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ABSTRACT

Simulation, in the context of Project Management teaching/learning process, has been described as an effective way to achieve better outcomes. There are already some tools developed to simulate the management of technical work. Still, project management is much more than dealing with technical tasks. The system developed aims to sustain the process of teaching/learning the subject of project management in a broad range. When compared with other work in the field, there are two aspects that stand out from the product described in this paper: (1) the use of the Web to enhance the interaction between the agents involved in the teaching/learning process, and (2) the variety of skills considered in the system. More than focusing on a small set of processes dealing with technical work management, the solution presented here involves nearly the full project management life cycle. This paper proposes a simulation system for Project Management, based on the Web environment (Project Management Virtual Environment). It also presents the process of the system’s construction and describes its features.

Keywords: Computer Based Training, E-Learning, Experimental Learning, Project Management, Software Engineering, Web Portals

INTRODUCTION

The Project Management Virtual Environment is a technological solution built for the Web environment, which is created in order to assist those who are involved in the teaching/learning of Project Management courses, namely at the undergraduate and graduate levels of education. Its application is not restricted to academia; this solution is designed to support school staff, and training professionals in general. It can be used when the objective is to develop students’
skills in Project Management, facilitating the students’ knowledge assimilation, through a controlled scenario on the activity of managing projects. As regards Wateridge (1997: pp 285), “undoubtedly the main method for managers to learn aspects of project management in the past is through experiential learning”. This means that, in the past, there was no formal teaching on Project Management provided; the Project Manager has to deal with real projects to learn this art. Sometimes, dealing with failure was not an easy task. Based on the results of the studies from Kerzner (1987) and Burgetz (1991), a high percentage of competencies in project management are better seized through experience. But, according to Thamhain (1989), teaching should not be made solely based on experience. To maximize the effect of training, it is necessary to join the expository sessions on theoretical aspects with a trial oriented instruction (Geist, 2007; Ibrahim, 2011).

The solution presented here was built with the aim of complementing expository sessions. It was not meant to be used alone, or even to replace the teacher. It complements the teacher’s job, facilitating the acquisition of skills in project management by students. The teacher is responsible for the setting up of the system, and the experience of the students will be strongly influenced by the work of the teacher.

The system development process took place in two complementary phases. Firstly, concerning the analysis and design, where the steps (or a subset of steps) were performed by the application of the Ripple methodology (see O’Docherty, 2005). This methodology is based on the unified modeling language (UML), created by Booch et al. (1998). In this methodology (Ripple) the author adds a sequence to the group of processes existing in the original specification of the UML. By this complement, the isolated processes became steps of the methodology. A set of new artifacts was considered to maximize the outcome of the analysis and conception of the system being constructed. In the second stage of the development process, the system was constructed according to the solution designed in the first stage. This was done by choosing and applying the appropriate tools.

This paper is structured in four sections: the first section provides a brief introduction to the product constructed, the problem being addressed and the objective of the work; the second section describes, in more detail, the context of the problem being tackled, the path followed to achieve the goals, i.e. the outcomes of the methodology major steps; section three briefly presents the way the solution is structured, in terms of conceptual, logical and physical levels; the last section presents the main conclusions and the work to be achieved in the future.

RESEARCH BACKGROUND

The teaching of Project Management is an activity that is more recent than the profession itself. References to the term “accidental profession”, used by Levine (2002) and Herkeens (2002), refer to situations of professionals with extensive experience in technical work that, suddenly, are placed, without any specific training, in the project management function. Competent technicians who get into leadership positions are not always successful, with the same ease as happened in their technical careers.

Project management is no longer an activity limited to the application of techniques and tools in order to, for example, define the scope of the project, estimate required resources (in its broadest sense) or create schedules on technical and management work. Project management has become a complex and multidisciplinary activity, according to the Project Management Institute (2013). The most complex is the context in which projects are developed, the more complex the activity of managing these projects gets. Presently, due to the high degree of competition, the adversity induced by the context of crisis, in which the majority of organizations coexists, the successful realization of projects requires a level of accuracy, which is only possible through...
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