CDTLink

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Educating Arts Students about the Human Body

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Professor Halliwell working in the laboratory

There is a huge interest in nutrition, herbal remedies and alternative therapies in Singapore. Supermarkets and specialist stores are bursting with a wide range of supplements that claims to maintain health, promote virility and increase well-being. Even *The Straits Times* carries multiple advertisements for weight loss programmes, some endorsed by 'world class scientists', 'leading doctors' and celebrities.

How does the consumer make sense of all this? Our General Education Module, GEK1525 "Do you believe what advertisers say? Evaluating Claims Related to Health", aims to help students do this and develop an enquiring and critical mind at the same time. The module is largely taken by students from the Faculty of Arts and Social Sciences. Demand is high but we limit the class size to 100, otherwise the interactive sessions will be impossible to organise. The first session introduces the course, teachers and finds out about students' backgrounds. We ask them to complete a questionnaire to assess how well they understand terms like 'cell', 'evolution', 'amino acid' and so on. We also reveal in this first session how published advertising can be totally misleading; the illustrative cases are updated every year. Last year (Semester 2, AY 2005/2006), we included the case of the 'Famous Chinese Scientist' who had never published a single paper in a decent journal, the diet that allegedly caused an impossible weight loss and the endorsement of a skin care product by the 'Head of Dermatology' at a famous European Research Institute who turned out not to be even on its staff. More importantly, we demonstrate to students how to use databases such as *PubMed* and

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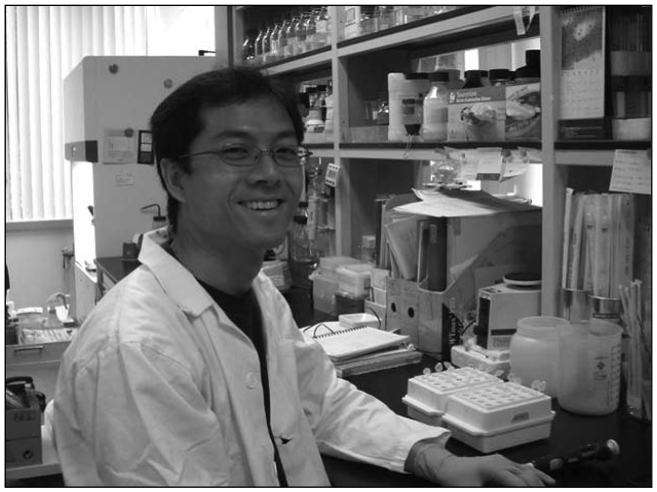
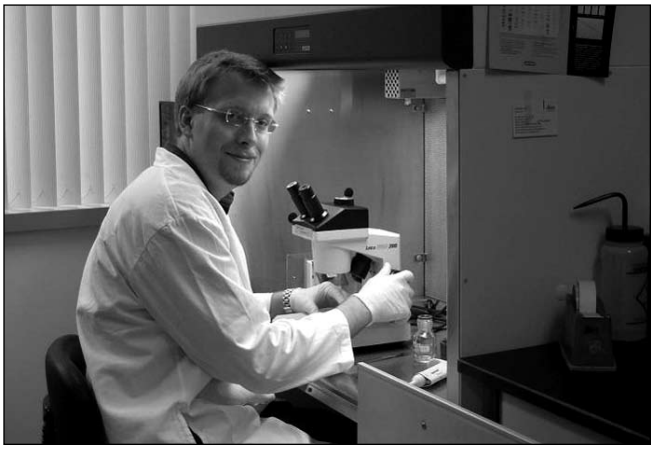


A student studying novel nutrients



A senior scientist examining effects of anti-oxidants on lifespan

Quackwatch to check the credentials of 'experts' for themselves.

The next few sessions are a little more didactic (although often a lively debate begins!), introducing students to the human diet—what we need and what we eat (often not the same, sadly). Students examine the relations among diet, disease and age in relation to the Singapore populace. We reveal how the human body handles food, why we gain or lose weight and what goes wrong in common diseases like diabetes. The human requirement for vitamins and minerals is also discussed in relation to the available data (actually pretty poor as most official 'recommended allowances' are based on educated estimates from an inadequate database) and the commercial 'push' to take supplements. Students are tested for their basic core knowledge in a closed-book mid-semester examination based on short answer questions and data interpretation.

The rest of the course is almost entirely interactive; students are divided into groups with each researching a topic and presenting it to the whole class. The groups grade one another on their efforts and this grade contributes to the course assessment, in addition to the grading by the academic staff. For example, in a session on obesity, each group researches a particular diet while in a session on supplements, each group picks a particular health claim to present (and usually demolish). The final part of the course assessment is an individual student project researching a health claim which ranges from herbal penis extensions to coffee enemas. Plagiarism, especially from the Internet, has been a problem and students are warned at the start of the course and several times during it.

