

Retreat on Teaching and Learning

The Office of the Provost



The Office of the Provost organised a Retreat on Teaching and Learning on 11 June 2002 at the Rasa Sentosa Hotel with about 100 participants from all over NUS, including the President, Provost, Vice Provosts, Deans, Heads of Departments, faculty members and students. Aimed at assessing existing teaching and learning practices at NUS, this interactive event also prompted a dialogue on how to create the ideal conditions for path-breaking innovations in teaching.



Prof Shih Choon Fong (President) who opened the event, encouraged faculty members to delve into the ways in which NUS can be transformed into a community of 'intelligent partnerships' where individuals with diverse and complementary capabilities can interact to achieve high quality 'scholarship'. He also encouraged the audience to initiate new pedagogical practices while keeping in mind the pressure of a rapidly changing Singapore economy (*see box story on page 16*).



Prof Chong Chi Tat (Provost) elaborated on the President's theme and stressed that NUS must move towards

a flexible curriculum that would allow students to take up different challenges. Consequently, existing approaches to grading, student feedback, teaching evaluation and rewards have to be reviewed.

Students then shared their personal experiences at NUS. A First Year student noted that the bridge from junior college into university was a tough one to cross. In the coming years, he hoped to encounter teachers who inspired and encouraged, rather than unapproachable academics wrapped up in research. A Final Year student recounted his experience with peer learning on an Exchange Program in Canada and hoped that NUS would experiment with non-traditional teaching models.

Next, seasoned faculty members related their views on teaching at NUS. A/Prof Anjam Khursheed (from the Electrical & Computer Engineering Department) talked of his success in eliciting responses from students when they were forced to participate in class through experiments with inventive thinking. A/Prof Malcolm Murfett (from the History Department)

Continued on page 16..

inside

Developing a Culture of Teaching Evaluation	2
Academic Citizenship: Mentoring, Collegiality, and Critical Dialogue at NUS	4
A Strategic Consultative Inquiry for Canadian Distance Education	5

Teaching Culture / Distance Education

Using a Problem-based Learning Approach in the Dental Undergraduate Research Opportunities Programme	6
Creating a Scenario to Explore Problem-based Learning	7
Teaching Students How to Use Online Resources	13
Learner Analysis in Instructional Design: The Affective Domain	14

Problem-based Learning / Technology & You

Hellos & Goodbyes	3
TA Training / Student Workshops / Professional Development Programme (Teaching)	8
TLHE Symposium / Pre-Symposium	9
Teaching & Learning Highlights	10
Inside the CDTL Library	12

CDTL News / From the Faculties



Developing *a* Culture of Teaching Evaluation

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Introduction

NUS is a state university, for which teaching remains a very important remit, even while research and entrepreneurship are emphasised. In this context, I have been invited to contribute my thoughts on how to develop a culture in which teaching evaluation is responsibly and helpfully carried out.

To create such a culture, I believe there are three crucial factors. First, there must be faculty members who care about teaching to take the time to develop good approaches to teaching, as well as know how to develop good portfolios, thus putting their best case forward. Second, it is helpful to have facilitators and mentors who assist with the development of good teaching and good portfolios. Third, there must be evaluators who do their jobs honestly, fairly and in an informed manner.

In the following paragraphs, I will first focus on those key players who are directly involved in the teaching evaluation process: the individual academic, the peer reviewer and the student evaluator. Next, I will discuss those others who can and should play important facilitating roles in the development of teaching evaluation, particularly the colleague-mentor.

The Individual Academic

As the one being evaluated, a healthy perspective for the individual academic to adopt is to view the teaching evaluation process as a formative one, and therefore to participate in the craft of teaching and teaching evaluation positively. Self-improvement can be achieved if he/she puts aside some time to prepare an evolving portfolio, which is then seen as a growing document paralleling the evolution of teaching, rather than an end summary of efforts.

