

**9<sup>th</sup> INTERNATIONAL CONFERENCE ON UNIVERSITY  
TEACHING AND INNOVATION (CIDUI): LEARNING AND  
TEACHING INNOVATION IMPACTS**

**Organizing Committee CIDUI**

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**Editorial**

The Organising Committee of the 9th International Conference on University Teaching and Innovation (CIDUI) wishes to thank the Editorial Board of the Journal of Technology and Science Education (JOTSE) for publishing this special issue.

Since the year 2000, a new CIDUI conference has been held every two years. Today, it is a well-established event that provides an opportunity to share advances and innovation in the field of higher education.

Like the previous editions, this one was also committed to fostering an especially participatory working dynamic and to promoting different points of view. The programmed debates were complemented by contributions from recognised specialists regarding the main topic of the conference: Learning and teaching innovation impacts.

In relation to this general subject, papers were specifically focused on one of the four thematic axes proposed for this edition:

1. Analysis of the impact on university teaching and learning
2. New training scenes
3. Professional Development
4. Innovative methodologies in teaching – learning processes

The present special issue of the Journal of Technology and Science Education - JOTSE consists of eleven papers.

The first contribution “[Implementing the flipped classroom methodology to the subject “Applied computing” of the two engineering degrees at the University of Barcelona](#)” analysed the adoption of flipped-classroom to promotes self-learning, autonomous learning, and time management among students. The results emphasizes the increase of the student proactivity and, the habit of autonomous working.

The concept of autonomous learning is also present in the second contribution [Assessment of the Autonomous Learning Competence in Engineering Degree Courses at the Universitat Politècnica de Catalunya](#)”. It describes how the use of puzzle technique and multiple-choice questionnaires support the acquisition and the assessment of autonomous learning.

The third article “[A gamification experience to improve engineering students' performance through motivation](#)” presents the experience of using gamification to improve motivation. The study is based on the analysis of the scores of 950 students that participated in the experience.

The strategy of using gaming strategies to improve motivation among students is also present in the fourth contribution “[Room escape at class: Escape games activities to facilitate the motivation and learning in computer science](#)”. In this case, the content of the room escape was designed not only to increase motivation but also to acquire knowledge of the course. The result has been very positive.

The fifth paper “[Improving transversal competences by using wikis in collaborative work](#)” presents a virtual tool to support the information management during collaborative process. The results point out that the tool improve not only the collaboration among students but also the individual work.

The sixth article “[Laboratory 3.0: Manufacturing technologies laboratory virtualization with a student-centred methodology](#)” describe a blended-learning methodology based on the virtualization of the laboratory. The e-learning tools developed have been used not only to improve the students’ learning but also to enhance their motivation. The results from academic outputs show a significant improvement after the application of the new method.

In the seventh paper, “[Improving the learning experience of business subjects in engineering studies using automatic spreadsheet correctors](#)”, authors describe the architecture, functionality and impact of an automatic spreadsheet corrector responding to a problem-solving approach in an e-learning environment. The results show that it is a valuable learning tool to support learning.

The eighth paper, “[Use of wiris quizzes in an online calculus course](#)” describes a teaching experience focused on a continuous assessment through a systematic use of the so-called WIRIS quizzes. The results of the academic outcomes are very positive considering the difficulties on learning calculus in an online course.

The ninth contribution “[Does like seek like?: The formation of working groups in a programming project](#)” analyse the implications of changing from individual work to pair programming. The results describe the potential of collaborative learning and pair programming and show how that students do not tend to associate with students with a similar academic performance.

The tenth paper, “[How the contents of a bachelor’s degree final project of engineering evolve towards Innovative scientific knowledge. Keys to success](#)” presents a case study based on the design and implementation of a BDFP of engineering. The main goal is to improve the results of the BDFP and, at the same time, promote innovative knowledge and applications.

And finally, the article “[Examining the impact of academic development in the engineering faculties in Chile: Changes in teaching philosophy and teachers’ competencies](#)” presents the efficacy of a methodology that aims to build meaningful learning in an autonomous and successful way. The research followed a quasi-experimental design, the results show meaningful changes in the strategies for information processing, level of scientific reasoning and academic performance.

We thank PhD. María Martínez, Editor-in-chief of this Journal, for giving us the opportunity to collaborate in this special issue. We also appreciate the interest and effort shown by the authors and the reviewers of papers.

## Organizing Committee of CIDUI

The 9th International Conference on University Teaching and Innovation (CIDUI) was celebrated at the Universitat Autònoma de Barcelona (UAB), Cerdanyola del Vallès. CIDUI has worked with Scientific and Organising Committees that make sure the conferences meet quality standards. The members of these committees are made up of university professors from different scientific areas and with extensive experience. The Organising Committee consists of teaching staff, academics and administrative staff specialists in the organisation of university training and educational innovation activities.

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