APPLICATION OF PROJECT-BASED LEARNING IN AN ENGINEERING COURSE

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Abstract

Project-Based Learning (PBL) is a pedagogic model focused in constructivist learning where learners construct their understanding of the topics from their experience. This “learning by doing” approach favours not only the assimilation of knowledge but also the development of transversal competences, such as communication skills, teamwork, innovation, and engagement with their peers.

This work is aimed at presenting a specific application of PBL in an engineering course, where learners take an active role and the teacher acts as facilitator or instructor. Specifically, it is intending to describe how learners develop a project from a proposal of an economic production activity given by them at the beginning of the course. After acceptance of the proposal by the teacher, the project is conducted gradually by learners through the whole of the course. Obviously, all project phases are in line with the course topics and are supervised by the teacher, but learners are who design all the problems and find the solutions by the collaboration and inquiry process. Besides, in order to improve the time management and to encourage a collaborative work environment, learners present periodically the progress on their project. In this way, there is a peer interaction, including all learners and teacher and, moreover, the last one can assess the performance of learners continuously and redirect the learners’ work if necessary.

This methodology has been successfully implemented for the last five years and positive learning outcomes have been obtained. To involve learners in the design of the problems, to help them come up with hypotheses, collect data, test assumptions in order to find a realistic solution and to leave them to defend their solutions are key factors for a success learning process.

Keywords: Project-based learning, Competences, collaborative work environment, Engineering.