The final examination (35% of total marks) is open-book and asks students to evaluate and comment on several previously unseen problems, advertisements and/or scenarios. We look for a critical and analytical approach, not a 'correct' answer (indeed, there often isn't one).

Feedback on the course is good; many feel that it is demanding but achieves its objectives. Every year, some students achieve a breathtakingly analytical approach to a complex problem in the final exam. An example would be one student's classic mathematical approach to Biology. He explained why the T-Rexes who escaped from their enclosures in the movie *Jurassic Park* did not die from deficiency disease even though they were genetically engineered to be unable to produce an essential amino acid on their own without the help of the Park including it in their diets. It was a wonderful calculation of the number of humans of a certain body mass that had to be eaten per day.

One problem has arisen: some students may choose to only obtain a Satisfactory/Unsatisfactory grade for this module (so that their grades will not affect their overall CAP) and sometimes final-year students bid highly for the module to 'clear their GEMs' and have no real interest in it. Their participation in the group efforts tends to be substandard, which is why we now include an assessment of this in the evaluation. Another solution is to block the S/US option. Despite this, most students put in much more effort then required, enjoy the module and sharpen their knowledge of life and disease processes and their critical thinking skills. That's why we enjoy teaching it! ■

Getting Them to Talk

Associate Professor Leong Weng Kee
Department of Chemistry and

Dr Liz Morrison
School of Education, University of Greenwich, UK

Background

What is the purpose of a tutorial? Is it merely to solve a set problem and come to a single solution? Is it better for students to be able to talk and explore the topics covered in lectures, with an expert on hand, so that they can consolidate their learning?

These are questions we have been discussing. Ideally, students arrive at a tutorial session primed with their subject knowledge and prepared to engage in a fruitful discussion to develop and

Observation Sheet

Observer: _____ Class: _____ Date: _____

Name	Each time a person talks, put in a ✓.

Figure 1. An example of an observation sheet

Perception Sheet

Class: _____ Date: _____

Fill in the chart below, **without looking at anyone else**. Do **not** use ticks or numbers but make a comment like: The most; a lot; the least; frequently; well; not at all.

Name	talking	listening	interrupted others	helped others	how much did they learn?
Yours:					

Other comments (Use the back of the paper as well)

Figure 2. An example of a perception sheet

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A Software Emulator for Teaching Microprocessor Design

Dr Colin Tan
Department of Computer Science

CS1104 "Computer Organisation" is an introductory level core module for Computing students. The first half of this course introduces students to digital electronics design and the second half builds on the first to teach students the basics of microprocessor and computer design. Microprocessor design, comprising about 60% of the second half of the course, is traditionally taught through PowerPoint slides as shown in Figure 1.

However, these slides are fragmented and difficult to understand as there is often no flow between the slides. As a result, students may find it hard to integrate the information on any one slide with information on other slides. To resolve this, an emulator for a simplified microprocessor called Simple CPU (SCPU) is developed. Figure 2 shows the main SCPU screen showing the various devices (e.g. multiplexors decoders, ALU, registers) that are taught in the first half of the course, their connections, and the various logic gates required to glue the circuits together.

Assembly language programming is often dry and uninteresting to learn. However, as all computer programs will ultimately be translated into assembly language and machine language programs, it forms a key part of teaching CS1104. A keen understanding of assembly language will also give students a better appreciation of how computer programs ultimately perform their "magic".

The SCPU emulator allows students to enter their own assembly language programs using an editor. Figure 3 shows a 'bubble sort' program written in SCPU assembly language. Just like in a real system, students must assemble the assembly language program into a machine language "object file" using the provided assembler called "asm.exe". By running their work through the SCPU emulator, students can see how their instructions are loaded, decoded, executed and the results written back. A separate

