The Hong Kong University of Science and Technology

CELT NEWSLETTER

Center for Enhanced Learning and Teaching

Spring 2008

# Third Teaching and Learning Symposium
# "Learning Impact through Teaching Innovation"

Over 150 faculty, educators and guests from HKUST and other institutions attended the third Teaching and Learning Symposium which was held on 11 December 2007. It was a full-day program which aimed to showcase and celebrate continuous improvement in the quality of teaching and learning at the University. A keynote lecture on "Designing Innovative Higher Education Programs: Insights from Research and Practice" was given by Prof Karl A Smith of Purdue University and the University of Minnesota. In addition to the learning and teaching exhibition, nearly 30 papers were presented by the UST teaching community. They were categorized into the following five topics:

- Teaching and Learning Strategies
- Technology-supported Teaching Aids
- Campus-wide Technology Innovations
- Student Learning at HKUST
- Tertiary Language Teaching



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# The Teaching Innovation Awards 2007

The presentation ceremony of the Teaching Innovation Awards 2007 was a highlight of the third Teaching and Learning Symposium. Four professors and their teaching teams and one instructor from the Language Center were honored by our President, Prof Paul Chu, for successfully introducing new ideas, techniques and practices in teaching. The five winners are:

- Prof Jogesh K R Muppala *from the Department of Computer Science and Engineering*
- Prof David P Rossiter's Teaching Team *from the Department of Computer Science and Engineering*
- Prof Mike K P So *from the Department of Information and Systems Management*
- Prof Philip I K Sou's Teaching Team *from the Department of Physics*
- Mr Sean W J McMinn *from the Language Centre*


For details, please go to *http://celt.ust.hk/tlsymp07/index.htm*

# Panel Discussion – "Innovation in Teaching and Learning: Making it count for students and teaching staff"

As a conclusion to the Teaching and Learning Symposium, a 50-minute audience particiatory panel session on supporting and sustaining teaching innovation was convened. The panel members were the keynote speaker, Prof Karl Smith, Prof T K Ng, Associate Dean (Undergraduate) of the School of Science, and Asst Prof Thomas Hu from the School of Engineering. The session was chaired by Dr David Mole, Assistant Vice President for Academic Affairs.

The session was structured around two key questions:

1. To further enhance teaching innovation at HKUST, what learning areas (e.g. critical thinking) and/or curriculum sites (e.g. freshmen courses) for innovation do you see as potentially providing the biggest impact on student learning? In short, where should we all be focusing to obtain the biggest impact for the funding?
2. In addition to teaching development project funding, what other ways could teaching innovation be further enhanced and supported at HKUST?

Below is a summary of the key points mentioned by panel members and the audience during the closing plenary session.

### HKUST's Changing Teaching and Learning Context

Education at all levels in Hong Kong is now working towards the 3-3-4 education reform and this has brought about considerable changes to secondary school teaching and learning, which are impacting on higher education

entrants now and will continue to do so even more into the future. Students are now required to pursue more broad-based knowledge for longer rather than specializing so early in the educational life. Alongside this, students' ways of learning, and their interests and passions, are also changing. As the designers of learning experiences and programs, we have to be innovative to ensure that the new 4-year curricula integrate and develop well both along the 4-years and across the whole curriculum; core, co- and extra-.

## Site / Areas for teaching innovation

The focus of teaching innovation should be put on stimulating students' curiosity and passion. Teachers have to decide at the program level what can get carried through in different knowledge areas as well as put effort into changing students' conventional expectations and mindset about tertiary studies.

Today's students are more likely to 'question' teachers' knowledge authority; and thus lecturing has become a privileged event. Consequently, teachers have to be more innovative in their teaching. Teaching approaches that foster the development of higher order thinking skills and also are cater to various learning styles, paces and needs, such as case-based learning, need to be extended further. Classroom settings and learning task design may have to be modified to encourage these forms of deeper engagement. Technology-supported teaching methods, like simulations, can also be used to develop students' higher-order thinking skills. As a result, interactivity among students will be greatly enhanced.

## Sustaining teaching innovation

The outcome-based education advocated by UGC provides impetus for curriculum teams and teachers to be innovative in the teaching and learning approaches they adopt. It is also helping to create consensus at the University, School and Departmental program levels as to what we are trying to achieve and recognition of the need to change methods. It is felt that more support, in the form of consultations, experience sharing and building up communities of innovators for sharing and recognition, are needed to enhance these developments. Cross-disciplinary collaboration should be encouraged. Students also will need to be supported through frameworks and tools in their engagement of new ways of learning. Last but not least, teachers and students alike will need to possess an attitude of experimentation, be curious and open-minded with respect to both teaching and learning.

