Review

How knowledge management adds critical value to e-learning media

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Media is the combination of text, images, animations, digital library, which is now a standard part of most computer applications. Education media can be a great tool to improve teaching and learning. A growing number of educational institutions (EI) are developing a new learning culture, as they realize that getting an institution's learning capacity to gain momentum is not that easy. It is not just a question of installing a new learning instruments or knowledge management (KM) technologies; it requires overcoming the difficulties in the selection and evaluation of e-learning process media. The model presented in this paper combines e-learning and KM into adaptable framework that provides integrated support end effect on various medias involved in the education systems. The model is a suggestion to improve teaching and learning process and how KM adds a successful help for educational consumers in selecting and evaluating e-learning media. This paper is also concerned with three key ideas: the growing importance of e-learning as knowledge scaffoldering, the emerging significance of KM practice in informing strategic directions, and the effects of KM on e-learning media development.

Key words: Knowledge management, media, e-learning, educational multimedia.

INTRODUCTION

The educational institutions in general slowly seeing learning programmes are becoming more and more successful, but we have powerful tools available to help academics employed in these institutions and help students to learn.

In recent years e-learning has been identified as strategic resources that can be utilized in an increasing diversity of venues (workplace, cultural and entertainment venues, as well as education). Most EI have heavily invested to reform the education sector and bring it in line with proposals to modernize information and communication technology within this sector, and with support of some Governments, (Lim et al., 1999). Transforming, teaching and learning in most EI through the different available media revealed that nearly most universities now concerned with the internet and the average number of computers have virtually increased. However, the vast majority of the universities are only beginning to tap into the potential of updating information and communication technology, and huge savings are still to be made in hardware procurement. For Fuchs et al. (2004), libraries and available media collectively are building up new knowledge in the sector of education and learning. KM supports further essential links in the knowledge supply chain and e-learning media and ends at the targeted knowledge. Digital libraries, Web-based , decision support system, and e-learning systems are thus important enabling technologies for improving educational multimedia in general and in particular e-learning media.

Courses, examinations, skill profiles, course profiles, etc, are the manifold information ingredients that have to be managed and made accessible in an e-learning system (Fuchs et al., 2004). As an approach to quality assurance of e-learning, universities delivered class materials in an electronic format via the Web and include

journal materials, a textbook library, relevant Web links, tutorials, simulations-portfolios, assessments, online writing laboratory, syllabi, notes, and virtual organizations.

New types of library content web page for example may not only impose additional requirements on content reselections, structuring, enrichment, and access services supported by other multimedia, but may result to profit from integrated support for the other phases of the content life cycle such as KM provision (Hildreth et al., 2000).

The idea that a wide range of evolutionary changes in content, content structuring, mediation, and system functionality can be supported in the education system itself by empowering the users to participate in system setup, customization, and evolution by bringing in their domain expertise which is not only limited to the e-learning domain but also applicable to the educational domain in general (Malhotra, 2000).

The aim of this paper is to show how KM has a positive contribution on e-learning media through a model proposed to support this perception. The discussion presented in this paper combines e-learning, media and KM into an adaptable effort framework that provides integrated support for the various institutions involved in e-learning process.

THE EFFECT OF KNOWLEDGE MANAGEMENT ON E-LEARNING MEDIA

KM is concerned with the exploitation and development of the knowledge assets of an organization with a view to furthering the organization's objectives. Management entails all the processes associated with the identification, sharing and creation of knowledge. Organizations that succeed in practicing KM are likely to view knowledge as an asset and to develop organizational norms and values, which support the creation, and sharing knowledge. For Rowley (2000), KM is used to describe everything from the application of new technology to the harnessing of the intellectual capital of an organization. In recent years a wide range of business techniques, including performance management, total quality management, and quality assurance, have had a direct or indirect impact on education, and KM is set to do the same, (Orlikowski, 2000). Many EI use models of KM that suit the media used in e-learning process or the industrial epoch. KM becomes important in today's business and academic community. As the importance and effects of KM on the multimedia in e-learning, more universities and EI are implementing KM activities. KM and e-learning will converge into knowledge collaboration portals that will efficiently transfer knowledge in an interdisciplinary and cross functional environment (Keulartz and Schermer, 2004). KM is adopted to cater to the critical issues of organizational adaptation and

