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# CDTL *Link*

Centre for Development of Teaching and Learning

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## BL5301: The First Graduate Module for the Training of Teaching Assistants in Biological Sciences

Assoc Prof Ip Yuen Kwong  
Dept of Biological Sciences  
Faculty of Science



*Dept of Biological Sciences  
TA Training Session, July 1999*

### The Necessity for Teaching Assistants

Imagine NUS without teaching assistants (TAs): How many additional teaching staff would we need to cover our classes? How many laboratory/practical/tutorial sessions would have to be cancelled if extra teachers could not be hired? What would be the impact on the design of courses and the learning and morale of undergraduates? Then imagine we have plenty of TAs, but they do not know how to teach: Would undergraduate students benefit? Would it be justifiable to pay these graduate students \$40/hour on top of their scholarships for their teaching efforts?

In California, TAs teach 30% of the classes at certain representative universities, a figure similar to other institutions.<sup>1</sup> In recent years, the NUS Department of Biological Sciences (DBS) has also become more dependent on graduate TAs to keep class sizes manageable. TAs are used extensively in lower division laboratories and tutorial classes and, in many cases, TAs have more direct contact with undergraduate students than do professors.

There are several advantages of using TAs. They form a practical source of instructors for small classes. As students themselves, TAs identify with their students and can be strong motivators.<sup>2</sup> They are less intimidating than professors, especially for weaker students. Unfortunately, TAs often lack the discipline, knowledge and teaching skills of experienced teaching staff and may not make the laboratory/tutorial classes effective learning experiences for students. Since most TAs have previously learnt mainly through lectures, TAs tend to lecture instead of employing appropriate inquiry or discussion techniques. But by providing TAs with some professional training, such disadvantages can be overcome. It is vital that TAs are trained because the TA experience is an important part of training future faculty members, and TA training bolsters the quality of university teaching in general.<sup>3</sup>

Alas, TAs are often the last ones to be considered for professional development, possibly because of the transient nature of their appointments. If teaching is to be considered an important part of scholarship on par with original research<sup>4</sup>, then it seems that

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**BL5301***...continued from previous page*

graduate schools frequently fail to provide meaningful kinds of pedagogical training for future 'lecturers'. Fortunately, NUS has begun to realise that TAs deserve preparation for their responsibilities, as shown by CDTL's implementation of a TA Training Programme held twice thus far in May and November 1999.

**Training Teaching Assistants**

To gauge the importance of TA training and obtain feedback for CDTL and DBS, a survey was performed in DBS in March 1999. The resulting report concluded that although DBS endorses the training of its TAs by CDTL, it is essential for DBS to give discipline-specific support to make the training successful. The report also recommended that the training of TAs in DBS should have a '3-tier approach', i.e. TAs should undergo training provided by CDTL, DBS, and the lecturers of various undergraduate modules. Consequently with backing from CDTL, DBS and the Science Deanery, BL5301, a module entitled 'Teaching in Biology' (pending Senate approval), has been designed to provide the TAs with the training required based on this '3-tiered approach'.

By imparting specific instructional strategies (especially in Biology) that other teachers have used successfully and educational researchers have found to be effective, this course aims to improve the ability of TAs to help undergraduates develop intellectual and cognitive skills. It is hoped that TAs can subsequently: (1) organise and explain materials in ways appropriate to students' abilities, (2) be attentive and responsive to students' needs and give appropriate feedback on students' work, and (3) understand the importance of helping students to become autonomous, self-regulated learners.

The course is made up of: (1) the Core Component offered by CDTL (20 hours), (2) the Complementary Component offered by DBS (15 hours), and (3) at least 36 hours of Teaching Practice in practical and/or tutorials in level 1000-3000 modules.

In the Core Component, TAs will learn about: Teaching and Learning in Higher Education; How Small Group Teaching Facilitates Learning; How to Enhance My Presentation Skills; Assessment of Student Performance; and Supporting Teaching and Learning through the NUS Integrated Virtual Learning Environment.

In the Complementary Component, topics covered include: Biology Teaching Today; Method of Inquiry in Science and Biology; Active Learning and Studying;

Practical Teaching in Practical Subjects; Teaching Skills on the Laboratory Floor; Being a Teacher in the Field; Skills in Explaining Clearly; Skills in Leading a Discussion; Skills in Asking Questions and in Fielding Students' Questions; Skills in Motivating Students; and Supervising Student Projects.

To satisfy the Teaching Practice requirement, TAs must assist various lecturers in one or more modules, and the lecturer/s involved will file a written report on the TAs' performance. If possible, TAs will also go through a micro teaching practice session with the lecturer in charge. The TAs' participation in this entire training programme will also be listed on their transcripts so as to encourage them to take part wholeheartedly and perform their best during their teaching practice.



*Dept of Biological Sciences TA Training Session, July 1999*

The Complementary Component will make TAs more aware of the process of inquiry in Science and Biology, thereby possibly turning them into better researchers. They will learn how to supervise undergraduate research, and can be involved in the Science Research and Undergraduate Research Opportunities Pro-

grammes with greater proficiency. Such an involvement will hopefully improve their own performance in their respective graduate research programmes.

**Responses from TAs**

At least 50 TAs have already gone through part of this module. Here are some of their comments:

1. "I think the course is useful in making us more effective teachers. As graduate students, we are always learning to be more effective researchers, but until the advent of this course, we have never had any training in being a teacher, much less an effective one."
2. "I strongly feel that without this course graduate students cannot be allowed teach."
3. "The course has changed my concept of a teacher; I have understood the actual meaning and functions/roles of being a teacher or a demo...and shall try my best to reflect some of these in my teaching. This would definitely benefit the students and help in bringing the relation between the teacher and learner closer, giving it a clearer meaning and understanding."
4. "I will try my best to make my teaching a more student-centred one. Hopefully, the students would be encouraged to think and question more and I definitely hope that the students will benefit from the change."

*Continued on page 12...*



# Teaching Large Classes

Dr William Koh & Assoc Prof C. M. Wang  
Associate Directors, CDTL



Teaching a large group of students is very different from teaching small groups. When you stand in front of a large lecture theatre, 100 to 400 pairs of eyes watch your every movement and 100 to 400 pairs of ears listen to every word that you utter. The size of the lecture theatre makes you feel very small. The class dynamics also makes it difficult for you to encourage active participation from students. Many of us often have to teach, and teach effectively, against such odds. So we would

like to share with you some tips gleaned from years of teaching large classes and materials that we have read about teaching large classes effectively.