## Publishing and Presenting Opportunities for the Scholarship of Teaching and Learning (SoTL)

### International Journal for the Scholarship of Teaching & Learning (IJ-SoTL)

IJ-SoTL is 'an open, peer-reviewed, international electronic journal published twice a year by the Center for Excellence in Teaching at Georgia Southern University. It focuses on higher/tertiary education settings that use original research about teaching and learning topics. The results of the research are to be analyzed and evaluated for their meanings, implications, and applications for the improvement of student learning in higher/tertiary education today. All submissions undergo a double-blind peer-review process'.


*http://www.georgiasouthern.edu/ijsotl/sotl.htm*

*Call for Papers:* Manuscripts for the July 2008 (Volume 2, No. 2) issue may be submitted by May 15, 2008. For submission guidelines, please visit *http://www.georgiasouthern.edu/ijsotl/sm.htm.*

# Prof Karl A Smith's Visit

We were honored to have an overseas distinguished guest Prof Karl Smith from Purdue University and the University of Minnesota visited us in December. Apart from given a keynote speech at the Third Teaching and Learning Symposium, Prof Smith conducted a workshop and in his role as OBE consultant to the School of Engineering, met with all its departments to move the OBE initiative forward during his 5 days on campus.

### Workshop

Topic: *Design and Implementation of Pedagogies of Engagement: Strategies from the National Academies Workshop on the Knowledge Economy and Postsecondary Education*

Participants in this interactive workshop explored the professor's role in designing and structuring "Pedagogies of Engagement" to create high-quality learning environments for students.

*"It's a very enjoyable workshop, which provides valuable inputs to prepare us for the OBE era."*

### What participants said about the workshop...

*"Interesting and applicable."*

*"Impressive and wonderful experiential learning experience — let us understand more how students learn in PBL tasks."*

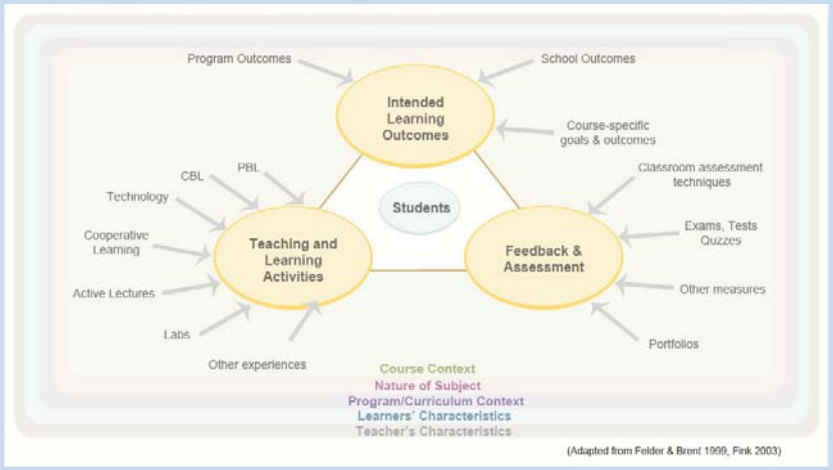
*"The workshop provided many stimulating ideas about outcome-based teaching especially the exercises and videos he used in the workshop"*

# Outcome-Based Education: Where Are We Now?

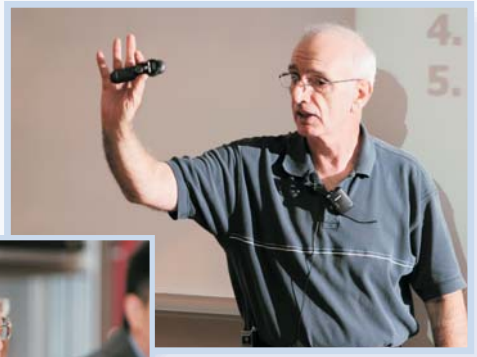
## An Update on Outcome-Based Education at HKUST

[*Note: If you don't know the background to this UGC initiative, please check out the CELT OBE web site at http://celt.ust.hk/obe*]

OBE is a long term UGC initiative that is here to stay and we need to take a corresponding long term view; learn as we go along and not attempt to do everything at once. It is already embedded into international accreditation organizations such as AACSB (US) and EQUIS (EU) for Business Schools and ABET (US) for Engineering Schools.