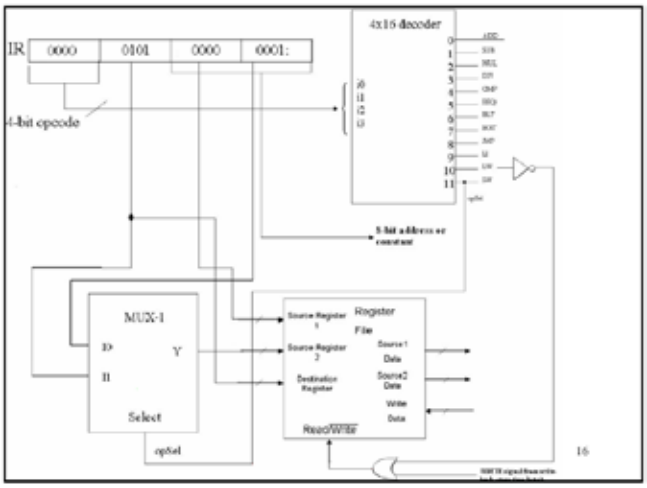

Figure 1. An example of a Microprocessor Design slide

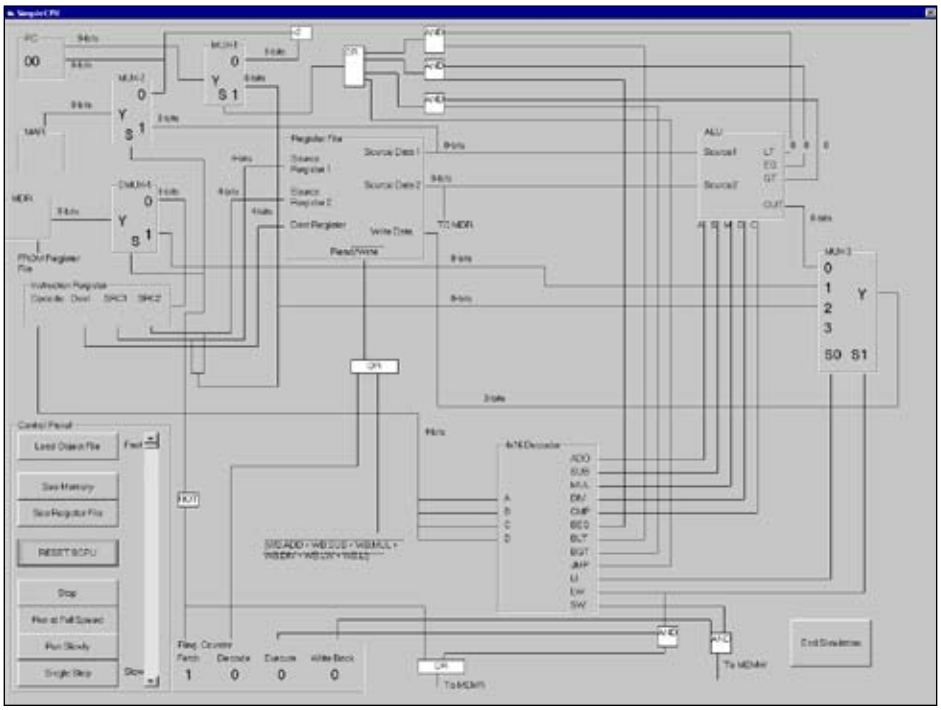

Figure 2. Main SCPU Screen

```
...
inner:  lw R3, (R2)          ; Load first element
        add R11, R2, R14     ; Increment the pointer by 1
        lw R4, (R11)         ; Load next element
        cmp R4, R3           ;
        bgt skip             ; Jump over swap code if R4 > R3
        beq skip             ; Or if R4 = R3.
        add R5, R4, R13      ; R5 = R4. Remember that R13=0
        add R4, R3, R13      ; R4 = R3
        add R3, R5, R13      ; R3 = R4
        sw R3, (R2)          ; Write back to memory
        sw R4, (R11)         ;
skip:   add R2, R2, R14      ; Increment address by 1
...
```

Figure 3. An excerpt from the 'bubble sort' program

pop-up box in the emulator allows students to trace each step of the execution of the program.

The SCPU emulator gives students a visual and animated illustration on how microprocessors execute programs. Students can go through the instructions one step at a time, run the program as slowly or quickly as they like, or run the program at full speed. This flexibility allows students to learn how the microprocessor works at their own pace.

The SCPU emulator is used during lectures to illustrate more difficult-to-understand points. It is also used in assembly language programming exercises to help students appreciate the relationship between programming and microprocessor design. Besides CS1104, the emulator also forms the core of the Embedded Systems workshop for CS2271 "Embedded Systems", a core module for Computer Engineering. The SCPU emulator can be downloaded from *http://www.comp.nus.edu.sg/~ctank/scpu.zip*. ■

Bringing Reflection into the Classroom and Laboratory

Assistant Professor Toh Chee Seng
Department of Chemistry

The approach

It is common to find students neglecting the significance of taking time to reflect and assimilate knowledge acquired in a module. Possible reasons are poor thinking and working habits, lack of time and postponing efforts to latter periods closer to evaluation exercises such as term tests and examinations. It is therefore desirable to include reflective exercises in order to encourage active thinking during the course, as well as reinforcing the significance of assimilating and processing knowledge acquired from different sub-topics and learning experiences. Reflective and contemplative exercises are methods of recording one's thinking activities and these have been frequently used as a tool to teach higher-order thinking skills (Paul & Elder, 2001). Such reflective exercises are not new to researchers. For example, keeping logs, notes, journals, or diaries are commonly practised by active researchers including prominent scientists like Alexander Graham Bell, Thomas Edison and Charles Darwin. Similarly, writing papers and reporting research results require intensive reflective efforts, without which it would be difficult putting together a congruent and concerted piece of work. Herein, a project to introduce reflective exercises in a laboratory-based undergraduate level analytical chemistry course is described. Besides the usual module activities including lectures, classroom tutorials and discussions, assignments and laboratory works, reflective exercises were included in the forms of thinking logs and laboratory reflective writings.