However, a lack of educational mission in the individual academic might hamper the successful use of teaching evaluation as a way of improving teaching. Fundamentally, if we believe that teaching is unimportant, and that what gets us promotion and tenure is research, then the culture of teaching is lacking (let alone a culture of teaching evaluation). But assuming that we understand from the start that our educational mission is at least as important as our research and entrepreneurial drives, then a key factor in developing a culture of teaching evaluation is to begin emphasising the formative value of teaching evaluation, as opposed to a purely summative one, and for individuals being evaluated to take that stance as one step towards contributing to a useful process.

The Peer Reviewer

In developing a culture of evaluation, peer reviewers clearly play a central role. They must understand a two-fold responsibility: responsibility to the candidate who deserves

to have his/her best qualities accurately documented, and responsibility to the Head, Dean and promotion and tenure committees who have to use the information to make proper decisions.

The following issues are not confined to NUS, but certainly observable here. One example is a lack of honesty. In a 2000 Chronicle of Higher Education article, a writer commented on letters of recommendation for promotion and tenure, which might well describe peer review evaluations: “Puffing is rampant. Evasion abounds. Deliberate obfuscation is the rule of the day.” Indeed, when inflationary rhetoric becomes normative, it is very difficult for individual reviewers not to follow suit.

Yet, it is not difficult to understand why inflationary rhetoric may creep in: there is an inevitable lack of anonymity when peer reviewers are obviously sitting in the room observing a class; there is an understandable unwillingness to be responsible for someone else’s job and an unwillingness to criticise a colleague; and there is the potential “You scratch my back, I scratch yours” syndrome. The consequences are simply that inflation is unfair to those who deserve praise and makes peer review meaningless. Such evaluations create self-sustaining and systemic pressures that may then force reliance on student feedback.

The converse of inflationary rhetoric is that of brevity, where peer review reports contain so little qualitative information that they are unhelpful. Other peer reviewers offer such detail (e.g. that the individual they are evaluating offered a 16-minute break as opposed to the announced 10 minutes) that the risk of missing the woods for the trees is high. Yet, inconsequential details are less problematic than vindictive reports, which leave the users of peer review reports without the value of good feedback.

Peer reviewers are probably not born; they are made. Heads, and units such as CDTL, can play important roles in facilitating best practice sharing. Equally, the work of peer reviewers can be enhanced and facilitated if good instruments are provided for their use. Effective peer review report forms can go a long way to prompt reviewers to make appropriate observations.

The Student Evaluator

Students do not always value the same things that a peer reviewer would, thereby offering different, but important, perspectives about the classroom process. So how can Heads, Deans and promotion and tenure committees use student feedback reliably and judiciously? It is imperative to recognise that students are appropriate sources of evidence for some things but less so others, and to reflect on the reliability of student evaluation.

Students are probably more suitable sources of evidence of student-instructor relationships; the instructor's professional and ethical behaviour; what they have learned in the course; the instructor's ability to communicate clearly and to enhance interest; and comparative workload. In contrast, students are less fitting sources of evidence for quality of course content (e.g. teaching the latest ideas) and the instructor's scholarship in the field.

When reflecting on the reliability of student evaluation, some factors to consider include the following: Do more favourable ratings/good feedback suggest that students are grateful for an easy course? Or that students are grateful for high continuous assessment grades/anticipated high finals grades? Or do they indicate that students have learnt a lot in the class because of effective teaching? Research in this direction in other contexts is not conclusive. Two studies (conducted in North American institutions in 1980) suggest that lecturers cannot purchase favourable student ratings through easy grading (see reports in Braskamp & Ory, 1994). But other studies have illustrated that grading leniency often correlates with teacher ratings.