## Lecturing Tips

1. **Overcome your fear.** The secret is to be prepared. Rehearse part of the lecture aloud. Go over your notes. If this is the first lecture, reach the lecture theatre before class starts to get a feel of the place. Imagine what it is like to have those eyes looking at you.
2. **Use humour.** Studies have shown that humour in the workplace can lead to higher creativity. Employing humour in the classroom will at least make your class less boring and stressful. But the jokes should relate to the subject matter that you are teaching.
3. **Project your voice.** Shouting is not necessary, but you have to be heard by students seated at the back of the lecture theatre. Do a test: ask those who are seated at the very last rows if they can hear you. If not, raise your voice accordingly. Also, remember not to speak too quickly during a large class lest you lose your students.
4. **Use your whole body to lecture.** To bring our lessons across to students effectively, we should exploit both verbal and non-verbal means of communication. So besides speaking, use facial expressions, eye contact, hand gestures, and body language to help make students understand you.
5. **Move around.** Do not be anchored to a particular position. The only piece of immovable furniture in the lecture theatre should be the lectern and not you! But avoid excessive body movements that could distract students.
6. **Vary the tone of your voice.** Occasionally move from high to low pitch and vice versa to prevent yourself from speaking in monotone and boring your students to death. If possible, tape your lectures and judge if you speak monotonously.
7. **Use stories and illustrations.** Scour newspapers, journals and magazines for the latest stories that will give up-to-date illustrations of your subject matter. Sharing such stories with students will help convince them that what you are teaching has practical relevance to their future work and therefore increase their motivation to learn.
8. **Use good stimulating questions.** If you can get students to participate by responding to your question, half the battle of delivering an effective lesson in a large lecture would have been won! Carefully word and pitch your questions at an appropriate level so as not to confuse the students. Perhaps allocate some time for students to discuss these questions during the lecture. Studies by Eric Mazur (of Harvard University) have shown that students learn more from peer discussions.
9. **Use breaks.** Give students two-minute long restroom or 'stretch' breaks especially during long lectures. Students cannot concentrate if they are thinking of the restroom or are falling asleep.
10. **Ensure your overhead projections/font sizes are large enough.** Try out your transparencies or PowerPoint files before lecturing. With experience you will be able to tell which font size and colour contrast will be the most legible.

## Coordinating Tips

1. **Treat all tutorial groups equally.** If a large class is broken down into smaller groups for tutorials and laboratory/practical sessions, handle all the various groups fairly. Students are very smart and can sense when you have favoured some groups at the expense of others.
2. **Be approachable to all your students.** Be ready for all sorts of course-related queries from your students. Nowadays, we should expect to get more emails from our students. Answer each diligently.
3. **Brief your tutors/TAs thoroughly.** Before each tutorial/practical session, brief tutors/teaching assistants about what to expect from students and what are the session's major learning points.
4. **Make all important announcements at the class level.** The effort will reduce perceived inequity of the way you handle the class.
5. **Give special attention to students and tutors/TAs who need help.** Weaker students and newer tutors/teaching assistants, in particular, need all the support you can offer. ■

# Small Group Work & Teaching for Understanding

Prof Lewis Elton

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University College London

In the April 30 1999 issue of *CDTL Brief* (Vol. 2 No. 3), Prof Chong Chi Tat raised a number of concerns about small group teaching in NUS that he argued had not been resolved. He also invited discussion. Despite the danger for an outsider to join this discussion, I do so partly because I believe that these issues are common to many academic cultures, including that in Britain, and partly because I have tried with some success to introduce accepted British solutions in many staff development workshops that I have conducted in Southeast Asia. So here are Prof Chong's five issues and my reactions to them.

1. **Asian culture:** British students are not all that different from Asian ones in generally preferring to remain quiet.
2. **Discipline dependent:** True, it is generally easier to express views and opinions in the humanities. But in the sciences where answers to problems are often simply right or wrong, the processes of getting to the answers are often eminently discussable. How can a student arrive at an understanding of, say, the concept of limits in mathematics, except through discussion?
3. **Student quality:** Yes, even good students often do not have good reading habits. But do we as teachers encourage such habits?
4. **Lecturers' attitudes:** How can lecturers encourage students to participate in discussions? How can we prevent becoming unpopular if we try to do this?
5. How can we overcome **operational issues**, like small teaching rooms and the need not to make teaching more expensive?

My approach to tackling these points constructively is based on the following theses:

- A. If teachers are dissatisfied with the achievements of the majority of their students, then the fault must lie primarily with them and not with their students.
- B. Teaching methods must be designed to achieve desired learning objectives.
- C. Assessment must be such as to test for the achievement of these desired learning objectives.

The most common university teaching method consists of lecturing and associated teacher-dominated group work. This method is good for the deposition of knowledge in the students' memory, from which it is retrieved in examinations; but if students are to learn with understanding, they must somehow make such knowledge their own. This is done through reflection

and discussion, neither of which is encouraged by the traditional teaching methods. Perversely, what is required is for teachers to teach less, in order that students may learn more. Teachers must cease being preachers and become facilitators of the students' learning. However, if they do this without changing their assessment methods to ones that devalue mere memory knowledge and encourage thinking and understanding, they will deservedly become unpopular with students because there is no greater crime in teaching than to teach towards one set of learning objectives and to assess for another. Nevertheless, university teachers have been doing this for a very long time.

But how do we facilitate reflective learning that leads to understanding?

1. Give students time to think within the lecture, which is not possible if the lecturer talks continuously. Such lecturers expect students to do their thinking after the lecture, but they then have to do it on the basis of their usually inadequate lecture notes. So I replace lectures by prepared learning materials and, if I do lecture, I make my lectures interactive through quizzes and buzz groups within the lecture.
2. Organise tutorless small groups, with teacher-initiated tasks. I usually break up a large group into a number of smaller ones, all in the same room, with the groups reporting their findings back to a plenary where I then discuss the outcomes. Or I give them projects to be completed in, say, a week or a term. Both methods are effective and cost efficient.
3. Avoid getting students discouraged. Thus, I try never to say that a student has got something wrong; instead, I ask the other students to discuss the point.

All these measures encourage deeper learning, but they lead to less absorption of superficial knowledge. Hence,

4. Reduce the syllabus to manageable proportions. One can never in any case teach everything.

Getting students to talk in small groups, largely to each other but sometimes also to their teacher, is not something that can be achieved in isolation within a system that actively discourages such activity. What is required is a change of the whole teaching, learning and assessment system. Such facilitative teaching, which encourages students to 'own' their learning, can be uncomfortable for teachers. It is both harder and riskier than traditional teaching. But it is hugely worthwhile. ■

# Evolution of Small Group Teaching in the Faculty of Engineering

**Assoc Prof C. M. Wang**  
 Chairman of Teaching Methodology, Evaluation & Examination Committee (TMEEC)  
 Faculty of Engineering

NUS has always emphasised Small Group Teaching (SGT) to develop a deeper understanding of materials covered in Large Group Teaching, improve oral communication and presentation skills, facilitate student participation, as well as provide feedback to students and tutors.

## Traditional Tutorials in Engineering Faculty

Within the Faculty, SGT of varying sizes has always been practised in various forms such as in design projects and the talent development programme. However, the average traditional tutorial group size for most core modules is about 20-25 students. With about 4000 undergraduate students, the Faculty has found it extremely difficult to implement SGT having ideally 6-10 students per tutorial class. The primary reason is practical constraints on timetable slots, number of classrooms and staff time.

