Use of Student Grouping to Make Flipped Classroom More Effective

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Abstract

Flipped classroom, i.e., the reversal of the roles of the classroom and home study, has been attracting increased attention due to the expected improvement in learning. In the flipped classroom methodology, students study the lesson before coming to class and then obtain more advanced face-to-face learning in class. We have developed and evaluated a method to make classroom flipping more effective.

In our proposed method, students are divided into three groups before each class on the basis of their e-learning self-study logs and level of understanding. The three groups are students who studied the lesson and understand the contents, students with poor understanding even though they thoroughly studied the lesson, and students who do not understand because they did not study the lesson. The face-to-face learning in class is done separately for each group.

We compared our proposed method with traditional classroom flipping without grouping by testing using 70 students in a system engineering class on information theory at the Shonan Institute of Technology [1]. We found that our method better improved the level of understanding of the students with poor understanding and students who did not study the lesson. Furthermore, it also improved the level of understanding of the students who studied the lesson and understood the contents.

The grouping was done manually and took much time and effort. Manual grouping is thus impractical for weekly classes. We therefore developed a tool to automatically group students so that it can be practically implemented. This tool is designed to automatically divide the students into three groups and graphically display them on the screen by giving the logs of the learning time of self-study and the achievement test score after self-study. This tool can also regroup automatically grouped students with the mouse. In the presentation, we will show outlines and effectiveness of our proposed flipped classroom method, and future plans.

Reference

[1] Katsuyuki Umezawa, Manabu Kobayashi, Takashi Ishida, Makoto Nakazawa, and Shigeichi Hirasawa,"Experiment and Evaluation of Effective Grouped Flipped Classroom," Proceeding of the 5th International Conference on Applied Computing & Information Technology (ACIT 2017), pp.71-76, July 2017.