competence in face of increasingly discontinuous environmental change. Information systems will evolve into artificial intelligence systems that use intelligent agents to customize and filter relevant information and new methods as well as tools will be developed for KM driven e-learning and innovation (Malhotra, 2000). Hiltz (1986) argued that most of the EI offering degree courses in new media produce, individuals with basic competencies in standard graphic and authoring tools, rather than the specific mixture of learning-related knowledge and skills required carrying out effective e-learning development. Unless education leads the bodies to take some steps to ease this growing skills shortage, the e-learning sector within the EI is likely to fall behind other competitor in other part of the world, as for example the Arab Universities in the Middle East or the other universities, in the UK, U.S.A, or Europe. Until then digital thinking and KM effects on e-learning media will continue to score the world and pay a benefit for the best talent. This is vital; so that e-learning developers (Universities and colleges) can make long-term investment decisions with a degree of confidence that the platform they choose will not disappear or become obsolete.

Kimble et al. (2002) suggested that within an increasing demand for color printing and teaching illustration in the education sector, those responsible for information technology (IT) purchasing face a wealth of choice in terms of what products to buy. It is important that EI are experienced with all the facts and know exactly what they want before they part with significant portion of its media budget. A team constructed from different departments as for example in a university that devises EI on what media type and solution will suit their needs.

All the EI need to take a strategic view of their media needs. With a growing requirement for volume a suitable media and low-cost media may seem an attractive proposition to sit alongside standard media units. However, when looked at in terms of total cost of ownership against entry-level high-volume media, expensive media should be excluded, as many small universities, colleges, and departments are relevant to use specific expensive medias (Nottingham and Park, 1999).

Another consideration is who buy these medias. It is a common situation in the education sector that the buyers of the required media and equipment are part of a team from IT and other related departments is usually responsible for purchasing these medias and other equipments. Those people with IT departments should generally be aware of the ongoing costs incurred in the field of the relevant technology. Dobos (1999) suggested that there is specific media for defined tasks. For example, many universities' labs require high volume mono printing for course work and general student related material. It is often more prudent to have an extremely suitable media (say printer) with high-volume workload. However cost is not the intent of the paper, it is
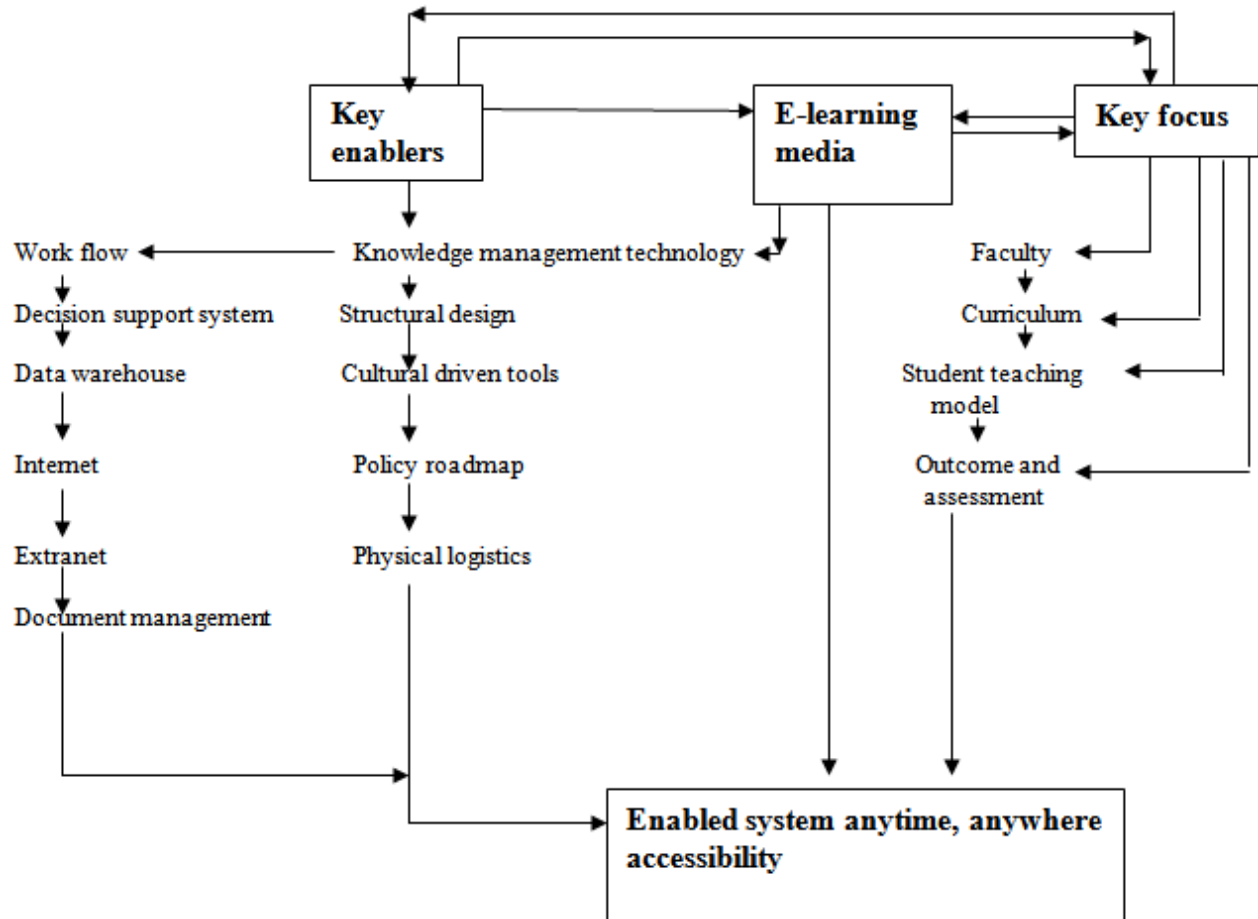
Figure 1. Combination of E-learning and KM framework.