*Outcome-Based Education in curriculum design*



*Prof Harvey Brightman, Regents Professor Emeritus of Management Sciences at Georgia State University, visited us again as the OBE consultant to the School of Business and Management.*

At UST, an OBE Steering Group with a representative from each of the four Schools, CELT and VPAAO was established in spring last year. The UGC also set up a Hong Kong wide OBE committee and two of our Steering Group members are the HKUST representatives on this. The work in 2007 has focused at the undergraduate program level and has been strongly tied to the work going on for the 4-year degree. It began with briefings to each of the Schools and after one year we now have a draft statement for HKUST graduate attributes, draft intended learning outcomes that correspond to these attributes and School level intended learning outcomes. The School of Business and Management and the School of Engineering have both had consultancy visits during the Fall semester. In these initial visits, the consultants have helped by providing feedback on School and undergraduate program intended learning outcomes, by suggesting processes for the 4-year curriculum work to integrate OBE and by sharing international examples.

*Prof Karl Smith, Professor of Cooperative Learning in Engineering Education and Fellow of Discovery Center of Purdue University, is the OBE consultant to the School of Engineering.*

The academic support units (Language Center, Library and SAO) have just been briefed and they will be working with groups at the university and school levels as we move forward with the development of 4-year curricula. Draft intended learning outcomes for undergraduate programs within Schools are at various stages of development and are planned to be completed during the Spring semester 2008. Feedback on these attributes and intended learning outcomes will be sought from the wider UST teaching community and from other stakeholders such as current students, alumni and employers over the next few months. As we continue forward, we will start to focus on assessments aligned to these outcomes and begin to look at postgraduate programs.

# Understanding How Our Students Learn

To strengthen our support to faculty and instructors in their teaching activities, we have recently made a strategic decision to strengthen our work in student learning research. The objective of the research program is to conduct systematic investigations into our students about their learning attitudes, study strategies, learning, and difficulties they encounter in learning. It is hoped that these research will provide faculty and instructors with useful scientific and evidence-based data when developing their student-centered curriculum to implement outcome-based learning programs.

## Learning and Study Strategies of 2007-08 Year 1 students

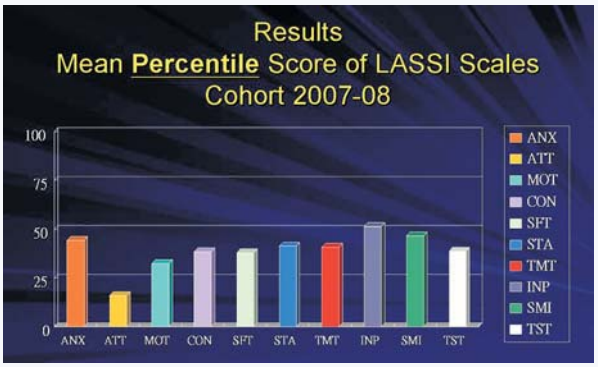
In Fall 2007, we have conducted a survey using an instrument called **LASSI** (Learning and Study Strategies Inventory) to investigate the study skills of year one students. LASSI is an assessment developed in the U.S. to evaluate students' awareness and their use of learning and study strategies. Using 10 scales and 80 items, this inventory examines students' learning and study strategies related to three major components, Skill, Will and Self-regulation. Different scales are used to assess different components of students' study strategies as shown below.

- ***Skill:*** Information Processing Scale, Selecting Main Ideas Scale, Test Strategies Scale
- ***Will:*** Anxiety Scale, Attitude Scale, Motivation Scale
- ***Self-Regulation***: Time Management Scale, Concentration Scale, Study Aids Scale, Self-Testing Scale

455 first year students from the 2007-08 cohort were randomly selected and invited to fill out the second edition of LASSI. Stratified sampling by schools using equal sampling fractions was employed. The total number who filled out the online LASSI (2nd ed.) was 398.

## Preliminary Findings

- Results show that students' mean percentile scores are the lowest in the **attitude** and **motivation** scales when compared to the U.S. norm.




- Gender difference: Year one male and female students have statistically significant differences in their **attitudes** and **use of Study aids**, with females scoring higher in both scales. This indicates that females have a higher interest in academic success and are able to make use of the resources available to help them in their studies.

- School difference: there is a statistically significant difference ($p<0.05$) between schools in Anxiety, Attitude, Motivation, Self-testing, Selecting Main Ideas, and Test Strategies. Further investigation is needed to examine the possible sources of these differences. They might be related to the discipline that students studied in secondary school.

## Future Research

CELT plans to conduct two lines of studies to further our understanding of how our students learn. One will survey the learning attitudes and study strategies of our year one students. Another line proposes collaboration with course instructors, to gain an in-depth understanding of how their students learn and the kind of difficulties they encounter.

