Knowledge Persistence in Distance Learning Environments

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Abstract: In order to manage knowledge in universities, it is necessary to promote methodologies, technologies and tools capable of supporting efficiently all the complexity of this process. It is also necessary to produce mechanisms for appropriate and manipulate knowledge, whose processes are more and more intense in technologies of information. In these processes, the flows of information and the technological and management procedures are critical factors for success. In this context, there is a need of a comprehensive methodology that makes intense use of information technologies, that allows representing the tacit and explicit knowledge accumulated in the universities, more specifically in environments of distance learning. This article proposes emerging technologies to capture the knowledge and to support the stages suggested for the cycle of administration of the knowledge in the organizations and use a methodology for analyzing didactic material used at distance learning courses, and tries to identify the related tacit and explicit knowledge.

Keywords: Knowledge management, Systems of information, Distance Learning

1. Introduction

One of the great problems that the universities face now is the persistence of the knowledge. The knowledge that is accumulated in the people that compose the organization can be lost when they leave it decreasing the productivity level. For Loren Gary (2005), “The organizations lose important knowledge the all the moment”. In addition, in many cases, they never notice the knowledge they already had acquired. With respect to the performance of the universities in the distance-learning scenario, in general, some of the expected results refer to the quality with the tasks, processes and procedures are executed in this context. Therefore, a university needs to guarantee a constant investment in the
improvement of the abilities for problems solution, to assure the capacity to compete in the market. In the present, an essential characteristic is to identify quickly the knowledge involved in the main processes involved in the practices of the distance learning, looking to improve and to share, this ability is more and more necessary to reach the strategic objectives of the organization.

2. Objective

This work has as objective to identify researches issues and to propose emerging technologies to capture the knowledge and to support the stages for the cycle of administration of the knowledge in the organizations Turban (2004). This is done with focus in universities and more specifically in the distance-learning environment. To reach this objective, technologies already accepted (conceptual maps) were used for certain stages, associated to the new technologies as semantic nets, ontology, workflow, XML/RDF/RSS, learning objects, among others. The term new technologies is employed referring to its application in administration of the knowledge in the proposed context. As specific objective, this work presents a group of activities that make intense use of technologies of the information, these technologies allow to identify and to capture the tacit and explicit knowledge accumulated in the universities, in the context of the distance-learning.

3. Development Methodology

The focus of this work is centered in the optimization of the stages of capture of the knowledge in the universities, paying attention to the methodologies, techniques and tools that it composes the whole apparatus that can be used as a competitive differential. It advocate then, that the methodology for the development of this project is in the context of the cycle of the knowledge administration. During the study of each stage of the administration cycle, these technologies will improve the state of the art, of the researches, of the tests of technologies and tools and we will develop suggestions for optimization of these stages. These suggestions were acquired in the methodology and in technology areas. Of the suggested technologies, initially the conceptual maps, Ausubel (1980), Novak (1998) were employed as the cognitive strategy for analysis and representation of the knowledge during the process of didactic contents elaboration for the course activities. The concept maps are employed to help the organization of the teaching contents to offer appropriate incentives to the student. In this case, a software tool was applied with resources to develop the use friendship, the cooperation aspects, collaboration, and more specifically the possibility of export of the maps in the format XTM - XML Topic Maps. The exportation of the maps in XML format became indispensable for this work, as
one of the main presupposed was the reuse of the hiperstructure created by the conceptual map (explicit knowledge) as navigable map of the knowledge concentrated by one, or more authors, of the courses (Figure 1).

3.1 Methodology proposed for analysis of didactic material for courses to identify the explicit knowledge

Some evaluated requirements are identified in the analysis of the material following Cabral's methodology, Cabral (2002, 2004), to verify the contents organization in function of the prerequisites, co-requirements and objectives of the course and to observe if it is allowed to the student a structured contents navigation, however not so rigid. To analyze if the environment allows the use of textual resources, graphs and resonant related to the considered contents. The use of key words was verified to associate to the concept some forms of as the same it will be worked during the execution of the course, for instance, it can associate to the concept that the same will have during its execution a list of exercises, discussion rooms, dynamics of groups, discussion, evaluation, among other forms.

Figure 1. Conceptual map of the Content of trees exported in XTM with the respective hyperdocument.

For initial identification of the tacit knowledge, the necessary knowledge for the execution of the sequence of procedures was analyzed. This tacit knowledge is equivalent to the steps that the author employs for the authorship of the didactic material. The identification is based on the execution of the following stages:

- Use of Conceptual Maps to model the domain;
- Insertion of the medias that will be associated to the concepts as resources in the conceptual maps;
• Insertion of the activities related to the concepts through key words that will define as the concept will be worked during its presentation;
• Exportation of the Conceptual Map in the format XML/XTM;
• Creation, starting from the file exported XML/XTM, of the hyperdocument of the course and their respective pages HTML.
• Incorporation of the pages generated in an environment of administration of courses the distance so that this material can be made available and accessed by the students.

4. Conclusion

This work applies technologies in the capture of the knowledge and its correspondent validation in distance teaching. One initial contributions of this work is the evaluation of distance-learning environments and the content presentation through the Conceptual Maps and the reuse of the hyperdocument of these maps associated as hyperdocument of the course in the Web. In addition, it offers the possibility to associate concept maps existent (captured explicit knowledge) in the elaboration of new courses, facilitating the reuse of materials previously elaborated. The methodology was employed for an initial analysis of a distance-learning environment. This case analysis demonstrates that it allows the authorship of didactic material in a structured way followed by a cognitive approach based on the Conceptual Maps. The process starts from the hyperdocument generated by the concept maps guiding the generation of pages HTML as structured in the conceptual maps. In other words, the initial work consisted in, starting from the conceptual maps, to take advantage of their hyperdocument as navigation map to generate pages that contain the knowledge explicit associate to the course. The contribution of this work is centered in the manner were them are interrelated and in the knowledge captured by taking advantage of the structure of the conceptual maps as hyperdocument, through the format XML/XTM for the generation of the course hyperdocument. This methodology guided the reuse of the explicit knowledge facilitating the content creation, especially for distance learning courses, where the content is presented in hyperdocuments, organizing and structuring them and contributing in a quite significant way in the productivity of courses and disciplines generation.

References

