

Experiences with flipped classroom teaching in a vibration analysis class

Anders Brandt

Dept. of Technology and Innovation, University of Southern Denmark, Denmark, abra@iti.sdu.dk

Christopher Kjær

Center for Teaching and Learning, University of Southern Denmark, Denmark, ckjaer@sdu.dk

ABSTRACT

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Flipped classroom is a relatively new teaching form, aimed at improving the learning process by allowing more active discussions between lecturer and student (Este et al. 2014, Hachmann & Holmboe 2014). The concept is that the students study the course stuff prior to class, for example by watching videos of lectures, or by working through a text. The classes are then focused more on assignments and discussions targeting higher cognitive functions. This can make better use of the teacher's competence, as the focus can be on the more difficult things in the course content, while also aiding the students better. The definition of flipped classroom teaching that we subscribe to can be defined as "... that students gain first exposure to new material outside of class, usually via reading or lecture videos, and then use class time to do the harder work of assimilating that knowledge, perhaps through problem-solving, discussion or debates" (Brame 2015).

In the present paper, we discuss some recent experiences of using the flipped classroom technique for a course on experimental vibration analysis. First, using Bloom's revised taxonomy (Andersen & Krathwohl 2001) which learning goals can be characterized as lower levels of cognitive work which students can work with outside of class and which learning goals can be characterized as the higher forms of cognitive work where the students' needs to have support in class by the more experienced teacher were defined. Videos presenting the main theory for each lecture were then recorded and published on YouTube (Brandt 2017), and exercises for student preparation before each lecture were developed. Next, multiple-choice questions for using clickers, and questions for discussion during the lectures, were developed. The experiences so far are that the teaching technique is relatively time consuming to implement, but that the students appreciate being able to work with the course stuff at their own pace while preparing for the class. Also, it turned out that the way the videos were used was very different among different students.

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