Most engineering tutorials also typically consist of a tutor presenting solutions to a quiet audience. This lack of interaction arises because engineering tutorials are problem-solving in nature. The questions set are usually not open-ended, allowing little variation for solutions and procedures. As discussion of diverse opinions is unlikely, tutorial sizes are kept relatively larger, thereby encouraging non-interactivity. Furthermore, most students only want the correct answers from tutors and are unconcerned about interacting with their tutor or peers. Dominating tutors also tend to stifle student interaction.

## Evolution of Our Tutorial System

In 1996, the Faculty's Task Force on SGT was formed to study how to implement SGT for core module tutorials. Pilot projects were carried out to reduce the tutorial class size for selected modules by modifying the teaching format. The number of lecture hours and the number of large group tutorial (> 24 students) hours were reduced to cater to small group interactive tutorials (< 12 students). Based on the success of these SGT pioneers, the number of compulsory modules that incorporate SGT has since been increased as shown in the Table below:

*Number of Modules Modified for Small Group Teaching*

	No. of Compulsory Modules + Elective Modules	No. of Modules with SGT in 1996	No. of Modules with SGT in 1998/1999	Expected No. of Modules with SGT/CPG/BG in 1999/2000
Chemical Engineering	28	1	5	28
Civil Engineering	27	1	13	20
Electrical Engineering	14+47	7	15	14+15
Mechanical Engineering	28+34	1	5	9+8
<b>Total</b>	<b>97+81</b>	<b>10</b>	<b>38</b>	<b>71+23</b>



In the 30 January 1999 in-house SGT seminar organised by the Faculty's Teaching Committee, participants decided that the desired profile of a NUS graduate would be one who:

- is an independent and effective learner who values life-long learning;
- shows confidence and initiative in solving problems; and
- possesses analytical, communication, presentation and interpersonal skills.

These desirable characteristics were deemed to be achievable through the practice of active/interactive learning, and that such learning could possibly be conducted even in large classes.

When the seminar recommendations were presented to DVC Prof Hang Chang Chieh during the 2nd Meeting of the University's SGT Taskforce on 12 February 1999, he consented to the shifting of emphasis from a small group tutorial size to a tutorial setting that captures the active/interactive learning spirit of SGT. In line with this new emphasis which accommodates the Faculty's large student population, novel forms of tutorials have been conducted:

- In the **Core Group within the Peripheral Group** (CPG) or 'fishbowl style' tutorial format, about 6-7 students (i.e. the Core Group) interact closely with the tutor and with each other while the rest of the tutorial group members (i.e. the Peripheral Group) simply observe. The latter group may be asked to comment on or clarify certain issues, or may even be excused from attending if the session has no continual assessment. Students take turns to form the Core Group in each tutorial. For a typical module, a student will get to be in the Core Group about 2-3 times.

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# Peer Learning

Asst Prof Alice Christudason  
School of Building & Real Estate  
Faculty of Architecture, Building & Real Estate

## Peer Learning: What is It?

The current shift from the instruction to learning paradigms in institutions of learning arises from the recognition that certain benefits may be derived from instructional methods involving 'active' learning. Active learning presents opportunities for students to formulate their own questions, discuss issues, explain their viewpoints and engage in cooperative learning by working in teams on problems and projects. 'Peer learning' may be described as a form of cooperative learning that enhances the value of student-student interaction and results in various advantageous learning outcomes for the student.

## The Teacher's Role

To realise the benefits of peer learning, teachers must provide 'intellectual scaffolding' in the form of adequate preparation, 'cognitive structuring', and 'role structuring'. Students may be 'prepared' by selecting for discussion, topics which all students can safely be presumed to have some relevant knowledge of. In 'cognitive structuring', the teacher provides students with questions or issues that prompt them towards more sophisticated levels of thinking. 'Role structuring' includes devising collaborative processes that get all group members to participate meaningfully.

## Peer Learning Strategies

At the Faculty of Architecture, Building & Real Estate, staff utilise a variety of cognitive and role structuring strategies to facilitate successful peer learning:

1. **Buzz Groups:** A large group of students is subdivided into smaller groups of 4-5 students to consider the issues surrounding a problem. After say, 20 minutes of discussion, one member of each sub-group presents the findings of the group to the whole group.
2. **Affinity Groups:** Groups of 4-5 students are each assigned particular tasks to work on outside of formal contact time. At the next formal meeting with the teacher, the group, or a representative of the group, presents the group's findings to the whole tutorial group.
3. **Solution and Critic Groups:** One sub-group is assigned a discussion topic for a tutorial and the other groups constitute 'critics' who observe, offer comments and evaluate the sub-group's presentation.
4. **'Teach-Write-Discuss':** At the end of a unit of instruction, students have to answer short questions and justify their answers. After working on the questions individually, students compare their answers with each other's. A whole-class discussion subsequently examines the array of answers that still seem justifiable and the reasons for their validity.

'Crit' sessions, role-play and debates are other exciting and effective teaching strategies used within the Faculty. These strategies never fail to stir the enthusiasm of the students. They offer opportunities for students to experience in a reasonably 'safe' and unconstrained context, (while perhaps being evaluated by another group and/or the teacher) reactions to complex and 'real' problems they may face later in their careers as architects or other professionals in the real estate and construction industries.

## Successful Peer Learning and Its Benefits

For peer learning to be effective, the teacher must first put in place the prerequisites which contribute to the success of cooperative learning groups: e.g. positive interdependence, face-to-face promotive interaction, group processing and individual and group accountability. 'Positive interdependence' emphasises the importance and uniqueness of each group member's efforts. When students share resources, support and encourage each other to achieve, important cognitive activities and interpersonal dynamics are quietly at work, enhancing each other's learning outcomes. These include the assuming of leadership roles, acquiring conflict-managing skills, discussing concepts being learnt and clearing misconceptions by simply communicating with one another, thereby discovering many of the complexities of human relationships within a given context.

A major concern about peer learning is the possible existence of 'freeloaders'—team members who fail to fulfil their team responsibilities but are awarded the same (high) grade as their more responsible team mates. 'Freeloading' may be minimised by using peer ratings to assess individual performance of team members, or conducting a 'post-test'. Thus, there will be two levels of accountability: the individual and the group.

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# Participation & Evaluation in Group Writing Projects

Ms J. E. Lisa Meyer  
Centre for English Language Communication



We teachers at NUS are still faced with several questions regarding the use of group writing projects (GWPs). These include: (1) How much do we know about our students' attitude toward, and behaviour during, a GWP? (2) How can we ensure equal participation and fairly grade the resulting written projects? I hoped to answer these questions through research conducted in 1998/99. Students taking CS2301 (Business and Technical Communication) in the School of Computing completed questionnaires after doing a group report-writing project. Here I will focus on my findings for Question 2.

