ENGINEERING PHD RESEARCH PROPOSAL SAMPLE

SOFTWARE ENGINEERING ROLE IN THE WORKPLACE LEARNING PROCESS

In today's rapidly changing world, it is imperative to constantly increase the level of knowledge in order to keep up with new challenges. Some individuals who were considered educated in the past can today become unsuitable to respond to current and future demands of the environment. The fact is that learning is done in the workplace. It is necessary for the development of knowledge and skills that are necessary for the employees to progress, but also to achieve the company's competitiveness. Workplace learning includes a range of activities that employees need to take to master new skills needed to better perform their jobs. Examples of such activities are: searching for adequate resources relevant to the tasks, learning materials, applying new learning activities in collaboration with other colleagues, learners, and relevant experts. In the world of change, learning at the workplace is defined as an enterprise worth millions of dollars where employees learn new skills designed to help maintain the organization's competitiveness in a rising global economic environment (Sacchanand, 2000). In the past few years, among employees, researchers and business policy makers, there has been an interest in increasing and facilitating workplace learning. Today there are many areas of research where the central interest is learning for time and at work. The concept of the "learning organization" is another example where the focus is set, although other concepts such as "lifelong learning" and "learning community" define the areas of research that contribute to the development of workplace learning as a separate field of research (Lee et al., 2008). Creating a learning climate and innovation within the organization provides incentives to acquire new experiences in the workforce, which leads to a change in traditional tasks and the elimination of boundaries at work itself (Rice. & Rice, 2008). These activities reflect on the activities undertaken at the workplace

SOFTWARE ENGINEERING ROLE IN THE WORKPLACE LEARNING PROCESS

and, consequently, affect the redefinition of the learning objectives, the reorganization of the learning process, and so on.

Therefore, these activities should be well integrated into the daily work practices of employees and be facilitated through adequate software solutions. In order to increase and develop the knowledge and experience in the workplace over time, it is necessary to collaborate and expand learning activities beyond the boundaries of the organization. Intelligent Learning Extended Organization (IntelLEO) is a new paradigm among learning communities. The term itself refers to an educational system that appears as the current integration of two or more different business and academic communities and organizational cultures. Integration takes place in the field of general interests of organizations / institutions involved in the transfer of knowledge and harmonization of interests and goals of organizations / institutions and their members. For example, an enterprise can team up with an academic research group to create such a temporary IntelLEO in which both company employees and researchers can accomplish some of their interests more effectively. This, on the one hand, can help employees get some guidance from researchers when selecting them to use new technologies, while, on the other hand, researchers can test their results in the real world. The IntelLEO paradigm was the subject of research within the IntelLEO FP7 EU research project. The main purpose of the IntelLEO paradigm is to support inter-organizational learning and learning building (LKB) in the workplace. In an educational system based on this idea, the learning and organization of individual and organizational goals takes place at various interim collaborative groups that work on building knowledge and learning. In other words, IntelLEO appears across different boundaries, through the vertical and horizontal activities of various individuals and groups involved in it. Vertical learning and knowledge-building activities are carried out within organizations participating in the learning community,

SOFTWARE ENGINEERING ROLE IN THE WORKPLACE LEARNING PROCESS

while horizontal knowledge-building and learning activities relate to performances within and between organizations. The IntelLEO project aimed to improve inter-organizational learning and knowledge-building activities in Extended Organizations. The software solution developed within this project aimed to provide technical support to IntelLEO paradigms and support LKB processes within extended organizations (Siadaty et al., 2009). It includes six core services (Core Services) that co-ordinate with each other, using a single ontology framework and a pedagogical model. Services can be divided into two groups. The first group – services for building learning and knowledge – are: 1) Collaborative learning services, in particular Human Resource Discovery (HRD) service and Working Group Composition (WGC) service; 2) User Monitoring (UM) service; 3) Content / Knowledge Provision (CKP) service. The second group – harmonization services – are: 1) Learning Path Creator (LPC) service and 2) Organization Policy (OP) service. The subject of this doctoral dissertation is research and development of the Content / Knowledge Provision (CKP) service using Semantic Web technologies within the IntelLEO paradigm.

The CKP service itself supports workplace learning situations where employees are often faced with the need to effectively find, search, share and use electronic learning resources, but are often limited by small time and other factors when performing all these activities at the same time. The main topic was to provide effective synergy between the Content / Knowledge Provision service and other services within the IntelLEO software solution, in order to increase the reliability of the participating organizations, and it is reflected in the increased motivation to proactively learn and construct knowledge. The general goal of the dissertation is to explore how the reliability of the environment for building learning and knowledge in the IntelLEO organization can be enhanced through the exploitation of advanced technologies, in an innovative way, through the synergy of learning-building activities and knowledge and harmonization services.

SOFTWARE ENGINEERING ROLE IN THE WORKPLACE LEARNING PROCESS

The dissertation is intended for the design, implementation and evaluation of technical solutions in order to optimally exploit the synergy of the IntelLEO organization. Response is defined as an organization's ability to detect changes outside the organization and to take measures to adjust the situation through: a) internal changes at the level of individual learning actions, or organizational structure and policies; and b) an active influence on changes in the environment, which increases the organization's adaptability. It is assumed that organizations that must constantly be in agile state have the ability and flexibility to connect with other organizations in order to exchange knowledge. It is believed that IntelLEO is more responsive than an individual organization. IntelleO-type shared values can temporarily appear outside the organization's boundaries, changing and influencing intra-organizational norms and visions.

REFERENCES

1. Sacchanand, C. (2000). Workplace learning for information professionals in a changing information environment, 66th IFLA Council and General Conference, Jerusalem, Israel

2. Lee, T., Fuller, A., Ashton, D., Butler, P., Felstead, A., Unwin, L. (2008), in Manning, C. D., Raghavan, P. & Schütze, H.: Introduction to Information Retrieval. Cambridge University Press, Cambridge

3. Rice, J. L & Rice, B, S. (2008) The applicability of the SECI model to multiorganisational endeavors: an integrative review. International Journal of Organizational Behavior, Volume 9 (8). pp: 671 – 682

4. Siadaty, M, Jovanović, J., Gašević, D., Stokić, D. (2009) Content and Knowledge Provision Services for an Intelligent Extended Learning Organization, In Proceedings of the 10th World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education (E-Learn 2009), Vancouver, BC, Canada