Figure 1. Thinking students, good experimentalists

Thinking logs

Previously, thinking logs have been introduced in a non-laboratory-based graduate level course (Toh, 2007). In CM2142 "Analytical Chemistry", students were asked to record at least one thought after each lecture session and enter these thoughts into the module's IVLE page. Students were not

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permitted to view one another's contribution so as to encourage originality of ideas and thoughts. The lecturer, who was able to assess these logs, provided comments and feedback to each student. Initially, questions were posed to help provide a framework for students to exercise their thinking on a given topic. After the initial first two lectures, samples of thinking logs with desirable traits were shared with students.

Laboratory reflective writing

Practical hands-on experience using analytical instruments is important in complementing both the lecture and tutorial sessions. However, conducting the experiments with focused attention and efforts on instrumentations can sometimes take students away from understanding and appreciating the theories behind these instrumentations and techniques. Therefore, there is a need for students to reflect on what they have accomplished during laboratory sessions. Reflection will help students make links between theory and practice, integrate knowledge learnt during lectures and tutorials, as well as deepen their understanding in analytical chemistry.

For the laboratory reflective writing, students were asked to write an essay containing not more than 2000 words and to discuss at least three or more experiments carried out during the assigned six laboratory sessions. The laboratory reflective writing focused on what they have learnt during the laboratory sessions, with emphasis on correlating their learning with knowledge learnt during lectures, tutorials, term tests and discussions. In addition, students were strongly encouraged to explain unusual observations and those which had deviated from theoretical expectations. In order to discuss discrepancies between theory and practice and to provide possible reasons for the differences, students needed to 'dig into' books in order to make sense of their laboratory experiences. Therefore, students were asked to record these observed discrepancies in their laboratory reports during each laboratory session and whenever possible, record their thoughts and queries as they carried out experiments. It was envisaged that these fine points would encourage students assume the role of a thinking experimentalist during their laboratory works.

To encourage active participation by students, the reflective exercises were incorporated as formal activities and student participation counted towards their academic assessment during the course. It was envisaged that these reflecting writings in the form of thinking logs and laboratory reflective writing would help student upkeep active learning during the module and integrate knowledge learnt in lectures, tutorials and laboratory works and demonstrate higher-order thinking skills in their reflective exercises.

References

Paul, R & Elder, L. (2001). *The Miniature Guide to Critical Thinking: Concepts & Tools*. Foundation for Critical Thinking: Dillon Beach, CA.

Toh, C.S. (2007). 'An Experiential Research Focused Approach: Implementation in a Non-Laboratory Based Graduate-Level Analytical Chemistry Course'. *J. Chem. Educ.*, Vol. 84, pp. 639–642. ■

TLHE 2006 Quality in Higher Education

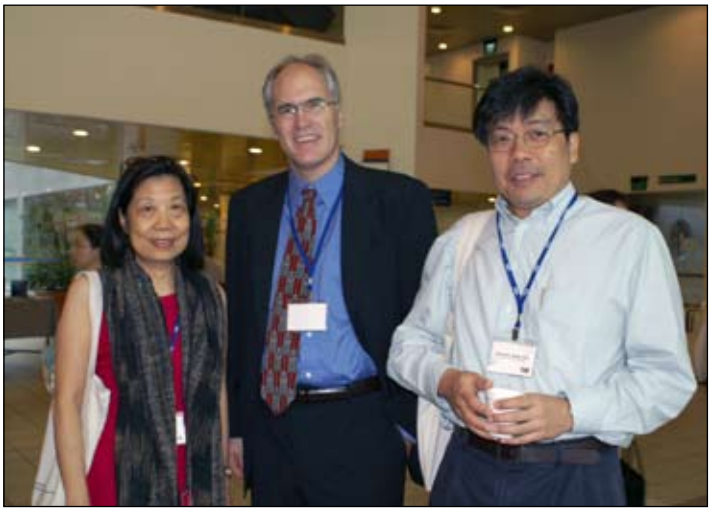
President of NUS, Professor Shih Choong Fong

CDTL's International Conference on Teaching and Learning in Higher Education was held on 6–8 December 2006 at the NUS Engineering Auditorium. With over 81 speakers and participants from 16 countries, there was a lively exchange of ideas, insights and experiences. Feedback for the event was very positive and encouraging.