## Encouragement and Evaluation of Participation

Naturally, it is important that all students participate equally in a GWP. Some students would agree with this—one student wrote that, in order to manage the GWP successfully, it was necessary to make sure all group-mates were hardworking, that there were no 'leeches'. However, in my questionnaire I found that only 30% of the students rated level of participation as an important measurement of their success in the GWP. Therefore, we teachers must shoulder some of the responsibility for encouraging equal participation.

Many teachers feel it is also necessary to evaluate level of participation so as to give fairer grades. But what is the best way to do this? Students find it difficult to point out a group-member's failure to participate equally, or do satisfactory work. This is one topic they struggle to be straightforward in.

To try to overcome this, I originally used a 'secret' peer evaluation of participation. In my follow-up questionnaire, I asked the students what they felt about this method of participation evaluation, about the need for peer evaluation, and about their willingness to do peer evaluation.

Generally, students reported that peer evaluations of participation are not needed. The following response was typical: "I believe at our level, most of us are able to control the group and make sure there are no free-riders. We do not need such a review at all."

Probably for the same reasons they hesitate to bring up lack of participation with their group members, students are not willing to complete even a 'secret' peer evaluation honestly. One student commented, "Some of us may want to avoid 'unhappiness' among our peers and give false evaluation just to make the whole group happy."

Regarding my peer evaluation form, only about 50% of students found it useful or fair. Some students confessed that lack confidence in their ability to give accurate and thus fair peer evaluation. "The problem is how are we going to assess the level of participation? Rather subjective." One extreme fear was that "this may lead to SABOTAGE on unsuspecting innocents." It seems students only feel the peer evaluation is fair and useful when "any particular group member is really a hardcore free-rider" or "there are grievances to be voiced".

Several introspective students gave me suggestions for ways to improve my peer evaluation system. One suggested that I provide a task checklist:

"You can come a list with all the tasks concerning report...and the group is supposed to fill it up (who did which task) and submit to their tutor. I think this is the only way to make them really reflect back and think what they have contributed to the project. Maybe in this way, there won't be cases of false evaluations."

A second respondent suggested I leave it up to the students to list the tasks each group member completed. "Let the group list out the parts they are responsible for and the rest of the group members would comment on whether he/she has done enough."

Last semester, I followed the mature advice of this second respondent and replaced my anonymous peer evaluation with a 'Record of Participation' form. Throughout the written project, each group member was supposed to record all the tasks they completed or took part in. It had to be signed by all the group members and then submitted with the report. However, of 60 group reports, the 'Record of Participation' forms revealed only two cases of unequal participation. In most cases, even if there was any unequal participation, in the words of one of the course instructors, the students "would never admit to it".

So, although this 'Record of Participation' may not be very helpful in teacher evaluation of group participation, we are at least showing our students that we value equal participation, and that we are giving them the responsibility to ensure it occurs within their groups. ■

# Call for Registration

The preparations for CDTL's 1<sup>st</sup> International Symposium on Teaching & Learning in Higher Education are well underway. Based on the theme of *Facilitating Lifelong Learning: Issues and Challenges*, the Symposium will be held on 6 & 7 July 2000 in NUS, and aims to provide a forum for teachers to interact with one another and exchange ideas.

## Activities

To date, the Symposium has attracted a good number of speakers locally (e.g. from NUS, various Polytechnics in Singapore), and abroad (e.g. Malaysia, India, Canada, USA). The keynote speaker will be Prof James Wilkinson, Director of the Derek Bok Center for Teaching and Learning, Harvard University. Invited Speakers include Prof Marhsall Lih (Senior Advisor for Engineering Education & International Research Collaboration, National Science Foundation, USA), Prof David Kwan (McMaster University, Canada), as well as our Deputy Vice-Chancellors Prof Shih Choon Fong, Prof Chong Chi Tat, and Prof Hang Chang Chieh. Other exciting activities to be held in conjunction with the Symposium include a series of pre-symposium workshops to be held on 5 July 2000 (to be led by Prof Wilkinson) as well as an exhibition showing the latest teaching aids/equipment and books on teaching and learning. Exact details of the programme (to be conducted entirely in English) will be released at a later date.

## Registration

We urge you to take part in this Symposium. The registration fee is deliberately priced at a modest S\$200.00 (\$250 for payment credited on or after 1 June 2000). All cheques/bank drafts should be made payable to National University of Singapore. The fee will cover a copy of the Symposium proceedings, admission to all sessions, lunch and refreshments. To register, please refer to <http://www.cdtl.nus.edu.sg/tlhe/register.htm> for both printable and online registration forms.

## Symposium Secretariat

For any inquiries, please contact:  
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'Time Management' Workshop, 26 August 1999

*Learning for Success* workshops that have been conducted thus far were:

- July 1999: 'Stress Management in the Next Millennium', by Dr Ken Ung Eng Khean, Dept of Psychological Medicine
- August 1999: 'Time Management', by Mrs Ma Kheng Min, Human Resource Management Unit
- September 1999: 'Can Students Learn to Think Critically in Spite of Education?', Prof K. P. Mohanan, CDTL
- October 1999: 'Write Right—Make Yourself Understood', Ms Christina Low, CDTL

The feedback received indicated that those who attended generally enjoyed these workshops and found them useful, and there is the desire for longer, more in-depth sessions, possibly with each topic extended into a series of workshops.



*The Write Right Guide*, October 1999

Given the recent national concern over standards of English usage, the second CDTL initiative was very timely. In October 1999 after five months of exhaustive preparation, *The Write Right Guide* was published for distribution to students across campus. Written by Ms Christina Low, CDTL's Publications Officer, and A/Prof Pan, this handbook aims to increase awareness of commonly occurring mistakes in written English and suggests ways to avoid them. Says Christina, "The handbook is meant for all NUS students. Regardless of their discipline, writing is a necessary skill. Once alerted to common mistakes in writing, they are more likely to produce more comprehensible written assignments and clearer written communication in their future workplaces."

To promote awareness of the guide, Christina also conducted several student workshops (see above) that were enthusiastically attended. In addition, we are pleased to have received much encouragement from several NUS teaching staff members who have warmly welcomed the publication of the handbook and given crucial feedback on how to improve the next edition of the guide due at the start of the next academic year. ■



'Write Right' Workshop, 16 October 1999

# Helping Students to Learn

# The Family Grows!

1999 saw the significant expansion of CDTL's pool of human resource and expertise. Apart from the appointment of a Deputy Director and eight Associate Directors last February (reported in *CDTLink*, Jul 1999), we are proud to introduce to you now our new CDTL Affiliates:

