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A COMPUTATIONAL TOOL TO SUPPORT PLANNING AND EVALUATION OF PROJECT-BASED LEARNING

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ABSTRACT

Project-based learning (PBL) is a student-centered and teacher-facilitated learning approach with extensive methodological support and built on the foundation of learning by doing. It is considered one of the most suitable active learning methodologies to be applied in order to achieve 21st-century skills, which are: Critical Thinking, Collaboration, Creativity and Communication. PBL is an effective approach in developing self-regulatory learning and engaging students around authentic issues, and their application is strongly indicated in engineering and technology courses. Although there is a consensus in the literature about what characterizes the Project-Based Learning, there are no available tools to support teachers on projects planning, management, and evaluation according to PBL. The main objective of this research consisted of the conceptual investigation of the PBL essential elements as a requirement for the specification and implementation of a Web tool to support the planning, execution, and evaluation of projects called PrBL Tool. The evaluation of the tool through the focus group technique provided indications that a tool that supports the PBL methodology is able to contribute to the diffusion and practice of PBL. There is also an important contribution in the educational area, offering a complete tool that should be useful both in the support of PBL practitioners as a guide for teachers who use projects in the classroom, but do not take advantage of the formalism, the completeness, interdisciplinarity and the methodological and scientific purpose of the methodology.

Keywords: active learning; engineering and computing teaching; innovative learning methodology; PBL; 21st Century education