Learning boosts if students teach!

Learning Through Teaching- An Undergraduate Learning Assistant Scheme
By: Prof. LIN Hai Qing, Prof. CHU Ming Chung and Dr. PANG Kam Moon
From: Department of Physics
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Peer teaching: The Learning through Teaching Project

Students often find it difficult to explain what they have learnt in words because memorising a piece of fact is different from explaining reasons behind it. There are gaps that yet to be filled between facts in order to get a complete understanding of knowledge. Therefore, peer teaching is considered to be a direct approach that connects scattered facts of study into an integrated concept, which is essential to the acquisition of knowledge.

'Learning through Teaching – An Undergraduate Learning Assistant Training Scheme", as its name suggested, is a training programme that employs peer teaching as the central learning activity. If students have the chance to teach, they would better understand theories and knowledge relevant to their area of study as there is a chance that students might come up with questions what they know is not enough to answer.

Learning through Teaching – an Undergraduate Learning Assistant Training Scheme

(URL: http://www.phy.cuhk.edu.hk/tdg)

It is a big challenge to transform students from the role of learning to that of teaching. As a means to impart knowledge and skills that constitute an effective style of teaching, students are required to go through various trainings.

The schedule of training was in 3 main stages, started in January and finished in September of the same year.

Stage I of this programme was in 2 parts, a talk and a series of workshops. A former teacher was invited to share her experience in teaching and to highlight some of the key differences between the new and the old senior secondary education system in Hong Kong in the first part of stage I. The latter part of stage I equipped students with the means to turn their weaknesses into strengths. The series of workshops attempted to improve students' proficiency with regard to time management, presentation, confidence, communication and goal setting. Students were entitled with the duty as Learning Assistants of the programme after completing Stage I.

In stage II, Learning Assistants were required to teach students who had enrolled for physics general education, about the fundamentals of Astronomy during the course of two star-gazing sessions. In particular, first session had intended to educate subjects with the basic skills to observe stars whereas the second session had intended to introduce astrophotography plus operation of the digital planetarium dome which was borrowed from the Space Museum of Hong Kong.

Besides preparing materials for teaching, Learning Assistants were also responsible for devising contingent measures in the case of emergency.

While university teaching was heavily based in theory, they hadn't had many opportunities to visually see how science is applied in reality. Learning Assistants were given the chance to visit either the Science Museum or the Space Museum. Both visits allowed students to experience the application of science in practice and to refresh their understanding with the inceptions of the latest scientific advancements.

Last activity of Stage II served as an "examination" that assured Learning Assistants were knowledgeable within their area of expertise. The department had decided to use clickers as the tool for assessments since it provided instant feedback that allowed tutors to correct any forms of misunderstanding at the point when mistakes were made.

Stage III extended the concept of peer teaching to the context of educating secondary school students. Students in Stage III were assigned to teach in different secondary schools under the supervision of experienced teachers who were affiliated members of the university. They were selected with respect to their academic achievements, performance during a panel interview and degree of willingness to teach upon graduation. Selected candidates would undergo various trainings that equipped students both technically and intellectually. Student teachers were then responsible for preparing notes and exercise, supervising lab sessions, teaching remedial and/or enrichment classes or even organizing extra-curricular activities. In addition to attending extra trainings that educated students with skills to facilitate teaching in secondary schools, they had to gather timely to reflect on their experiences in teaching.

Advantages of this learning activity

- Consolidated skills and knowledge of what students had learnt previously
- Gained solid working experience under the supervision of experienced fellow
- Acquired soft skills that are essential to other career
- Inspired the interests and passion of non-physics undergraduates

Feedback from teachers and students

At the end of each stage, questionnaires were given to investigate on the opinions of students towards the effectiveness of each activity. On the other hand, focus groups were conducted to collect feedback from students who had undergone placements in secondary schools. In summary to these studies, students were generally positive with the programme. They had agreed with the benefits (acquisition of knowledge and soft skills) that the course intended to deliver. However, some students had doubt about the connections between stages of the programme. In particular, skills acquired in stage I might not be fully reinforced in subsequent stages. Nevertheless, they perceived the experience to be pleasant, valuable and enjoyable.

The success of this programme was dependent on the combined effort of experts in multiple disciplines. Yet it was expensive to hire experts. Therefore, administration of this project was very resource-demanding. Moreover, only a few students had entered stage III of the training,

and hence, the idea of peer-teaching hadn’t been fully integrated into the education of all students in this course.