- A/Prof W. A. M. Alwis (Dept of Civil Engineering)
- Dr Gambhir Bhatta (Dept of Political Science)
- A/Prof Clive Briffett (School of Building & Real Estate)
- A/Prof Rethy Chhem (Dept of Diagnostic Radiology)
- Dr Audrey Chia (Dept of Organisational Behaviour)
- A/Prof David Chua (Dept of Civil Engineering)
- A/Prof J. B. X. Devotta (Dept of Electrical Engineering)
- A/Prof John Elliott (Dept of Social Work and Psychology)
- A/Prof Gan Cheong Eng (School of Building & Real Estate)
- Prof Goh Suat Hong (Dept of Chemistry)
- A/Prof Khoo Hoon Eng (Dept of Biochemistry)
- Dr Kwong Koon Shing (Dept of Statistics & Applied Probability)
- A/Prof Lee Kwok Hong (Dept of Mechanical & Production Engineering)
- A/Prof Lee Soo Teck (Dept of Mathematics)
- Dr Li Yi (Dept of Materials Science)
- A/Prof Lim Lum Peng (Dept of Preventive Dentistry)
- A/Prof Lin Jianyi (Dept of Physics)
- A/Prof Jeffrey Pinsler (Faculty of Law)
- Ms Shu Moo Yoong (Human Resource Management Unit)
- A/Prof Benito Tan (Dept of Biological Sciences)
- Dr Gary Tan (Dept of Computer Science)
- Mr Tan Tuck Choy (Dept of Computer Science)

Their appointments were made at the direction of Deputy Vice-Chancellor Prof Chong Chi Tat, and the kind support of their respective Heads of Department, and is effective from October 1999 to December 2000. These Affiliates will serve as resource personnel and support CDTL's work through such means as contributing their ideas and giving feedback on projects, as well as helping in CDTL's training programmes. With regards to the Affiliates' response to their appointments. A/Prof Rethy



The CDTL family, 10 November 1999

Chhem is "excited at the idea of contributing to the development and dissemination of teaching and learning experiences." Dr Audrey Chia says, "What I like about the CDTL Affiliates Scheme is that it draws people from around NUS, and allows us to learn from one another." Agrees Dr Gary Tan, "So far, the recipients of our teaching have only been students; hopefully with this Affiliates Scheme, staff members can also benefit from our experience."

In the last year, 4 new support staff have also joined CDTL. They are:

- April 1999: Ms Christina Low, Publications Officer, who edits the various CDTL newsletters, student guides, and research papers;
- June 1999: Ms Elaine Chia, Research Assistant, who assists CDTL Associate Directors in their research projects;
- August 1999: Mr Ow Hong Cheng, Technical Support Officer, who provides IT support, maintains CDTL computers and assists in computer-related workshops; and
- September 1999: Mr Frederick Chew, Technical Support Officer (Video), who records seminars and workshops as well as edits video tapes for CDTL usage.

Remarks Christina, a former teacher, "My job is a perfect marriage of the 2 subjects that are closest to my heart—English and education. Though I no longer teach English, I am still involved in education and the usage of the language." For Elaine, the attraction of working at CDTL is completely different: "Being situated on a hill and surrounded by greenery, CDTL is a workplace that enables me to be close to nature. It relaxes the mind and reduces stress." With our additional staff and their positive attitudes, we at CDTL are more than ever ready to support NUS teaching staff and students in their teaching and learning experiences. ■

## 1999 Statistics at a Glance: Who came to CDTL's Staff Workshops & Seminars



# & TEACHING LEARNING

## highlights

### *Faculty of Architecture, Building & Real Estate*

#### The Millennium Project: Exploring the Frontiers of Space

As part of its celebrations of the advent of the new millennium, the Singapore International Convention and Exhibition Centre recently invited the School of Architecture to exhibit 41 life-sized prototypes. Launched on 23 November 1999 with Mrs Goh Chok Tong as Guest of Honour, this Millennium Project had the theme of *Constructed Spaces*. The objective of the project was to investigate the role of construction principles, materials and systems as generators of form through experimentation in the design and making of artefacts. Each prototype resulted from a five-week long project in the course, 'P2: Constructions', undertaken by 146 students from the Year 1 Architecture and Industrial Design course. Under the tutelage of their respective studio design tutors, small groups of 3-5 students experimented with ideas ranging from the abstract aspects of machines and mechanisms to the extraterrestrial prospects of imaginary space colonies in exploring the frontiers of space. By carefully crafting and assembling these abstract prototypes, students displayed their creative energy and youthful enthusiasm as well as developed their appreciation of aesthetics and design sensibilities. ■



*Design exhibition by architecture students, November 1999*

### *Faculty of Arts & Social Sciences*

#### Civil Service Internship Programme for Political Science Students

Since 1993, the Department of Political Science has participated in the Civil Service Student Internship Programme, under which students are attached to a Ministry for six weeks during the long vacation. So far 80 Political Science students have participated in the Programme. The Ministries to which they have been attached include Communications and Information Technology, Community Development, Defence, Education, Environment, Finance, Home Affairs, Information and the Arts, National Development, Manpower, and the Prime Minister's Office.

The students perform professional duties which are challenging and interesting. They include doing research projects, designing and carrying out surveys, writing papers, reviewing plans, preparing exhibitions, analysing media reports, and developing web sites. The Internship helps to increase the students' knowledge of the Civil Service, and gives them a greater understanding of the practical side of public administration, to supplement the knowledge they gain from their studies as Political Science majors in the University. ■



*Field trip to Fort Canning, 6 September 1999*

one to two hours, more teachers are using buzz groups, competition formats, and debates to encourage students to look for their own answers, instead of waiting for a teacher-provided position.

In areas like social work, geography and history, students are encouraged to link theoretical concepts with real-world societies and landscapes by going out into the community to make first-hand discoveries. Such field trips expose students early to primary research skills, such as generating a viable research question, conducting (in)formal interviews, observing clues in a landscape/interaction, and drawing well-evidenced conclusions. ■

#### Innovative Teaching in the Faculty of Arts & Social Sciences

The Faculty of Arts and Social Sciences is characterised by a diverse array of disciplines, focused on making sense of a complex social world. Teaching in the Faculty facilitates an evolution of meanings about life events so that informed choices can be made. To initiate students into this scholarly activity, several innovative teaching methods are currently being deployed.