TLHE participants at a presentation

A/Prof Chang Tou Chuang and CDTL Director A/Prof Daphne Pan

Registration of TLHE participants



L to R: A/Prof Daphne Pan, Dr Gregory Light and Dr Gary Tan

TLHE participants enjoying a sumptuous dinner at Labrador Park

ICTRAPS for Professional Development

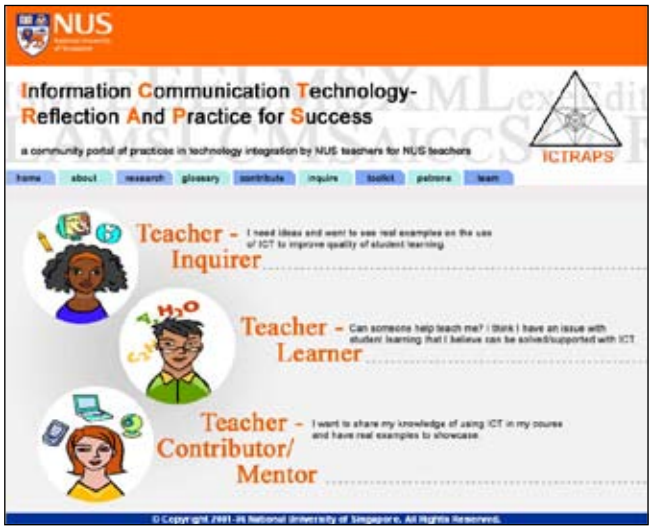


Figure 1. Welcome page to ICTRAPS

Are you tired of spending more time and effort to figure out a certain learning program or software than on your own course materials?

Many NUS departments are feeling the heat in the rush to submit proposals to the National Research Foundation (NRF) to develop their own Interactive Digital Media (IDM). Clearly, the impetus to increase IDM integration into education is being felt. However, with this exponential growth of IDM, educators need to consider how these digital and hardware appliances can facilitate metacognitive abilities and creative thinking skills effectively to achieve desired learning outcomes.

Even as we are witnessing an increased use of Information Communications Technologies (ICT) to introduce, reinforce, supplement and extend cognitive, affective or psychomotor skills, many instances of ICT integration only reflect facilitated transactions instead of extending students' metacognitive skills. Many educators utilise their institution's Learning Management System (LMS) or suite of office applications for use in different instructional settings. Some try to incorporate an electronic Classroom Response System but these disparate uses of different tools, because they are not immediately accessible, do not explain how they extend students' creative and problem-solving skills. Information Communications Technologies Reflection and Practice for Success (ICTRAPS) aspires to be a one-stop portal for ICT integration ideas. Please visit *http://courseware.nus.edu.sg/ICTRAPS/web/index.htm* to submit your experiences of using ICT in teaching and learning to inspire and lead ICT professional development in NUS. ■

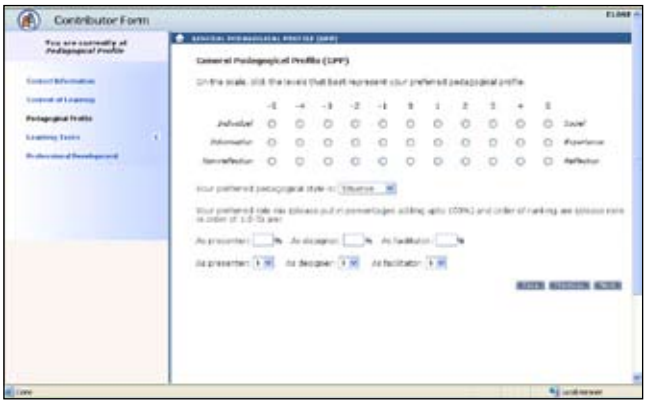


Figure 2. A questionnaire posed on ICTRAPS

Welcome!

CDTL welcomes **Krishna Booluck Mayur**, our new Research Assistant and **Low Jianzhou, James**, our new IT Support and Development Professional.

Goodbye!

We would also like to thank Tiu Ting Ling, Angela, our Research Assistant, who left in November 2006 for all her invaluable support in the past and wish her the best for her future endeavours. ■

Errata

In *CDTLink* November 2006 (Vol. 10, No. 3), Ms Lee Su Mei was not credited in the article 'Students and Medical Education—An Exciting Exchange of Ideas'. Also in the same issue, Associate Professor Florence Ling Yean Yng was not credited in the article 'Teaching Development Seminar'. ■

Departments of Building and Real Estate's Teaching Development Seminar: Accelerating Knowledge Acquistion and Application

Associate Professor Ling Yean Yng, Florence
Department of Building

The Departments of Building and Real Estate held their biannual Teaching Development Seminar on 24 January 2007. The speaker was Associate Professor Mohan Kumaraswamy, from the Department of Civil and Structural Engineering, University of Hong Kong. He was a Visiting Academic at the NUS Department of Building, on the *Universitas 21* Fellowship programme.