**Want to know more about the Student Learning Research findings?**

Findings of the study and possible collaboration will be discussed in the lunchtime seminar, **"How Do They Manage It? An Investigation On The Study And Learning Strategies Of Year 1 HKUST Students"**, delivered by Dr Lucia Yeung and Dr Tak Ha from CELT on 14 March 2008. For details, please visit the CELT website (*http://celt.ust.hk*).

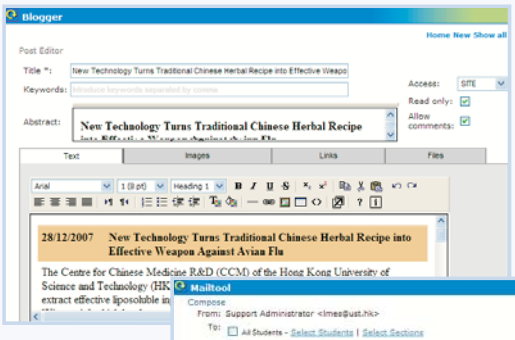
# Latest Development on LMES

In Fall 2007-08, there were over 7000 students, 400 teaching staff and 250 courses using **LMES** (Learning Management & Evaluation System) as the eLearning platform to complement the classroom teaching and learning. In view of the increasing demand of usage and range of functions, CELT started the upgrade of LMES in mid 2007 to improve the system's stability, user-friendliness and with added features for faculty and students.

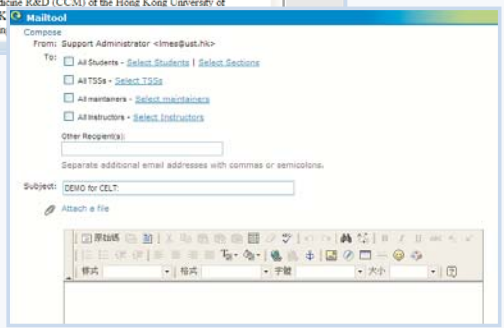
The new version of **LMES 2.4** has just been released. LMES 2.4 is a major upgrade from the previous version with more than 2,000 fixes and enhancements cumulatively from LMES 2.1c.

## New features

- Enhanced **WYSIWYG editor** for better content formatting
- **Grouping** of students can be assigned in Course Content, Assignments, Schedule and Discussion
- **Mailtool** for users to send email to all or selected students, instructors or teaching support staff in a course
- **Blog** for collaborative blogging among members of a course
- **Podcast** for display podcasts in a user friendly way and provides an RSS feed for access through one's favorite podcatcher
- **Page Order** for course administrator to re-arrange the order of the menu items
- **Poll** for simple polling within a course



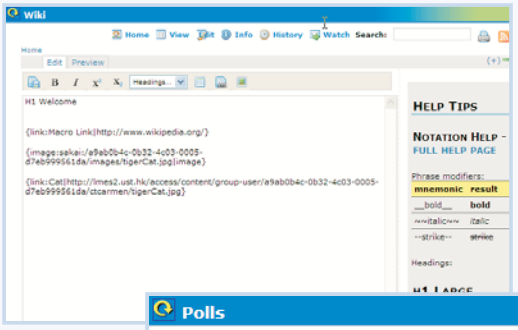

*Blog with WYSIWYG editor*



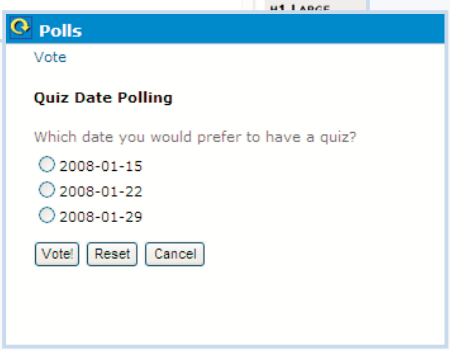

*Mailtool for sending email to selected participants*

## Other enhancements

- **Course Content**: Better user interface for uploading and managing course materials
- **Announcement**: Support scheduled release and retract date, show / hide announcement
- **Assignments** : Can be linked to previously created gradebook items
- **Gradebook** : Support selective release, grade import and comments
- **Wiki**: Support RSS notification, adding comment and user-friendly user interface
- **Tests & Quizzes**: Support file attachment to a question, random questions, multiple attempts and enhancement in quiz import




*Wiki with commenting, RSS*




*Poll for quick poll of any topics*

### Roadmap for LMES 2.5 and onwards

LMES was built on an open-source learning management system called SAKAI. CELT will follow the roadmap of SAKAI development in future upgrades and enhancements of the LMES. We will also contribute our customization and fixes to the SAKAI community to improve it's effectiveness in future releases.