With the increase in lecture and tutorial durations, from



*Field trip to Kranji War Memorial, 6 September*

## Faculty of Business Administration



Information about doing business in Vietnam available at <http://137.132.232.238>

### Some Strategies for Sustaining Student Interest in Course Web Sites

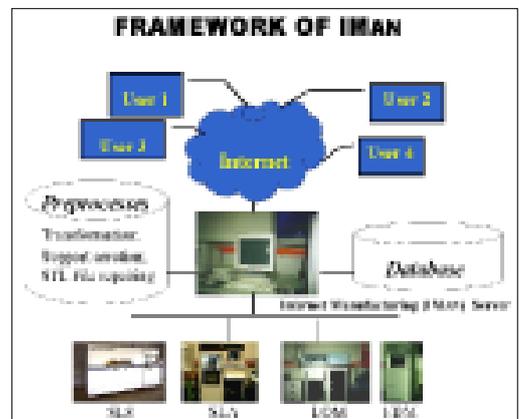
The Internet is an effortless way of disseminating information, but students have high expectations. An educational web site should go beyond provision of course outlines, schedules, project assignments and PowerPoint presentations that are available in hard copy. In our Faculty, we have tried out several things to sustain interest (c.f. <http://137.132.232.238>). We post articles and transparencies, some featured in class and others meant for additional reading, to encourage students to continue with the class discussion. Each week, we update the 'What's New' page variously with appropriate Q & As and external web links related to the course. As the semester progresses, we encourage student diligence by posting their PowerPoint presentations for all to view. Finally, we can also upload short video clips of their class presentations. This will increase their interest in learning and making good presentations. Taking cues from the world of e-commerce, there is no end to improving the visuals and content, but IT tools are terrific for enhancing the learning as well as teaching experiences. ■

## Faculty of Engineering

### Internet Learning in Manufacturing

In manufacturing, the timely capture, sharing and management of information is growing in importance, compelling companies to change the way they organise and operate. To pre-empt this future working environment, research is underway in the Mechanical & Production Engineering Department to share manufacturing resources over the Internet.

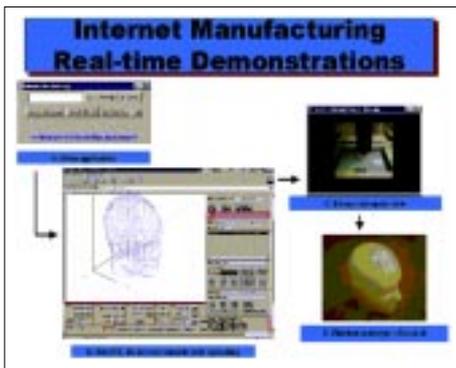
In a research project, Internet Manufacturing (IMAN), the development of a distributed rapid prototyping (RP) system using the Internet to support effective product development by sharing global resources and research using Java and web tools has been completed. The approach was based on object-oriented programming and client server communication to invoke the Fused Deposition Modelling (FDM) rapid prototyping equipment remotely over broadband network. Since the equipment concerned did not have direct Internet connection, web-enabling techniques were developed so that the FDM machine can be treated as a node in the network.



Tests were successfully carried out with a number of collaboration partners:

- Indiana University, November 1998, Bloomington, Indiana
- Super-computing '98, December 1998, Orlando, Florida
- Internet Workshop '99, February 1999, Osaka, Japan
- SingAREN, March 1999, National Computer Board (NCB), Singapore

The tests allowed the remote client to take control of the host, share and collaborate with the host slicing software and uploading the sliced files to the host controller for manufacturing. The host and client held discussions with each other through video conferencing. A web cam was also attached to continuously monitor the fabrication process. Similarly, NUS design and manufacturing students are able to use equipment in Temasek Polytechnic remotely. ■



## Faculty of Medicine

### Changing Trends in the NUS Undergraduate Medical Curriculum

The NUS undergraduate medical curriculum is undergoing major revisions aimed at integrating the teaching of the basic medical sciences from a highly discipline-based to a systems-based approach, supplemented with problem-based learning (PBL). The key objectives are: to reduce factual overload; to build a solid basic science foundation in the clinical context; and to promote active and self-directed learning (e.g. through 20% curriculum time for PBL, increased use of an IT support system and opportunities for research). The teaching program will be faculty-directed, including the implementation of integrated examinations that will focus on core knowledge and principles and conceptual understanding. The new M1 curriculum was successfully implemented this academic year and the M2 will follow next year. Medical education in NUS will prepare today's medical students for the rapid changes in medicine and medical science in the years ahead and to better serve the needs and expectations of our community. ■

## Faculty of Science

## More Teaching & Learning Highlights

### Self-study Sessions Help Science Students Learn Better

Apart from the traditional lecture/tutorial format, we in the Science Faculty have explored the effectiveness of 'self-study sessions' on students' learning. For BL1103 (General Physiology), a syllabus-specific library of reading assignments, videotapes, CD-ROMs and interactive self-tests have been set up in the Department of Biological Sciences' teaching laboratory. Whenever the laboratory is free, the students are able to access these facilities for self-learning purposes and to redo any tutorials or experiments that they judge necessary. We thus encourage students to take responsibility for their learning and allow them to learn at their own pace. Here are some samples of the positive student feedback received on this mode of learning:

- "The self study session enabled me to understand better topics that I could not master well while reading or during lectures."
- "The best about this course is its self study sessions and small practical group which enable students to learn at their own pace."
- "I really like this kind of self study because, especially for me who have language problem, I can understand more clearly now!"
- "This way of learning is very helpful and it just answers all my doubts. The self-tests—both pre-test and post-test—are excellent ways of testing how much we have understood, and the process is also enjoyable. We look forward to more such videos and CDs. I love this self-study session very much!" ■

## School of Computing

### A New IT Learning Experience for Non-IT Majors

IT1002 is a new module started in 1999/2000 to offer introductory programming to students from faculties outside the School of Computing. In the first semester, it took the form of Lecture-On-Demand, formal lectures, recitation classes, laboratory sessions, and tutorials. It was supplemented with a web course page (<http://www.comp.nus.edu.sg/~it1002>) for general module information, class announcements and distribution of course materials. Lotus Learning Space™ (<http://www-lls.comp.nus.edu.sg/lspace-sem1-1999/central.nsf>) was also used for discussions and on-line quizzes. In the discussion room, tutors answered queries and showed examples to clarify problems. Many students also helped their fellow students and enjoyed being seen doing so. Some students also initiated voting polls on topics such as whether students were finding the course too difficult and how participation in the discussion could be evaluated. In each of the two on-line quizzes, students answered multiple-choice questions randomly selected from a question pool. They were able to take the quizzes from their own faculties, homes or anywhere else through the Internet over a scheduled period of hours on the same day. The same pool of questions was offered to students for further practice after the quiz results were released and discussed. ■



Voting polls in IT1002: Introduction to Programming

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...continued from page 2

## BL5301

### Conclusion

If this module succeeds in helping our TAs gain some basic teaching skills, or even become 'competent'<sup>5</sup> in their teaching duties at NUS, perhaps other departments may wish to consider implementing their own complementary discipline-specific teaching programmes for training their TAs. Such efforts to improve our teaching quality will surely enhance NUS' image as a distinguished tertiary institution. More importantly, it is hope that our TAs will continue to develop as 'experts'<sup>6</sup> in teaching wherever they hold teaching positions upon graduation. Credit will then accrue to NUS for a job well done in imparting to our graduate students not only subject matter, but also skills and knowledge in teaching.

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<sup>4</sup> Fifield, S. 'Reflections of a Prospective College Teacher in Graduate School.' *Journal of College Science Teaching*, Vol. XXII, No. 4, February 1993, pp. 209-211.

