fill the gap between e-learning and knowledge management, the importance of linking between e-learning and knowledge management including its reflections on the organization success, a case study was presented to show that new e-learning platforms contains many tools and activities which is either e-learning related or knowledge management related, but we can not separate both approaches due to the similarities and intersections on both principles in designing such tools.

5. References

- [1] Allee, V., *12 principles of knowledge management, Training & Development*, Vol. 51 No.11, pp.71-74, 1997.
- [2] Argyris, C. *Double-Loop Learning in Organizations, Harvard Business Review*, Vol. 55, pp. 115-125, 1977.

- [3] Ausserhofer, A., eLearning and Knowledge Management Towards Life-long Education, *Proceeding of Computers and Advanced Technology in Education - 2002*.
- [4] Clark, D., Knowledge management and e-learning, Epic, www.epic.co.uk, 2006
- [5] Drucker, P., The Effective Executive, Kindle Edition, 2002
- [6] Edvinsson, L., Malone, M., Intellectual Capital: the Proven Way to Establish Your Company's Real Value by Measuring Its Hidden brainpower, *New York, Harper Business*, 1997.
- [7] Hayek, F. A. The Use of Knowledge in Society. *American Economic Review*. Vol. 35, No. 4. pp 519-530, 1945
- [8] Mair, M.. Increasing the value of metadata by using semantic networks, *Masters thesis, Graz University of Technology*, 2002.
- [9] Murray, C. and Barclay, R., *What is knowledge management?*, <http://www.media-access.com>, 1997
- [10] Nonaka, I., *The Knowledge Creating Company* , *Harvard Business Review*, Nov-No. 69, pp 96-104, Dec, 1991.
- [11] Nonaka, I., Mr Knowledge: Americans management industry needs a champion for its latest buzzword, *The Economist*, May 1997.
- [12] Polyani, M., *The Tacit Dimension* , *Routledge & Kegan Paul*, London, 1966.
- [13] Putzhuber, W, From E-learning to Knowledge Management: Bridging the Gap, *Master s Thesis, Graz University of Technology*, 2003.
- [14] Rice, W., Moodle E-learning Course Development, *Packt Publishing Limited*, 2006
- [15] Senge, P. M. Den femte disiplin. Kunsten å skape den lærende organisasjon. *Hjemmets bokforlag*, Oslo, 1990
- [16] Sveiby, Karl E. The New Organizational Wealth: Managing and Measuring Knowledge-Based Assets, *Berrett-Koehler*, 1997.