

The main objective of this project was to align students' classroom activities and subsequent methods of assessment with designated learning outcomes, specifically identified to maximise student involvement and enhance retention and application of relevant educational material. This was achieved by highlighting the main barriers and difficulties, based on the literature and personal teaching experiences, in the development of flipped classroom and mapping out methods to address and ultimately, overcome them.

Additionally, this project assessed the quality and effectiveness of the implementation of the flipped classroom by measuring critical learning outcomes, such as the ability to problem solve, think critically and also display a distinct sense of creativity when presented with appropriate methods of assessment.

The project involved five team members in total. More than 1,500 questionnaires were collected from 544 students across 12 courses within the faculty of Education. Various methods of flipped learning approached were used to create micro-modules using tools such as PowerPoint, Blackboard & YouTube Online video hosting, and ECHO 360. Focus group and one-on-one interviews were conducted to further supplement the data collected and provide a deeper insight into the evaluation of using the flipped learning approach to enhance the student learning experience. Students' perceived competence and their motivation towards learning were key measurable within this project to assess the impact of flipped learning within the normal course curriculum. Following the analysis of the interviews with individual instructors, some common themes emerged in terms of optimizing the effectiveness of the flipped-teaching implementation. These included:

- Linking assessment to the usage of micro-modules (approximately 30% of the course mark);
- Modifying assignments to encourage engagement in the blended approach;
- Preparing questions and facilitating discussions to supplement the student involvement;
- Ensuring the implementation is student-centred, as much as possible;
- Gradually deliver the modules to the students, rather than dumping them all at once, particularly if it is their first experience of flipped-learning;
- Apply the blended approach as a method to motivate the students both intrinsically and extrinsically and provide the option for the students to view the modules in multiple languages, wherever possible;
- The mentality of the instructor should to become a facilitator, rather than a teacher;
- Limit the length of videos or animations to less than 10 mins, so that the attention of the student can be retained throughout;
- Be conscious of class size; a large class (> 50 students) may limit the effectiveness of the approach;

In terms of long-term impact, the results of the study will provide a foundation and framework to develop flipped classroom teaching materials and assessment tools. Furthermore, the results would help to identify elements of the flipped classroom that enhances students' learning experience and outcomes. Such feedback will provide

evidence to support the modification or future development of corresponding teaching materials. If the approach is deemed successful, the framework developed will benefit both instructors (in designing courses and corresponding teaching materials) and students (for receiving instruction that is more conducive to their learning).