<sup>5</sup> Berliner, D. 'Implication of Studies on Expertise in Pedagogy for Teacher Education and Evaluation'. *New Direction for Teacher Assessment: Proceedings of the 1988 ETS International Conference*. Princeton, N. J.: Educational Teaching Service, 1988. pp. 39-68. Berliner proposes a 5-stage model of teacher development: a) Novice; b) Advance Beginner; c) Competent; d) Proficient; and e) Expert.

<sup>6</sup> Ibid. ■

## Evolution of Small Group Teaching in the Faculty of Engineering

...continued from page 5

- In **Buzz Group** (BG) tutorials, students are divided into small buzz groups of 3-4 students for discussion and interaction among themselves and the tutor.

Further action plans for implementing SGT and Interactive Learning include the following:

- TMEEC and CDTL will organise workshops and seminars to persuade more Engineering staff to embrace this new learning mode and train them in conducting CPG/BG/SGT. The first workshop was conducted on 13 May 1999 and attended by 65 people.
- Staff members are urged to sit in these new-style tutorials conducted by colleagues to learn and provide feedback for refinement. To improve the interactive tutorial forms, students are also asked for their feedback.
- Staff members are encouraged to award incentives, e.g. a nominal assessment mark, to students for their active participation in tutorials.
- Staff members should re-examine their tutorial questions to make them more open-ended and inject some unfamiliar problems.
- Tutors will train students in oral communication and presentation, rather than depend solely on Technical Communication teachers who teach these skills outside the students' own learning context (and may thus have limited effectiveness).
- The Faculty Management Committee must recognise and accept that initial feedback from students about this new form of learning may be negative.
- At the Dean's Welcome Tea, Year 1 Students will be informed about what is expected of them as NUS students

so that they are aware they are no longer required merely to reproduce what they were taught as before. They are now supposed to learn independently, understand the subject matter comprehensively, think critically and apply their knowledge to new problems.

- Tutors should encourage students to revise their lectures, complete their readings and attempt tutorial questions before hand so that they can participate actively and meaningfully in tutorials.

### Concluding Remarks

The academic year 1999/2000 has seen a significant increase in the number of classes (both small and large) promoting SGT/interactive learning. In fact, the Chemical Engineering Department has become totally SGT/interactive learning compliant. This surge in implementing SGT/interactive learning is due to:

- The expansion of the graduate tutor programme with proper training conducted by CDTL;
- The availability of more classroom space in the newly completed Engineering buildings;
- More staff members coming forward to conduct active/interactive tutorials; and
- The encouragement given by the Faculty Management Committee.

The Faculty will continue to improve its SGT/interactive learning efforts so as to make our students become more independent learners and enhance their analytical and communication competency, such skills being absolutely essential for NUS graduates to work and compete in the new millennium. ■

## Peer Learning

### Conclusion

Research indicates that peer learning activities typically result in (a) team-building spirit and more supportive relationships, (b) greater psychological well-being, social competence, communication skills and self-esteem, and (c) higher achievement and greater productivity in terms of superior learning outcomes. Consequently, peer learning strategies present some of the most valuable tools educators may utilise. However, merely placing students in groups and telling them to 'work together' will not magically yield the benefits of peer learning. Peer learning would be most successful where some of the strategies outlined above for small group teaching are exercised. It is also imperative that the teacher structures lessons such that students do *in fact* engage in peer learning.

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...continued from page 6



# Email, IT Pedagogy, & the Potential of Hyperface

Asst Prof John Whalen-Bridge  
Dept of English Language & Literature  
Faculty of Arts & Social Sciences

Email, perhaps the simplest of the information technologies at our disposal, can be quickly and easily utilised in ways

that (1) improve student comprehension in small group teaching, (2) enhance a sense of community within the group, and (3) free student attention from the task of note-taking so that more students can engage with the topic fully. To use 'IT' thus requires almost no technical skills beyond what everyone at the university already possesses. What is necessary is a plan for using the technology so that higher quality discussions are able to occur more frequently.

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At the start of the semester, instructors interested in using email in ways outlined above must begin by creating an 'email network' for each small group. In the first meeting, the instructor must get the email addresses that the students actually use, as the university-provided accounts may not be consulted frequently. During the first class, just as each student is assigned a particular date/topic for presentation or for leading discussion, each student can also sign up for 'secretarial duty'. The secretary is responsible for writing down what happens so that everyone else can concentrate on the discussion; the secretary must also edit the transcript and then mail it to everyone in the group. Instructors will be shocked at what some students think others have said. But with email networks, it is far, far easier to correct misinformation: simply hit 'Reply to All' and then correct the class notes before sending them out again. Each student takes on this duty approximately once, allowing opportunities for the quietest students to participate actively.

There are several key benefits to this system. Immediately, 80% of the students (assuming a tutorial group of 10) are freed from note-taking (and are unable to hide behind the semblance of intensive note-taking). The system thus separates data-transmission (which only one student must attend to) from actual thinking and discussion. It does not guarantee open and confident discussion, but it certainly removes a serious obstacle, since all students know that they will receive a tran-

script by email, and that the corrections will be forthcoming if there are egregious errors in the write-up. This kind of quality control is impossible in ordinary tutorials, as the teacher does not really learn the degree of misinformation until students take the final exam.

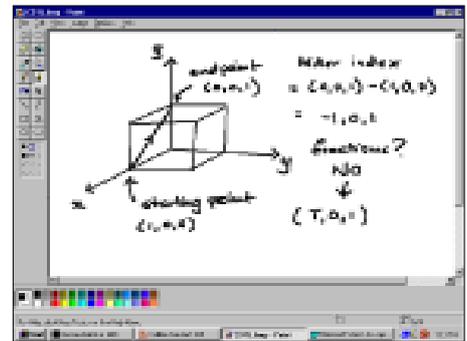
Another benefit: one has—apart from the single student presentation and a general notion of whether students have participated regularly—a record of which students have responded, and so the evaluation of tutorial participation for purposes of 'continuous assessment' can be done a bit less impressionistically. In addition to the student presentation and the (now documented) student discussion, instructors may wish to grade the write-up and can, at any rate, get some diagnostic information on the student's writing ability.

If the instructor is comfortable with constructing web pages, the sessions can be put up on the Web for student reference. The chief benefit of publishing all tutorial transcripts in this way is that students can then be invited to 'compare notes' between tutorial groups and so determine which topics were central and which were of passing interest in a given tutorial. The distinction between the central and the peripheral may seem commonsensical to the instructor, but very few students are likely to agree.

