Knowledge Management and Reusability in Internet Based Learning

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ABSTRACT
The unparalleled advancement in information and communication technology has led to extensive use of Internet in learning environment. Creation and distribution of knowledge on such a phenomenal basis has in fact has trapped the learner's ability to digest and filter the superabundance of knowledge. In this background, this paper looks at the applicability of knowledge management in learning environment to enhance the learning systems and efficient use and reuse of available information.

1. Introduction
Use of the Internet in learning has increased many-folds in recent years, not only in distance education settings, but also in more traditional learning venues. This phenomenon can be attributed to the vast information available on the Internet all over the world, and its quick and easy availability with few mouse clicks. This ocean of information has created several concerns about the quality of the learning process.

In the following section we give brief account of the key concepts and components related to knowledge management. The second section examines the technology's role in knowledge management and Internet based knowledge management. The third section of this paper concentrates on the methodology and the architecture of knowledge management system in Internet based learning. Implementation aspects are discussed in the fourth section. The fifth section looks at the benefit of the proposed system and follows with the conclusion.

2. Key Concepts and Components in Knowledge Management

2.1 Knowledge Management in Business Process And Learning Process

There is no single unanimously accepted definition of knowledge management prevalent in the literature. To quote some representative sample, "Knowledge management is the explicit and systematic management of vital knowledge and its associated processes of creating, gathering, organizing, diffusion, use and exploitation. It requires turning personal knowledge into corporate knowledge that can be widely shared throughout an organization and appropriately applied" [1].

2.2 Components of Knowledge Management

The important components of knowledge management are people, content, culture, process, and technology [2]. People are the ones to produce, use and share knowledge. Content include knowledge, information and data about the subject to be shared and managed. Culture of sharing is crucial to the success of knowledge management and Internet based learning. Process and technology are integral part of knowledge management.

2.3 Link between Knowledge Management and Information Technology

Knowledge management is a synergy between data and information processing capacity [3] of information technology and the creative and innovative capacity of human being. No doubt, that the success of Internet based knowledge management depends on the Internet, intranets, relational databases, data warehouses, groupware and other high value technologies. Hybrid knowledge management [3] is expected to bring the best results. Technologies like communication technology, collaborative technology, artificial intelligence and business intelligence [4] could augment chances of success of knowledge management.

2.4 Internet Based Knowledge Management in Learning

The phenomenon of overloading of information to learners results in the learners inability to cope with the processing of increased amount of information availability. This is especially true during the training of
application of complex concepts with steep learning curve, where initial mistakes by students are not corrected immediately hence leading to wrong neural connections and eventual failure. The problems are aggravated at high magnitude when learning takes place in a distant environment. Internet based knowledge management systems can prove to be efficient solution to manage these problems.

3. Methodology

3.1 Internet Based Knowledge Management Learning System's Architecture

The architecture for the knowledge management system is as follows: First step is to identify what exactly is the user looking for in terms of area of discipline, context of the query, type of resources, preferred format etc. The second step is to create a learner's profile with parameters like key interests, level of expertise in the subject, level of expectations, preferred method of learning and other relevant parameters will help to identify the critical factors for success. The third phase is to synthesis user query and user profile and its intended context. The fourth step is to get the results from the local knowledge base. If the search is not able to come up with appropriate results, the global web is searched for the appropriate links and resources. After the relevant materials are found from the global search, it’s accuracy and authenticity needs to be established in the fifth step. The next phase, namely the sixth phase, is to organize newly found knowledge in such a way it can be accessed very fast before it can be appended to the local knowledge base. The last but the most important part is to presentation of knowledge with user adaptability.

4. Prototype/Implementation

Based on the architecture, a prototype system developed which will aim to guide the learners a guided discovery learning process. The guidance will be individualized, based on the behavioral attributes of the learner. The components of the prototype would be domain knowledge base, user knowledge base, knowledge engine, inference engine and Internet based interface. Domain knowledge base would contain local information, reference to Internet based remote information, and cache of frequently accessed information. Knowledge engine would help to manipulate the acquired information and effective indexing and storage. Inference engine would enable retrieval of knowledge as per individual learner. Internet-based interface will provide adaptive representation of the knowledge to the learner. The discipline selected to test the prototype system was database concepts and tools. The choice of this domain stems from the fact that application of requires familiarization with numerous procedures.

5. Benefits of knowledge Management for Internet Based Learning

Knowledge management system in internet based learning would not only augment the teaching abilities of the provider and foster the learning abilities of students but also open new ways of integrating knowledge management concepts in the learning systems development process. This would definitely result in efficient use of time and other resources facilitating better reusability, sharing, pooling and collaboration in the learning process.

6. Conclusion

Synergy between knowledge management system and Internet based learning will bring forth a lot of untapped benefits in academic institutions, as there has not been much research in this area. Also, with the increasing popularity of on line learning, the use of knowledge management system in Internet based learning will have multiplier effect on reusability with large size classes.

References