### Decommissioning of WebCT

As all of the major functionalities in WebCT will be available in LMES 2.4, the WebCT platform will be decommissioned after this Spring semester. CELT is helping on the migration of all remaining courses in WebCT to LMES. If you have any queries about the migration, please send email to us at lmes@ust.hk.

# CLI Sixth Round Awarded Projects have Begun!

Since 2002, the Continuous Learning & Improvement through Teaching Innovation (CLI) project is now in its sixth round. All the funded sixth round sub-projects are adaptations of the previous teaching projects in order to *continue* the core value of the CLI project to foster a collaborative teaching community that improves student learning. Here is a quick glimpse of the five new sub-projects and their main objectives:

### Application of Excel VBA to Problem Solving in Core Subjects in Chemical Engineering — Prof Gordon McKAY (CENG)

To extend the application of Excel VBA to advance students' problem solving skills in more core Chemical Engineering subjects.

*Adapted from Spreadsheet Engineering - The Application of Excel's Macro Programming Language, (Visual Basic for Applications) to Selected Courses Within Chemical Engineering — Prof John BARFORD (CENG)*

### Enrichment Program for Biology Students — Dr Ice KO (BIOL)

To enhance students' interest in environmental conservation and prepare them for their future career in related fields.

*Adapted from Stimulating Student Learning through Community Engagement: Fieldwork Participation as Learning Process — Prof Ngok MA (SOSC)*

### Demonstrations in Introductory Electromagnetism and Modern Physics Course (PHYS 013) — Prof Nian LIN (PHYS)

To produce interactive video-tapped demonstrations to boost students' interests and enhance their understanding of the physical principles for the introductory electromagnetism and modern physics course.

*Adapted from Demonstrations in Introductory Mechanics and their Recording by Videotapes — Prof KK FUNG (PHYS)*

### Interactive Learning Objects for Learning Languages — Mr Sean McMINN (LANG)

To develop a searchable database of interactive learning objects for language learning.

*Adapted from Interactive Learning Objects for Computer Science — Prof David ROSSITER (COMP)*

### Creating a Chinese version of Interactive 3D Animation Prototype of the Life Cycle of ACh — Prof Karl TSIM (BIOL)

To respond to the demand of local students for a Chinese version of interactive 3D animation prototype of the life cycle of ACh.

*Adapted from Creating an Interactive 3D Animation Prototype of the Life Cycle of ACh for the Biochemistry Major Students — Prof YF HAN (BICH)*

# Spring 2008 TA Program

## Spring 2008 TA Program

Support programs are being provided to all TAs every academic year. This year the Spring 2008 Enhancement Program for TAs will be held on 28 and 29 January 2008. It is to provide an opportunity for TAs to polish up their skills and/or to make-up for any incomplete training which the University offered in Fall 2007. The program is comprised of the Induction Training (mandatory according to department) and Competency Enhancement Workshops (optional).

The Spring 2008 TA Program with that outlines all necessary details on registration, dates, and workshop descriptions is available at *http://celt.ust.hk/ta/news.htm*

## Fall 2007 TA Event — "A Good Show"

The Fall 2007 TA Event organized by Teaching Assistant Coordinators Committee (TACC) and CELT was completed successfully on 2 November 2007. More than 70 TAs from different departments enjoyed and participated actively in the show. The interactive role-playing games provided a golden chance for TAs to learn more on handling the difficult situations which they commonly faced during their teaching life in HKUST.

To view the snapshots and performance of TACs during the show, please visit *http://celt.ust.hk/ta/news.htm*

## Upcoming Events

- Dr David Carless, Associate Professor from the Faculty of Education of the University of Hong Kong is delivering a seminar on **'Learning-oriented Assessment, Outcomes and Trust'** on 29 February 2008. For details, please visit the CELT website (*http://celt.ust.hk*).
- Findings of the study and possible collaboration will be discussed in the lunchtime seminar, **"How Do They Manage It? An Investigation On The Study And Learning Strategies Of Year 1 HKUST Students"**, delivered by Dr Lucia Yeung and Dr Tak Ha from CELT on 14 March 2008. For details, please visit the CELT website (*http://celt.ust.hk*).
- Mr Thomas Ng, Director of PTC will convene a lunchtime sharing session on **Remote Video Capture at HKUST** on 11 April 2008. In the session, Prof Karl Tsim, Professor from Department of Biology and Prof Emily Nason, Assistant Professor from Department of Management of Organizations will share their teaching experience with RVC. For details, please visit the CELT website (*http://celt.ust.hk*).