The topic of Dr Kumaraswamy's talk was "Accelerating Knowledge Acquisition and Application". It is well known that students are usually required to understand and be able to apply a large body of knowledge within a short time frame. Hence, it would be ideal to accelerate their learning processes in general. Apart from the theoretical understanding required, students also need to acquire knowledge about *how* tasks are to be performed, despite a lack of hands-on experience in doing the task. Drawing on his experience of teaching on building and civil engineering programmes, he shared how he uses web-based visualisation tools to accelerate student learning and knowledge acquisition. He also demonstrated how students could use the various features of the tool to conduct 'virtual site visits'. Such site visits enabled students to 'zoom in' on various stages and components, if and when they want to know more about a specific aspect, not unlike a real site visit. This way, students could better understand the intricacies of concepts and procedures in building and civil engineering. This assists students to acquire knowledge which is usually acquired from hands-on experience.

In addition, Dr Kumaraswamy also shared a complementary approach of using problem-based learning as a mechanism for students to work with industry partners to get a better understanding of their learning. Problem-based learning also allowed opportunities for students to better understand the constraints faced by different professions operating in the construction industry.

An interesting and lively Question–and–Answer session followed his presentation, during which some of the limitations of the above teaching methods/tools were discussed. ■

Figure 1. Professor Mohan Kumaraswamy

Figure 2. The Departments of Building and Real Estate's teaching development seminar with Professor Mohan Kumaraswamy

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extend their understanding. However, this is not always the case. A familiar scene is the professor talking and probing to check learning whilst reticent students hold back or only a handful are willing to put their views forward. We have been looking at strategies that will get students to talk.

We used a framework to scaffold discussion that was originally designed to help school pupils develop emotionally and socially within science lessons (Matthews, 2004; Morrison & Matthews, 2006). We found that the framework encouraged students to open up to one another and to the professor. One student commented: "This is the first time I am hearing some of my classmates' voices." The framework is straightforward to implement but the tutorial does require careful planning and preparation, particularly the first time the strategy is used.

How the strategy was employed in tutorials

Within the tutorial, students were asked to get into groups. An observer, also a student, sat outside the group initially. Students were told that they would discuss the first tutorial question and as they discussed, they would be monitored by an observer to see how each person had contributed to the task. The observer has to complete the 'observation sheet' (Figure 1). Students were given a fixed amount of time to work together on the tutorial question. While they were working, the lecturer withdrew from the tutorial to let students speak freely. At the end of the allotted time, the lecturer returned and students presented the answer which they had constructed together. The lecturer then gave feedback on the answer.

Each student was then asked to complete a 'perception sheet' (Figure 2) to gauge who had talked (most and least), who listened, who was supportive and so on. The observer then feeds back to the group. There was a discussion in which each member of the group could supply his/her viewpoint and could compare this to the rest and to the observer's notes. This structured work enabled students within the group to discuss how they had worked together and how they felt.

The procedure was repeated, with a change of observer, so that the original observer could now participate. Students now had some idea of how they had contributed to the first discussion and some changed the level of their participation accordingly. Again the lecturer returned at the end of the allotted time. Students then presented their collective answers, the lecturer again discussed this with them and then the group discussion was examined as above. Students soon became comfortable with the structure and were contributing to the class discussions.

By the third question, students were sufficiently familiar and an observer was no longer required. Students were then offered a choice of having the lecturer in the room or withdrawing from it, and they chose to discuss the question on their own.

The tutorial questions

We have described a model of a tutorial in which four carefully structured questions of increasing complexity are used. The first question is an 'ice-

