Project Title: Peer instruction with Students’ Response System (SRS): Using mobile devices as students’ response systems to transform large classes into an interactive learning environment

Leading Institution: The Hong Kong Polytechnic University

Participating Institution(s): The Chinese University of Hong Kong

Project Leader(s): Dr Kevin Hin Wang Chan, Department of Applied Social Sciences, The Hong Kong Polytechnic University

More and more researchers and educators underscore the efficiency of knowledge transfer through active participation of students. However, the increasing number and sizes of large classes, resulting in fewer opportunities of in-class interactive activities in the higher education sector, pose new challenges for more effective learning. With the aim to engage students in a large class context, the current project advocates the promotion of active learning through peer instruction, a pedagogy in which students discuss and learn from each other in a flipped classroom context. Facilitation is conducted through a students’ response system, i.e. using electronic devices such as smart phones and tablets to enable students to answer questions and receive feedback instantly in class.

Peer instruction, pioneered by Prof. Eric Mazur and the Mazur Group at Harvard University, emphasizes the active participation in class through discussion on questions requiring understandings of underlying concepts in a small group setting. Lectures are interspersed with conceptual questions based on common misconceptions of students.
In large peer instruction classes, identification of such misconceptions is attained by referring to the student responses in the students’ response system. Clarifications of concepts are achieved through processes of asking questions and formulating answers.

Peer instruction provides opportunities for peer learning when students discuss the reasoning behind arriving at their responses, particularly in a controlled setting where students who are above average in class are assigned to assist their classmates.

In the proposed 3-year span, the interactive pedagogy of peer instruction with the adoption of SRS will be introduced at participating institutions, the Hong Kong Polytechnic University and the Chinese University of Hong Kong. The PolyU lead team has assembled 27 teachers from 5 faculties (Health & Social Sciences, Business, Engineering, Humanities, and School of Hotel & Tourism Management) in over 10 subject areas across all levels of study (i.e. Year 1 to 4), of major and electives, and of various class sizes (i.e. 20 to 400 students). The Centre for Learning Enhancement and Research (CLEAR) will represent the Chinese University of Hong Kong as one of the partners of the project. Around 15 collaborators on the teaching front from 4 faculties (Medicine, Business Administration, Social Science, and Arts) at the Chinese University of Hong Kong are anticipated to participate in the project.

Training on peer instruction will be provided by our international collaborative partner, Prof. Eric Mazur from Harvard University. The training will be delivered through live on-line classes at the initial stage of the project, with a follow-up lecture and workshop organized at Poly U. In the second year of the project, the project team will visit the Mazur group at Harvard, sharing experiences on the implementation of peer instruction, as well as seeking advice on challenges that may be encountered.

To successfully promote the pedagogy of peer instruction in large classes, SRS technology will be utilized to expedite the in-class discussions. The project will adopt an existing proprietary students’ response system used by PolyU (i.e. the Turning Point system) and a home grown students’ response system (uReply) developed by CUHK (Lam, 2013) for SRS administration.