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## Editorial

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**Biographical notes:** Qiyun Wang is an Associate Professor in the Academic Group of Learning Science and Technologies at National Institute of Education, Nanyang Technological University, Singapore. His research interests include social media for teaching and learning, online learning, Web 2.0 tools, web-based learning environment design, and interactive learning.

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Welcome to this special issue about ‘flipped classroom’. Flipped classroom is a relatively new pedagogical approach in which lectures and homework activities are often reversely design. Students usually watch video lectures at home before a class session while do exercises, projects, or discussions in the classroom. By following this approach, it is observed that students often become more active and responsible for their learning. The challenge is that teachers have to carefully prepare their lessons and make videos ready before class, and also change their roles from being lecturers or presenters to facilitators.

In recent years, the flipped classroom approach has attracted much attention of educators, and an increasing number of teachers are excited about this approach and exploring this approach in motivating students and improving students’ learning outcomes. However, it seems that a limited number of empirical studies on the design and outcomes of flipped classroom have been conducted and published in the literature.

In this special issue, we are happy to publish six articles about using the flipped classroom approach to improve learning processes and outcomes. In the first article written by Hewitt, Journell and Zilonka, a comparative case study of the use of flipped instruction in two courses – one face-to-face and the other online – by the same instructor was conducted to examine how flipped instruction can be used differently in different courses. The study examines how students interact with flipped video content and how their use of it supports self-regulated learning.

In the second article written by Seitz and Orsini, the researchers conducted a qualitative study to examine students’ perceptions of using the flipped classroom approach. Undergraduate students who enrolled in a flipped public health course were invited to participate in the study. Thirteen students participated in semi-structured interviews to discuss their thoughts and experiences regarding the flipped classroom. Students viewed the flipped classroom according to out-of-class and in-class activities. Students felt that out-of-class activities were convenient, accommodated different learning styles, and were important for being prepared for class time. In terms of in-class activities, students enjoyed interactive activities, but some viewed the activities as

anxiety provoking. Students also viewed in-class activities as useful for building student-instructor rapport.

In the third article, Saab and Stengs carried out a quantitative study on teachers' perceptions of using the flipping the classroom approach. They investigated whether teachers who used this approach carried out different professional learning activities, felt more autonomous and had more knowledge about the integration of pedagogy, technology and content than teachers who did not do so. The study was conducted through two questionnaires completed by 71 and 41 secondary education teachers respectively. The results indicated that teachers who applied the flipping the classroom approach stated that they performed more individually oriented professional learning activities and were more developed in TPACK compared with teachers who did not use flipping the classroom.

In the fourth article, Hurley conducted an empirical study to investigate both students' and teachers' perceptions of flipped course design and learning in a technologically advanced, interactive learning space. Quantitative and qualitative data revealed positive, reflective responses to student and teacher experiences with the flipped learning model (flipped content, pace of information delivery, in-class homework) and interactive classroom environment (learning environment, innovative technology, transparent problem-solving). The interactive technology in the class environment allowed students to experience multiple methods and opportunities for mastering content and skills. This environment also encouraged risk-taking in both teaching and learning.

In the fifth article written by George and Kopcha, an empirical study was conducted to examine students' performance and perceptions of using the flipped classroom approach. Seventy-five high school students in an urban setting used a flipped model of instruction to support their mastery of mathematics benchmarks. Survey data and benchmark assessment results were collected to determine if the flipped classroom intervention prepared students to pass benchmark assessments, what students perceived to be the advantages of a flipped classroom, and whether students preferred having access to online course material. Their study suggested that transferring course material online to flip instruction could promote student success, responsibility, control, and satisfaction.

In the last article written by Yee and Partin, a literature review on the barriers of the flipped classroom method was conducted. They identified four common challenges which impede on the process of flipping a classroom. They are: the time commitment, a lack of institutional support, fear of technology, and budgetary constraints. Overcoming these barriers is essential to successfully flipping a classroom, particularly in the area of video design. The authors also offer suggestions for improving best practices to overcome these barriers and create a positive experience for students, instructors, and institutions.

Among the six articles, five of them are empirical studies and one is a literature review on the barriers and challenges of using the flipped classroom method. Four empirical studies are qualitative in nature and one is quantitative. In addition, three articles examined on students' perceptions, one on teachers', and another on both students' and teachers' perceptions of using flipped classroom. Five articles are contributed by researchers from the USA and one from The Netherlands. These numbers imply that this special issue covers a variety of articles. Hopefully by reading the articles, readers can gain experiences of effectively using the flipped classroom approach to improve teaching and learning.