Email networks can be used, finally, to redirect useful questions from a private to a public context. For instance, Student A asks the question that you wish had been asked in class. So you say, "Write me an email," and then send the question and answer to all students in the class. This obviously saves the instructor time since he/she need not answer the same question several times, but it also aids in the creation of public space: students who could never ask a question of the instructor in physical reality often feel encouraged by the game-like atmosphere of hyperspace. Insofar as they are less afraid of losing face, they have 'hyperface', the digital equivalent of face. Will a wrong answer or a silly question make one lose face? Yes, in a way that a wrong move in a game will make one 'lose a life'. Loss of hyperface is much less grave than losing face in non-virtual reality, and so the game-atmosphere that prevails in email discourse can be an aid to instruction as it frees even the shyest student to experiment. ■

# An Experience Using Digital Pads for Teaching

Asst Prof Ng Tuck Wah  
Bachelor of Technology Programme  
Faculty of Engineering



Sample of lecture scribbling on an e-pad

From the chalkboard to the overhead projector: the transition has been gradual but today we find that it is almost complete. There was a great deal of apprehension initially as to whether the overhead projector would be as good a writing tool in lectures as the chalkboard. After all, what would happen if the projector bulb blew? And this did happen periodically. Over time, however, the advantages of the overhead projector sank in. It is brighter and able to project onto a larger screen, making it possible for a large audience to view what is written much more clearly. The obviation of chalk dust, of course, is an added incentive.

Today, all NUS lecture theatres are equipped with LCD projectors. We are now also experimenting with using computers and popular presentation software like PowerPoint. But when it comes to writing something down, we naturally flip a sheet of transparency on the overhead projector and scribble away. The reason is obvious: few of us have the dexterity and patience to manoeuvre a chunky mouse in order to draw and write.

Then the e-pad was launched this year with much publicity as a Singaporean product that will be a great tool for artists and kids to write on. Being adventurous, I bought one to see if I could use it in lectures in lieu of transparencies.

Setting up the pad was very easy. All I had to do was to plug it into a serial port and run the set-up software from a CD. It was done within a minute. To my pleasant surprise, writing was a breeze and it was fun. The greatest joy I experienced was being able to view what I wrote on a computer monitor instead of the overhead projector that is usually far too bright. (Being a researcher in the field of optics, I think it is useful to mention that if you look at something bright and continue to see bright spots after you have looked away, it generally means that some form of damage to the retina has resulted over a reasonable period of time). Of course, I can view the transparency through a filter or turn around to look at the screen. The former gets in my way; the latter prevents me from having eye contact with my students and perhaps even causes neck strain.

By now, I am sure that you can guess what my verdict is. Getting the e-pad will set you back about \$170. I bought mine at a promotional price of \$105 when it was first advertised. I enclose a sample page of my lecture scribblings (poor handwriting notwithstanding) as testament of the e-pad's usefulness. ■



## An Old Dog Learns New Tricks!

Assoc Prof Chrys Mendis  
Dept of Electrical Engineering  
Faculty of Engineering

An old dog needs assistance to learn new tricks. In this case, CDTL staff very patiently and ably rendered assistance. After 19 years of traditional teaching at NUS, I

was able to exploit and enjoy the use of multimedia techniques in developing a course on 'Electrical Circuits' to 433 Electrical Engineering freshmen. It took me about 600 hours, but finally a comprehensive course consisting of about 450 PowerPoint slides was published on the Integrated Virtual Learning Environment (IVLE). This is how it all came about.

In July 1998 the Global Campus Project was launched to provide students with an environment for enhanced IT utilisation. Staff were urged to develop suitable courseware to encourage the widespread use of notebook computers. So I set out to develop a course at a time when no one could offer definite directions and opinions as to what was to be done and what software was to be used. I participated in numerous useful CDTL seminars that helped demonstrate the schemes that were available. The IVLE was not fully developed and as user-friendly then as it is today. I tried out various methods, including ScreenCam for speech recording and PowerPoint-animated slides. But I discovered that speech recording and animation (with/without sound) were not entirely

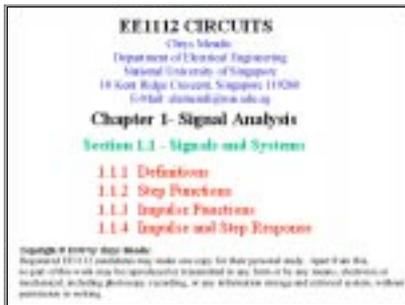
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## An Old Dog Learns New Tricks!

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compatible. Each courseware packet (chapter) also had to be small enough (i.e. 1 Megabyte, or less, per packet) to permit easy downloading by students in their homes.

Finally, a *textware* course was developed which allowed students to study directly from a PC screen. In a way it was like blackboard teaching with the beneficial difference that a student was able to control the pace of study at will to match his/her absorption rate. It was not a case of converting 'old' lecture transparencies into a PowerPoint presentation, exploiting the special effects available, or animating textual presentation in the form that secretaries might prepare for their bosses. In animating block diagrams and electrical circuit diagrams, I had to develop my own methods through trial and error to achieve exactly what I wanted; good judgement was required to achieve a balance of techniques that preserved academic and professional standards. As an experiment on developing confidence in students, one of the main topics in my course was prepared for self-study by students (no lectures). This part of the presentation, therefore, had to be designed with more care. I was also able to incorporate an interactive video clip from the Internet into my lectures.

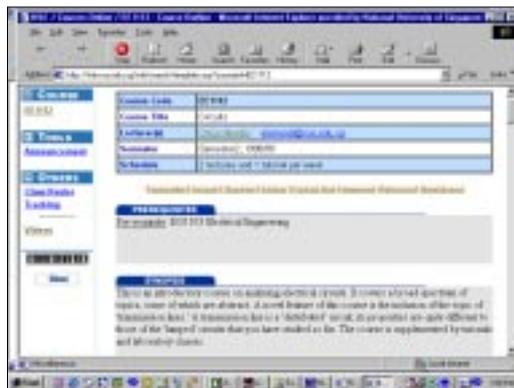


Part of a PowerPoint presentation for EE1112

Towards the end of the course I realised that some of the sound effects incorporated in my presentation might be distracting to students rather than arresting their attention, similar perhaps to the disturbance created by pagers and mobile phones. I have to consider reducing or even eliminating sound effects from future presentations of the course.

Some staff may not be aware that PowerPoint allows one to draw on a slide using a mouse in much the same way as one draws on a transparency with a pen. This requires practice and I managed with difficulty, as a mouse is not as good as a pen. Later with the assistance of the Centre for Instructional Technology (CIT), I was able to loan out a 'pen and tablet' apparatus (WACOM Pen Partner) from a vendor for a short time. This was more effective. More advanced equipment, in the form of a duplicate screen on which one could write directly, was available but too expensive. So I am looking forward to the provision of such equipment in the coming semester.

My main concern initially was the perceived difficulty in changing the 'mind-sets' of students. Despite the fact that the textware ought to have been used for individual study, mass-produced copies of slides were being replicated and distributed, undoubtedly increasing the 'peer pressure' on students. I have constantly advised students to make their own notes according to individual needs whilst studying directly from a PC, and also to develop the habit of referring to other texts. At first, it appeared that old habits would die hard. Later on, I discovered that there were more than 10,000 hits on the IVLE for my course. Although the number of hits may not be the best indicator of IVLE usage, it appears to be the only indicator presently. Therefore, I would like to think that I have achieved a reasonable measure of success in providing a learning environment consistent with the university's expectations. ■



Course outline for EE1112 on IVLE



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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