important to look beyond the initial media cost. EI require students to submit high quality work within efficient and effective e-learning environment.

The proposed model

The basis for the model in Figure 1 is that there is a multidimensional perception to quality assurance of e-learning media. (that is, key focus and key enablers). The researchers' believe that these elements are compatible with aforementioned discussion. First, key focus elements are well-trained faculty, instructionally sound curriculums, and an interactive teaching-learning model in the educational institution, outcomes assessment and continuous feedback. Academicians on their side should complete a rigorous assessment of qualifications, teaching certification training, a period of mentoring, periodic class monitoring and annual peer reviews. The curriculum is centrally developed by faculty teams who determine topics, objectives, supporting electronic materials, and assignments. Even online classrooms include facilitated discussion and mandatory attendance

by faculty and students. Faculty and student feedback, in conjunction with learning outcomes assessments, provide information for continuous curriculum improvements.

Second, the other part of perception is the technologies that support KM, that is, (key enablers). These technologies roughly correlate to main effects of KM on the e-learning media: 1) Knowledge is acquired or captured using intranets, extranets, and document management systems. 2) An organizational memory is formed by refining, organizing, and storing knowledge using structured repositories, such as data warehouses. 3) Knowledge is distributed through education, trained programmes, automated knowledge based systems, and expert networks. 4) Knowledge is applied or leveraged for further learning and innovation via mining of the organizational memory and the application of expert systems such as, decision support systems. All of these concepts are enhanced by effective workflow.

E-learning process and media that make sense

With the increasing of computers and IT customization in

business in general, organizational routines originally embedded in standard operating procedures and policies often enhance in the firm's programmed logic. Often EI tend to be flexible in a dynamically changing education environment. The challenge of walking in this direction is in adoption of the least technologies and remaining up to speed with ongoing learning process as far as e-learning development is becoming more acute in e-education (Harasim, 1997). Not knowing about the existence of media relevant to education causes defects in the e-learning process and more information needed. As consequences of having merely a fragmentary overview of the available relevant information, the decision making process can result in incorrect conclusions being made. Knowledge acquisition is therefore an interactive process (Barker, 2005).

The constructive view of learning is that it is a process in which learners actively construct knowledge as a result of interacting with the learning environments that we create for them. Therefore a fundamental prerequisite for the development of all e-learning systems is in the design of an appropriate organizational framework for the underlying knowledge corpus that forms the basis for e-learning system. For Barker (2005), one important way of meeting this requirement is through the use of a digital resource management system. This system is an interactive environment that is designed to facilitate the following types of KM operation: the creation of digital resources for a particular application, and the provision of controlled access to these resources when the need arises.