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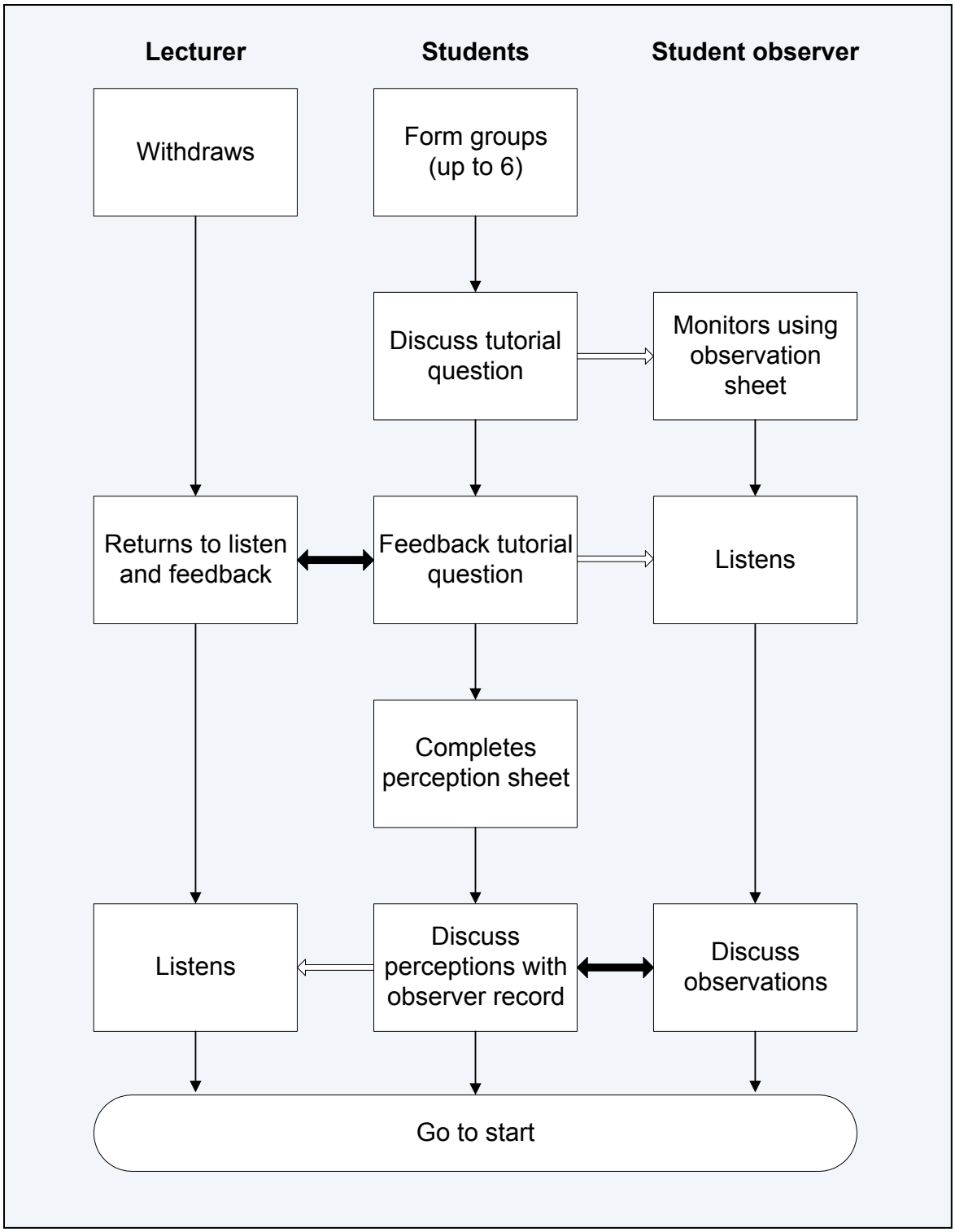

Figure 3. Hierarchy of teaching method

breaker' statement to which all students in the group can contribute. For example, students were asked to discuss the statement "students stay away from organometallic chemistry because they find it boring". The next question then requires them to apply readings that they have prepared beforehand. The final two questions require students to apply aspects of information from the lecture course to synthesise possible explanations to observed phenomena. To be able to do this effectively, it is important that they can talk freely to one another. Texts are available in the tutorial for reference.

Lecturer's perception

The strategy employed meant that students become aware of their own and other students' levels of

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contribution to the debate. This enables them to adjust their own levels of participation accordingly. They come to understand that all contributions are equally important in the process of synthesising an answer together. Moreover, the apprehension associated with giving a wrong answer in front of the class or the lecturer is not around.

By the time the lecturer returns, students have had the opportunity to develop responses to the tutorial questions and have overcome the initial difficulty of talking within the group. Subsequent discussions are lively and dynamic. From our observations, by the time the group feeds back the final answer they are feeling sufficiently confident with one another and with the lecturer, that they can reflect on areas they have found difficult.

What do students think?

Students were asked for their feedback on this style of tutorial. They were positive about the process and the opportunity to develop their understanding in this way. There was definitely lively debate and participation from all students. However, students indicated that they felt slightly uncomfortable initially with the change in tutorial style.

A few students would have preferred to have been given the questions beforehand, rather than facing the challenge of drawing on their existing knowledge and using texts to discuss open-ended topics. They felt they would have liked the discussion to lead to a set of model answers. One student commented: "I want closure in a discussion. I want an answer."

Conclusion

As a model for teaching, we felt that this supports effective learning. It recognises the role that language plays in constructing knowledge and encourages this. In addition it enables students to understand and value the contributions that each one can make to a successful tutorial.

Notes

Liz Morrison has been visiting the Department of Chemistry on the OAP (Overseas Attachment Programe inbound) programme.

References

Matthews, B. (2004). 'Promoting Emotional Literacy, Equity and Interest in KS3 Science Lessons for 11–14 Year Olds; the 'Improving Science and Emotional Development' Project'. *International Journal of Science Education*, Vol. 23, No. 3, pp. 281–308.

