

Teaching methods for international R&D project management

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Abstract

This paper presents a case study of teaching project management in Croatia in two different learning environments and points out two main paradigms upon which both courses are designed. These two paradigms are *most effective learning is working in real-life situations* and *teach them what you promised and students will respond with effort*. We point out similarities in teaching methods but also the differences in motivation and achieved levels of knowledge and skills. Implementation of e-learning has been made according to the set objectives for each course. Follow up of students' satisfaction level and personal development has regularly been assessed.

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1. Introduction

We write this paper from the point of view of teaching the following *target groups*: professionals studying in life long learning programs and students at postgraduate studies. The accent is on teaching these target groups international R&D project management.

At the beginning we set two paradigms for teaching project management.

1. *Most effective learning is working in real-life situations*

Group work on an actual real-life project is the main teaching instrument since groups act as project teams and the project ideas are close to their field of professional interest.

Additionally, playing different roles in the project life cycle and learning to cross disciplinary borders enable students to gain self-assurance in project management. The roles which one can take on in a project can be in a wide

range from strategic decision makers, project leaders and scientific coordinators to project managers, team members, reviewers or sponsors. Inclusion of interdisciplinary knowledge is needed, like data mining, decision making, finance and accounting, mathematical graph theory, modelling, ICT, etc.

2. *Teach them what you promised and students will respond with effort*

This includes defining very clear learning outcomes and introducing quality culture in the whole process of teaching and learning. The responsibility for the quality of the course is shared between teachers and students. What is more, learning outcomes of the course have to be synchronized with the learning outcomes of the whole program and the assessment must be proven to measure the learning outcomes.

Additionally, there is also a constant follow up on the satisfaction of participants through questionnaires, publishing of evaluation results and concrete steps taken towards improvement.

Teaching must have a *strong support in ICT*, which must be available constantly. Additionally to the teaching

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program an on-line course is offered to the students so they can review the lectures taken on the course. The *on-line course* is structured as a self-paced course and it provides furtherance of knowledge and skills since it is accompanied with case studies and assessment. Lectures for postgraduate students are provided in a form of blended learning and for the lectures for project management training workshops an on-line course has been created as an after-course activity, which the workshop participants can complete to strengthen their knowledge even after the workshop has ended.

The lectures have to be organized in order to support group work activities. This form of teaching requires smaller teaching groups of up to 25 participants that form smaller project groups of 4–5 students that work together on their project. The support to the groups is provided from the lecturer and at least one or ideally two assistants who are available to groups during the lectures and afterwards. Through group work the students develop their interpersonal skills.

The added value for each participant that this form of life long learning brings, besides the knowledge about project management, can be the benefit of both personal and institutional partnership between the participants in one lecture group.

Finally, we can identify some crucial problems that occur when *trying to implement project management at universities*. Firstly the scientists are used to thinking “scientifically” instead of “project oriented” thinking. Secondly, the university management has to be convinced that they should change their organization from a traditionally organized functional organization to a more adaptable project organization.

2. Problems and challenges

The Higher Education has become part of a global shift to a new way of creating and using knowledge. The new way is focused on solving problems and is sensitive to customers needs. It strives for quantity as well as quality. It cuts across interdisciplinary boundaries. It is enlivened by apparently infinite quantities of instantly accessible information. Accountability, QA, league tables and performance indicators have become permanent entities in the HE lexicon [1].

Traditionally professors and scientists in Croatia are used to perform scientific and teaching activities and not research projects. Therefore they are not achieving high results in international R&D project competition arena.

We tried to find out what the critical factors for successful participation in international R&D projects are. In order to answer that question, in 2006 we conducted a survey among the existing and potential project coordinators and partners at 30 faculties at the University of Zagreb. The complete results of the survey can be found on the web page of the Reference Centre for E-projects in Croatia [2]. Here we point out that the survey shows that the three

main obstacles for raising performance in international R&D projects are the following: lack of project management skills; legal obstacles and obstacles in the accounting system; and lack of administrative support to scientists.

The survey also provides an answer to the question *Which approach would mostly help raise absorption capacity for international projects in Croatia*. The highest ranked were the following: organizing training workshops in international R&D project management, web portal with all the necessary information and case studies, and financial (accounting) support for preparing and managing projects.

In order to solve some of the existing problems we have made the following steps. The mentioned portal, Reference Centre for E-projects in Croatia [2], maintained by our project team, tries to provide accurate and up to date information in Croatian and in English. Further, our project team at the Faculty of Organization and Informatics (FOI) has conducted more than 30 training workshops in international project management for almost 500 participants from 5 Croatian universities, SMEs, public institutions, NGOs and companies. At the same time several courses in project management at different study programmes have been introduced.

Furthermore, several institutions of higher education in Croatia have incorporated project management course in their study programmes at different levels in the last two years.

Here we will describe our experiences from the project management training workshops and the course entitled “Project cycles in research and development” which is set at the doctoral (PhD) study of information science at FOI.

3. Learning outcomes, assessment methods and student workload

Paradigm *Teach them what you promised and students will respond with effort* includes defining very clear learning outcomes. In order to define learning outcomes for the course at the doctoral study we used Bloom taxonomy [3] and synchronized them with the learning outcomes of the whole doctoral program which is research oriented. The outcomes have been identified at all six levels of the Bloom taxonomy. The modified (new) version of Bloom taxonomy is shown in the Fig. 1 taken from [4]

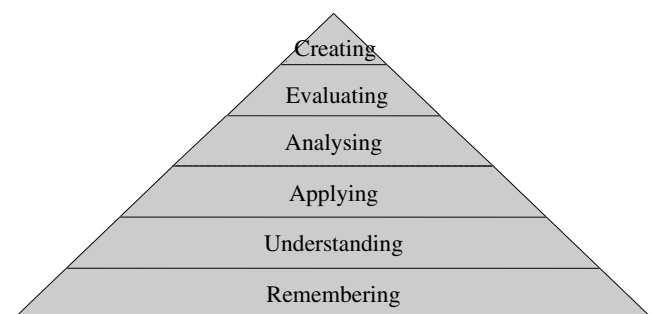


Fig. 1. New version of Bloom taxonomy.

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