Teaching with interactive electronics media for example can produce learning environments that are unlikely produced in traditional classrooms. The use of high speed networked computation can stimulate both real and imaginary words. The possibilities of world-wide (or local) collaboration with anywhere on many topics raise the issues of how to build positive collective intelligence in an environment that desperately needs it. The use of a massive storage and retrieval facilities allows the growth of adjunct intelligence, and an external repository of knowledge that can improve human capabilities and performance (Hoodgins, 2003).

The focus of KM is connecting people, processes and technology for the purpose of leveraging KM on e-learning media. Knowledge managers of the future will play an integral role in making the required media technology to be applicable. What is required is an inclusive KM system to provide coherence and integration of all the essential components of an effective educational experience. Thais is a system and community where professors and students can manage and share information, knowledge, and media with regard to curriculum, and learning activities (for example, blackboard). The challenge is that KM systems are inert and the knowledge development process is too complex to be managed in a bureaucratic or technical manner.

Knowledge systems need to connect interdisciplinary teams and be customized by the media within the available understanding and capabilities. Educational institutions which want to stay ahead of the development curve will start to investigate the adaptability of the new expected technologies in the future (Thiessen and Looker, 2007).

RECONCILING KNOWLEDGE MANAGEMENT AND E-LEARNING STRATEGY

The previous discussion is applied to the Arab Universities. Moreover, according to Woodill (2006), the following steps need to be taken in order for e-learning to succeed: learners and instructors should be prepared to work with e-learning, new instructional activities and strategies that use the unique characteristics of interactive media need to be developed and made easy to use, and new understandings of both learning and the difference in generations of learners need to be articulated and incorporated into instructional design, especially new research on the suitable media. E-learning process is regarded now as an attempt to facilitate or introduce learning using electronic technology or to track the results of learner behaviors and the results of assessments. In fact e-learning is teaching by electronic medias. The e-learning environment is not a classroom. Techniques effective for group instruction in a closed room do not necessarily work in a networked, computer-based, distance education setting. Once EI recognized that e-learning is not automatic just because one uses electronic media or technologies then it is easy to accept that both students and instructors need to be prepared for and comfortable with this new educational environment (Lamb and Kling, 2003).

The researchers believe that there are two aspects to consider concerning the use of media that is, the institution and the staff. First, on the institutional side there are some basic requirements needed for a successful media in an e-learning process with present-day technology in the EI: the level of familiarity in media used with other learning software. EI should pay attention and work with several dimensions of teaching at the same time by academicians, the instructor's abilities to present the suitable materials and enthusiasm easily, effectively and efficiently, and instructional design skills that emphasize the designing creation of interactive teaching activities. Second, from the academician sides, instructors also need to acquire new skills to be successful and familiar with the media used in the e-learning process. These skills include: their abilities to use the media and other illustrations software, being self-directed –the ability to use the media even if the IT staff are not available, the e-learning etiquette, and their willingness to cooperate and collaborate with the students. Technologies such as, intranets,
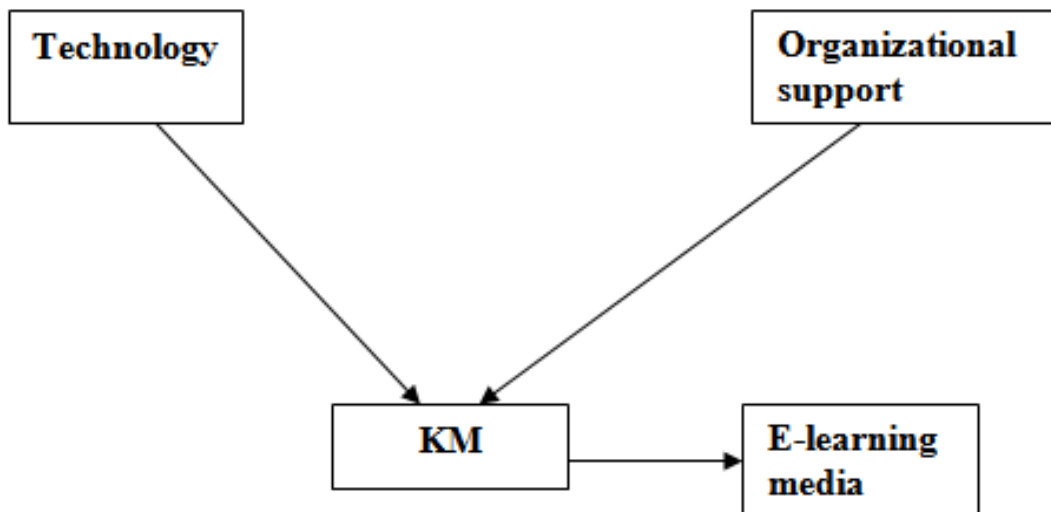
Figure 2. KM and e-learning media.