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CELC's Study Trip to China

Mdm Peggie Chan and
Miss Lee Kooi Cheng
Centre for English Language Communication, NUS

Lee Kooi Cheng and Peggie Chan at the Chengdu University of Technology Museum

A team of 10 CELC academic staff, including its Director, Dr Wong Lian Aik, took a study trip to China from 10–19 December, 2006. We visited three provinces (Jiangsu, Sichuan and Hebei) and four cities (Nanjing, Chengdu, Shijiazhuang and Beijing). The objectives of our trip are as follows:

- Understand how English is taught in China, specifically in senior middle schools and universities;
- Exchange and share ideas with teachers in China about teaching and learning of English;
- Understand students' English language learning background or environment;
- Learn about initiatives and future plans of English Language Teaching (ELT) in China;
- Gather information on ELT policies, curricula, syllabuses, and testing systems;
- Establish networking opportunities with English teachers in China for possible collaboration in research on language pedagogy.

Current English Language Teaching (ELT) and learning scene

During the trip, we met with officials of three Provincial Educational Departments (PEDs), academic personnel of five universities (Nanjing University, Chengdu University of Technology, Hebei Normal University, Tsinghua University and Beijing University) and principals of five middle schools (SMS): two in Nanjing (Nanjing No. 13 Middle School and Nanjing Foreign Language School), two in Chengdu (Chengdu No. 7 Middle School and Shishi Middle School), and one in Shijiazhuang (Shijiazhuang No. 1 Middle School).

These briefings revealed that the current state of the teaching and learning of English in China is evolving rapidly, in line with China's new bilingual policy and its initiative to improve the effectiveness of English language learning and teaching. Some of the new and key ELT policies and initiatives in the primary and specifically middle schools that indicate the importance of English are as follows:

- Learning English now begins in Primary 3 (in the past, it began in middle school when the students are 12 years old).
- There are usually three to four sessions of English in primary schools (half of the total class hours for Chinese) and four sessions in middle school (the same number of hours as Chinese).
- The English Language curriculum and syllabus in primary and middle schools have now been integrated.

- English is an examinable subject in the junior middle school graduation examination and one of the three core or compulsory subjects in the National College Entrance Examination.
- A new band system for English proficiency level has been implemented for primary schools, middle schools and universities. The bands represent the proficiency level expected of students:
  - Band 2 for Primary 3–6 students (8–11 years),
  - Band 5 for Junior Middle School students (12–14 years),
  - Band 7 for Senior Middle School students (15–17 years).

There have also been many new foci in curriculum and syllabi. Since 2001, the new English Language curriculum in China has focused on culture, learning strategies, motivation and attitudes besides skills, foundation and knowledge. In addition, an oral exam component (10% of total marks) has been incorporated into the National College Entrance Exam to test students' fluency and use of expressions. There is also an increase in vocabulary requirements since 2000. Students are now expected to have learned between 3500 and 4500 words by the time they complete middle school (at 17 years old).

A research component has recently been introduced in junior and senior middle schools to expose students to project work and encourage them to work collaboratively. The approach to ELT has shifted from an emphasis on proficiency to one on communication skills, thinking skills, project work and portfolios. In short, the focus is on both the learning process as well as the final product.

At the university level (at 18 years old), IT is adopted as a new teaching and learning tool. Four software program jointly developed by Tsinghua University, Beijing Foreign Language University and Shanghai Foreign Language University are being piloted in 18 universities.

Since 2003, there is an increased flexibility for universities to customise their own College English syllabus, so that students with a higher level of proficiency may be offered diversified courses (e.g. English for Academic Purposes [EAP] and English for Specific Purposes [ESP]) instead of the traditional College English module. Further, English language teachers have also been sent abroad (e.g. Manchester, UK and Toronto, Canada) for training.

Future collaborations and projects

A number of potential areas of collaboration was brought up during discussions with the various PEDs, schools and universities. These centred mainly on exchange and attachment programmes to enable teachers from both countries to understand teaching methodologies, study or cultural tours involving both teachers and students, joint research to investigate corpora used in building dictionaries as well as joint symposia.

Figure 1. Discussion with officials of Nanjing Provincial Education Department (CELC delegation on the right)

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CELC's Study Trip to China

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Figure 2. Academic staff of College of Foreign Languages, Hebei Normal University being briefed by CELC

Figure 3. Peggie in a discussion with students from Chengdu Shishi Middle School

Indeed, we have learnt much about the current state of ELT which will no doubt provide fuel for CELC to improve on the courses targeted at students from the People's Republic of China. In turn, we also shared much information about CELC courses and teaching methodologies, all of which was received with much interest and zeal. It was in every sense, a rewarding and fulfilling fact-finding mission. ■

CDTL The Centre for Development of Teaching and Learning (CDTL) provides a wide range of services and facilities to promote the teaching, learning and research programmes of the National University of Singapore. These include teaching and learning support, research on educational development issues, as well as instructional design and development.

editorial information

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inviting contributions

CDTL invites articles on any teaching and learning topic for the following two newsletters:

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- **CDTL*Brief*** (text-only newsletter; 1000 words maximum per article)

To submit articles for consideration or to obtain more information, please contact:

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