
SUPPORTING HYBRID LEARNING THROUGH MOOC CONTENTS: COMPARISON BETWEEN DIFFERENT BACHELOR'S DEGREE PROGRAMS AND EDITIONS OF THE SAME COURSE

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Introduction

What are the effects of using MOOC content to support hybrid learning experiences in first-year undergraduate courses? Do freshmen really take advantage of them? In this time in which more and more institutions are fostering hybrid education there are still numerous challenges in its implementation, especially in lower level courses, as students taking them are still used to more traditional teaching practices. This work in progress analyzes the effect of using MOOC content to support hybrid teaching and learning in a first-year course of several bachelor's degree programs. Results are presented and compared from two editions of the same course, "Systems Programming" (2016/2017 and 2017/2018 editions), delivered in the first year of four programs (Audio-visual Systems Engineering, Telematics Engineering, Communication Systems Engineering and Telecommunication Technologies Engineering), and in which teachers provided students with a SPOC in Open edX with the contents of the course. These contents included videos and intertwined activities (both quizzes and programming exercises), which cover the whole course syllabus. As a consequence, face-to-face lectures were redesigned to devote more time to problem solving, teamwork and interactive activities. Students could also use a gamified mobile app called FlipApp, which served to get virtual points as they watched videos and did exercises (both through the app or through the web browser). But, is it really possible to implement a "pure" flipped classroom fully eliminating expository lectures? The aim of this work is to try to find difficulties in the content offered to students and understand the maturity level of the hybrid experience comparing different editions.

Methodology

We have taken four bachelor's degree programs in which "System Programming" is taught (tagged as GITT, GISA, GISC and GIT), and two consecutive academic years. In the 2016/2017 academic year, the university decided, for logistical reasons, to combine two of the degrees (GISC and GIT) in the same group (both degrees attending the same face-to-face-lecture), so, in the analysis, this academic year includes three groups. In the 2017/2018 academic year, the two aforementioned degrees were separated, and therefore the analysis includes four groups. The use of SPOC in the different groups and editions is shown below, separating the use of videos (Figure 1) and the use of exercises (Figure 2).

Analysis

We have compared student activity across the four groups and the two academic years and the overall results are shown below. It is noteworthy that, in the first academic year, the last week (week 7) did not have any activities (as these were under development). These overall results contain a drop in the videos watched and exercises submitted over the weeks. In general, students start out strong, dedicating time to the SPOC, but as the weeks go by and other courses also demand their attention, students' activity in the SPOC decreases. The existence of partial exams also serves as a reality check for some students who tend to leave the course if they get very low grades. These overall results are a sample of what will be presented at the workshop, as there are records of students' activities by week, by video and by exercise. This information is very useful to identify problems with the course contents and also the times when students begin to drop out the course.

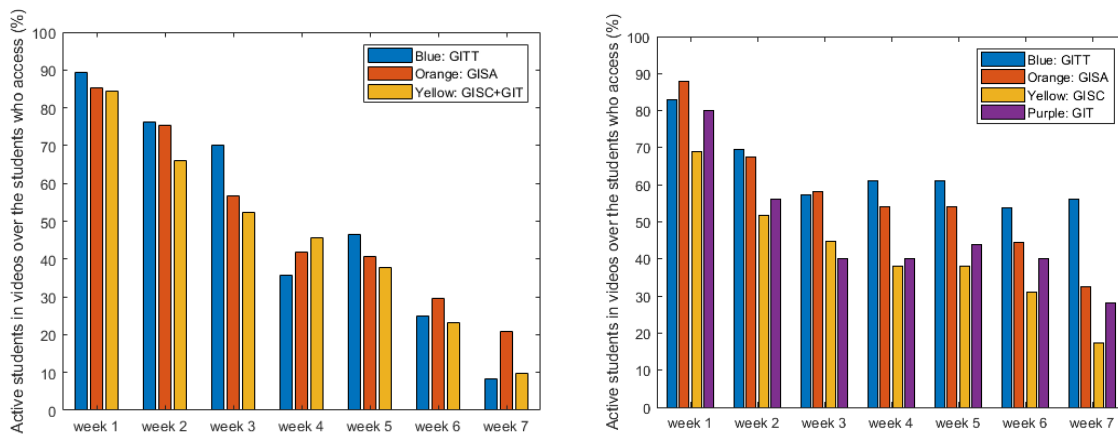


Figure 1: Active students in videos in the 2016/2017 (left) and 2017/2018 (right) editions

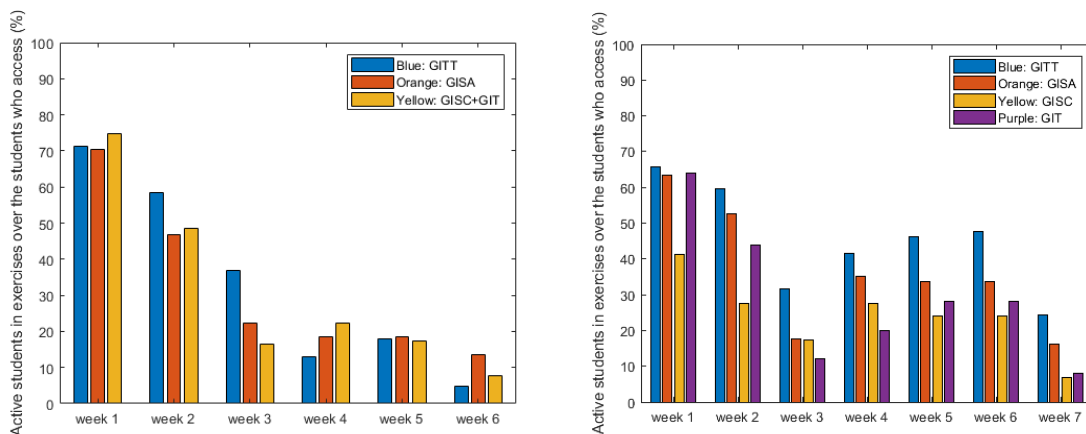


Figure 2: Active students in exercises in the 2016/2017 (left) and 2017/2018 (right) editions

Conclusion

These preliminary results show a moderate success on the implementation of a hybrid experience. On the one hand, there was an important group of students who used the SPOC intensively and in a sustained way. On the other hand, there was a group of students who did not even enter the SPOC. Finally, there was a group of students who entered at the beginning but stopped their activity as the weeks went by. In a scenario like this it is difficult to implement a “pure” flipped classroom, as a large group did not work on the course content as they should, before going to the classroom. It is important to point out that this analysis was done in a first-year course of several bachelor’s degrees programs, when students are not yet used to the constancy of work required to study an engineering degree, this methodology being new to most of them. Students' motivation is the key and needs to be strengthened, especially in these lower courses. More technologies and tools need to be incorporated with the aim to reinforce their motivation toward the course content.