videoconferencing, and collaborative groupware, allow EI in e-learning education to capture and disseminate explicit knowledge. Course management systems such as data mining, can be used to distribute selected learning materials, and facilitate access to various sources of information and data, as well as enable instructor-student and student-student interaction (Na Ubon and Kimble, 2002).

Based on the above arguments, it seems logical to account for the human attention, and creativity needed for the renewal of knowledge, creation new knowledge and new media application in e-learning strategy. Such conceptualization may be depicted in Figure 2.

In this illustration (Figure 2) it can be seen that KM is affecting the e-learning media as a result of two potential sources of knowledge. First, there is organization's own innate knowledge that is embedded within its cognitive structure (such as rules, plans, scripts, and so on). Second, there is the knowledge that is embedded in the technology facility that the instructor/student is using to help him/her to solve the problem or ease the usage of media. Using KM tools to solve problems in e-learning education for these institutions is just one part of the equation. Technology alone is not enough to create trust and personal context is necessary to achieve a true network. It is therefore, necessary to apply some KM techniques to kelp members in e-learning environment deal with problems more effectively. KM techniques partly indicating the creation of supportive organizational structure and practices (media availability) that would encourage those involved in e-learning to generate, share, and use knowledge easily. Wathen and Burkell (2002), argued that EI may introduce new standard and practices ensuring equality of opportunity to there users to gain access to the source of knowledge. Invariably, these requirements, involve designing and building better

tools to facilitate understanding and the speed with which tasks can be executed. A fundamental prerequisite for the development of all e-learning media is the design of an appropriate organizational framework for the underlying knowledge corpus that forms the basis for the e-learning system.

Conclusion

This paper has tried to apply the concept of KM in e-learning media in education and how it may add value to learning community. The ongoing e-learning process needs to emphasize on creativity in educational technology environments, because EI need to explore the narrative possibilities of the new media combined with true interactivity in developing e-learning. Such perception does not have to come from a particular source but can be based on peer-to-peer sharing. With KM, institutions can extend their abilities in many different ways. With suitable knowledge in the required media, the e-learning process can extend and control the teaching environment and create new experiences that are possible in reality. KM effect on media became more useful in delivering the right e-learning experiences for the development of the EI, such as universities and colleges.

KM and e-learning are moving from a mostly imposed curriculum in most educational systems to a kind of mixed market of courses, competency based skills training, and self-directed learning based on online environment. In order to a new pedagogy to be successful, e-learning must take all the possibilities into account of KM effect on media. Attention must be paid to the complexity of the e-learning spirals with emphasis on the unique characteristics of networked media in order to

produce e-learning experiences that are engaging and help generate of new insights in dynamic educational environment.

The direct contribution of KM on media in the proposed model goes to education by identifying the benefits that could be acquired through the implementation and use of e-learning integration with KM and instructional design.

The discussion showed that integrating a self-evaluating KM into education process is useful and highly recommended, and unveiling the observed adds of the KM on the media implemented. Efforts related to human factors are required to improve the design, implementation of KM and e-learning media particularly in education in general. As we move towards the more widespread use of electronic communication in digital format, increasingly more knowledge will become up in the electronic artifacts that we create such as web pages, e-books, blogs, online conference, digital university courses, and so on.

The researchers believe that the e-learning process and the effective KM contribution could be successful when the EI realize the need to have a clear understanding of the benefits of the training programmes offered by these institutions through employees, and the customization of the available media within the educational environments.

In summary, educational sectors demand best-fit solutions media to enhance the e-learning process at the lowest price. These parameters however require EI to take a long-term view in order to incorporate factors such as maintenance and overall stability.

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