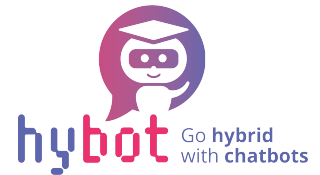




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hybot

Enhancing hybrid teaching in higher education through chatbots

Transitory Hybrid Learning in Structural Engineering at Technical University of Košice



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INTRODUCTION

The Technical University of Košice, as many during the COVID pandemic, adopted an online methodology. As restrictions started being lifted, only a number of students were allowed back to the classroom, which brought the need to train teachers in Hybrid Learning.

GENERAL CONTEXT OF THE HYBRID TEACHING PRACTICE

- Implementer: Technical University of Košice (Košice, Slovakia)
- Study program: Mechanics of Structures (Bachelor degree)
- Lifetime of the case: October 2021 – ongoing
- Reference: based on an interview with Professor Martin Lavko
- Compiled and structured by Université Côte d'Azur

PARTICIPANTS AND PREVIOUS EXPERIENCE

This hybrid teaching case was implemented at the Technical University of Košice (TUKE) with the 2nd year full-time students of the Bachelor study program “Mechanics of Structures” of the Faculty of Civil Engineering. Hybrid teaching scenario was embedded throughout all the curriculum.

The class is composed of approximately 20 students per lesson, with an average of 5 to 10 students online and 10 on site. The students are in their early 20s. Most of them are males and there are no handicaps reported. The interviewed teacher has used this model in two European Engineering programs before the current practice, he has also held workshops in Engineering since the beginning of the COVID-19 pandemic.

INITIAL SITUATION

The hybrid teaching case at TUKE started in October 2020 mainly because of COVID-19 and now is still continuing due to the conflict between Russia and Ukraine. Also, as explained by the interviewee, worried by a possible low performance among students in fully online classes, teachers had a general interest in reestablishing on-site classes. Due to the social circumstances and restrictions, hybrid teaching was a viable solution they found.

CURRENT REASON

It is valuable to mention that teachers of this program are not forced to use hybrid teaching and some of them are still working fully online. The directions from the university allow teachers to either use hybrid teaching or online lessons as they deem convenient.

According to the interviewee, although the main goal and learning objectives found originally in the program have not changed, at the beginning of the practice, teachers were



less strict in terms of student assessment and assistance to allow them to adapt easily to the new teaching method.

LEARNING OBJECTIVES

The domains of the learning outcomes are connected to the following:

- Static and dynamic calculations of steel, concrete, wooden, composite and composite structures;
- Geometrically and physically nonlinear calculations: rope, membrane and tensegrity structures, wooden, steel, composite and composite structures, geotechnical calculations;
- Dynamic analyzes: natural and technical seismicity (earthquakes, excitation from machines and traffic, explosions) analysis of air flow affecting buildings;
- Static and dynamic analysis in software (ABAQUS, ANSYS, EASY, SCIA ENGINEER, DLUBAL, GEO5, MATLAB...);
- Design checks according to EC standards and required standards;
- Expertise and expert opinions;
- Providing vocational training;
- Retraining services and counseling.

HYBRID TEACHING SCENARIO

Regular lessons are offered as synchronous courses, which the teacher conducts with a part of the students on site at the regular learning locations. Other students are not physically present and participate synchronously via WEBEX. In addition, live online lessons and recordings are used to enrich synchronous and/or asynchronous course. Students and teachers interact with each other synchronously and/or asynchronously via email or Moodle depending on the setting.

INTERACTION AMONG PARTICIPANTS

The teacher mainly relies on WEBEX to foster student interaction. The teacher mentioned that he prefers to pair students in teams according to their assistance modality: he pairs up online students with online students, and on site students with on-site students. According to his experience, mixing online students with on-site students is not convenient and rather hectic due to the advantages that on site students have when they interact. In this sense, it is believed that there are activities where it is better to interact on site and students are encouraged to come to the university for hands-on activities such as model construction tasks. At this point, no tools or strategies of inclusive or diverse education are used.



HARDWARE AND SOFTWARE USED

The classes are held within a normal classroom equipped with a touch screen computer, WEBEX by Cisco, emails, Miro and other digital whiteboards. The hardware used comprises a smart screen with camera and speakers that display online students, and a regular screen for the teacher to present anything. The software used by the teacher and the students on site includes Moodle and WEBEX and interactive features of each software as H5P and WEBEX' digital whiteboards. Online students use their computers or smartphones to attend classes remotely. Additionally, the teacher uses a regular whiteboard. No chatbots are currently being used. The teacher mainly relies on recordings, pictures (JPEG, PNG), PDFs, and paper-based books. The information is available on Moodle.

ASSESSMENT

Assessment is both formative and summative. The assessment in this hybrid teaching practice does not include alternatives to the traditional type of assessment, such as mid and final term evaluations, assignments, and presentations. The teacher relies on previous evaluation criteria based on the goals to be achieved for each class. The grades are filled in an excel sheet and shared to the students.

STUDENT EVALUATION

Although there is not a specific moment to provide feedback, students are always encouraged to write or give suggestions any time to the teacher in charge of the hybrid teaching practice. The teacher reports that students in general are more interested in assisting on site. The students have not commented on hybrid teaching itself, the feedback received is more focused on the course content.

TEACHER EVALUATION

There was voluntary training provided by the university in the form of an Employee Assistance Program (EAP). The teachers find hybrid teaching suitable for the time being, but their opinions are divided on whether their courses should remain hybrid.

QUALITY ASSURANCE

First, feedback from students are taken into account to make any changes to the practice. Second, there is a directive questionnaire for teachers and coordinators so they can rate equipment and software use. Upon completion of this questionnaire, the teachers exchange practices, ideas, and suggestions during a meeting.



TRANSFERABILITY AND SUSTAINABILITY

According to the description of the experience, engaging students in hybrid teaching could be challenging sometimes. The teacher felt he had to do an extra effort to ensure attention among students. The general dynamic of the class did not feel seamless. Among the teachers, hybrid teaching was considered as a transitory methodology rather than a sustainable one.

Hybrid teaching is not institutionally mandatory or set as the main approach so it is uncertain that any policy can guarantee future implementation in this practice.

STRENGTHS

- Flexibility in attendance,
- Immediate access to digital files,
- Better than fully online to get reactions.

WEAKNESSES

- Lack of equipment and digital tools makes practice difficult;
- Lack of experience of some teachers and students in hybrid teaching can change the perception and completion of the courses.

GOOD PRACTICE ADVICES

- Explore online digital tools such as Zoom, Miro, WEBEX,
- Having and getting familiar with the right equipment.