

Joint School Mathematics Learning Circle

Mr CHAN Chi man Benjamin
Helen Liang Memorial Secondary School (Shatin)



The Joint School Mathematics Learning Circle was set up on 2 October 2018

As Mathematics teachers, it is our shared goal to build up students' confidence and empower them with the fundamental knowledge of learning Mathematics to overcome their frustration and enhance effectiveness of learning. In view of this, on 2 October 2018, Mathematics department of our school, Helen Liang Memorial Secondary School (Shatin) (HLMSS(ST)), Lung Cheung Government Secondary School (LCGSS) and Sha Tin Government Secondary School (STGSS) had jointly set up a learning circle where teachers from different schools could work closely together to design and develop a student-centered pedagogy.

To build a learning circle, teachers could design new pedagogy and develop innovative ideas through cooperation among schools. The circle provided a good opportunity for us to conduct a well-structured action plan to analyze students' needs, formulate a teaching plan with targeted strategies and adopt the appropriate evaluation methods for learning. Several tailor-made teaching exemplars of a topic were developed after a thorough discussion among the participating teachers.

To implement the teaching plan, each participating school needs to define a topic for teaching. With teachers' collective wisdom we designed a teaching plan, followed by a trial lesson conducted in one of the participating schools for lesson observation. Members in the learning circle would then conduct a review of the outcomes and evaluate the effectiveness of the teaching strategies and the learning activities conducted. We also evaluated how well students had learnt and learning assessments were conducted.

The first trial teaching on "Percentages" was conducted in a S.1 class in Sha Tin Government Secondary School in November and December; while the second teaching on 'Transformations of Points on the coordinate plane' was conducted in the second term from April to May at our school. The appropriate elements of e-learning (e.g. Flipped classrooms), collaborative in-class activities and assessment of learning were added to foster students' capabilities to learn Mathematics in a more interactive and systematic way. As a whole, the classroom atmosphere was positive and the students were fully engaged. Most of the teachers strongly agreed that the Learning Circle successfully broadened their horizons and enhanced the effectiveness of teaching and learning through cooperative communication and learning.

Assessment for Learning was also conducted to help teachers understand students' performance and weaknesses. Teachers could further adjust the teaching pace and strategies to cater for students' needs. By reviewing the pre-test and post-test results, students of our school and the Sha Tin Government Secondary School had made a good progress on these two topics. Most students agreed that the diversified teaching strategies, including e-learning and interactive in-class activities, could arouse their interest and ability in learning Mathematics. What's more important was that students learnt to apply their knowledge in solving the Mathematics problems with the aid of e-learning.

E-learning had proven to be a key to success in explaining Mathematics concepts and help students conduct "Assessment for Learning" on their own. In addition, GeoGebra, known as one of the most useful Apps for teaching Mathematics interactively, was implemented last year. It clearly illustrated the concept of transformation and enabled students' self-assessment by online quizzes.

In conclusion, both teachers and students involved in the learning circle valued that the innovative teaching strategies can arouse students' interests and motivation in learning Mathematics. On the other hand, all the participating teachers agreed that the circle had widened their horizons and gave them a new insight into teaching Mathematics. Thanks to the support and encouragement of the Principals of the three schools, the project had achieved great success. The Mathematics Department of our school will continue to join and take it as one of our school learning strategies in the next academic year.

Different group and IT activities in the lesson observations at STGSS and HLMSS(ST)

