A Flipped Learning Experience in an Introductory Course of Information and Communication Technology in Two Bachelor's Degrees: Combining the Best of Online and Face-to-Face Teaching

Authors : Begona del Pino, Beatriz Prieto, Alberto Prieto

Abstract : Two opposite approaches to teaching can be considered: in-class learning (teacher-oriented) versus virtual learning (student-oriented). The most known example of the latter is Massive Online Open Courses (MOOCs). Both methodologies have pros and cons. Nowadays there is an increasing trend towards combining both of them. Blending learning is considered a valuable tool for improving learning since it combines student-centred interactive e-learning and face to face instruction. The aim of this contribution is to exchange and share the experience and research results of a blended-learning project that took place in the University of Granada (Spain). The research objective was to prove how combining didactic resources of a MOOC with in-class teaching, interacting directly with students, can substantially improve academic results, as well as student acceptance. The proposed methodology is based on the use of flipped learning technics applied to the subject 'Fundamentals of Computer Science' of the first course of two degrees: Telecommunications Engineering, and Industrial Electronics. In this proposal, students acquire the theoretical knowledges at home through a MOOC platform, where they watch video-lectures, do self-evaluation tests, and use other academic multimedia online resources. Afterwards, they have to attend to in-class teaching where they do other activities in order to interact with teachers and the rest of students (discussing of the videos, solving of doubts and practical exercises, etc.), trying to overcome the disadvantages of self-regulated learning. The results are obtained through the grades of the students and their assessment of the blended experience, based on an opinion survey conducted at the end of the course. The major findings of the study are the following: The percentage of students passing the subject has grown from 53% (average from 2011 to 2014 using traditional learning methodology) to 76% (average from 2015 to 2018 using blended methodology). The average grade has improved from 5.20 ± 1.99 to 6.38 ± 1.66 . The results of the opinion survey indicate that most students preferred blended methodology to traditional approaches, and positively valued both courses. In fact, 69% of students felt 'quite' or 'very' satisfied with the classroom activities; 65% of students preferred the flipped classroom methodology to traditional in-class lectures, and finally, 79% said they were 'quite' or 'very' satisfied with the course in general. The main conclusions of the experience are the improvement in academic results, as well as the highly satisfactory assessments obtained in the opinion surveys. The results confirm the huge potential of combining MOOCs in formal undergraduate studies with on-campus learning activities. Nevertheless, the results in terms of students' participation and follow-up have a wide margin for improvement. The method is highly demanding for both students and teachers. As a recommendation, students must perform the assigned tasks with perseverance, every week, in order to take advantage of the face-to-face classes. This perseverance is precisely what needs to be promoted among students because it clearly brings about an improvement in learning.

Keywords : blended learning, educational paradigm, flipped classroom, flipped learning technologies, lessons learned, massive online open course, MOOC, teacher roles through technology

Conference Title : ICALT 2018 : International Conference on Advanced Learning Technologies

Conference Location : Paris, France

Conference Dates : October 29-30, 2018