The Colleague-Mentor

Apart from those directly involved in the evaluation process, the colleague-as-mentor has an important role to play. The Head could serve as mentor, but it could as well be a colleague (not necessarily in the same discipline, to avoid focusing on content) or a 'faculty development specialist'. Why is there a need for a mentor and what role should he/she play? There are multiple roles:

- *Reflecting on the value of teaching portfolios for self-improvement:* The mentor can help to guide a junior faculty member in setting goals and developing plans/objectives through teaching portfolios. In other words, portfolio creation need not be done only for promotion and tenure, but as part of the evolution of the teaching process. It can help an academic to monitor his/her own progress against standards he/she sets from the beginning for himself/herself.
- *Focusing on areas in the teaching-learning process to be examined:* The mentor can help a faculty member to focus from the start on what aspects of the teaching-learning process to develop and eventually present these as strengths. For example, faculty members might be advised

to think about level of content, type of assignments, enhancement of collaborative learning, teacher-student interaction, etc.

- *Advising on presentation and analysis:* Unused as we are in presenting portfolios, advice on how to present an organised portfolio, and a 'balanced' one with materials from oneself (personal statement of teaching goals and representative course syllabi), materials from others (student evaluations, alumni feedback), and products of good teaching (examples of student work with comments) could be very useful.
- *Developing early information-collection system:* The portfolio is a growing, evolving document, and mentors can urge colleagues to think about developing an early information-collection system, dedicating a drawer to relevant material, with appropriate headings, such as teaching goals, student evaluations, and alumni feedback.

Summary

Developing a strong culture of teaching relies in part on a healthy culture of teaching evaluation, in which such evaluation is as much a formative as it is a summative process. All this is possible only if different participants in the process contribute positively: the individual academic must be committed to the educational mission and want to seek improvements to his/her teaching contributions, and be open to feedback and suggestions. The peer reviewers' honest work can be facilitated if there is some best practice sharing and if they are offered effective, user-friendly instruments. Student evaluators must be assured that their responsible views will be taken seriously and there must be judicious use of their feedback. The mentoring role is an equally important one, but this will only be possible and effective if we see ourselves as a community, not a set of atomistic individuals looking out purely for ourselves; only then will there be willing mentors who can benefit other colleagues. Heads can play this role, and additionally, act as information brokers, alongside Deans, in effecting best practice sharing.

References

Braskamp, Larry A. & Ory, John C. (Eds.). (1994). *Assessing Faculty Work: Enhancing Individual and Institutional Performance*, San Francisco: Jossey-Bass Publishers. ■

This essay is a summary of a presentation made at a CDTL workshop for Deans and Heads on 19 April 2002.

Hello & Goodbyes

In the past few months, CDTL has experienced some staff changes. We would like to welcome:

- Mr Goh Aik Hui (Dept of Computer Science), Prof Wang Chien Ming (Vice-Dean, Faculty of Engineering), A/Prof Tan Chay Hoon (Dept of Pharmacology) and A/Prof Grace Ong (Vice-Dean, Faculty of Dentistry) as Affiliates of CDTL, whose terms of office run from July 2002 to June 2003;
- Asst Prof John Whalen-Bridge (Dept of English Language & Literature) also as a CDTL Affiliate, whose term of office runs from September 2002 to December 2003;
- Dr Kevin Scott Carlson who joined CDTL as an Educational Development Specialist on 1 July.

We would also like to thank the following for all their invaluable support in the past and wish them well for their future endeavours:

- Mr Glen O'Grady, Senior Educational Development Specialist, who left in July to assume the post of Deputy Director, Centre for Educational Development, Republic Polytechnic;
- Mr Ow Hong Cheng, Technical Support Officer, who also left in July to pursue further studies at Nanyang Technological University;
- Dr Lydia Tan, Research Assistant, who left in September, to conduct research in psychology at the University of Essex;
- Ms Teo Kuan Yee, Administrative Officer, who left in October. ■



Academic Citizenship: Mentoring, Collegiality, and Critical Dialogue at NUS

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On 18 March 2002, members of the faculties of Arts & Social Sciences, Business, Computing, Dentistry, Engineering, and Medicine met to discuss NUS's current academic culture. The CDTL meeting was more or less a grassroots event: I had been asked to give a workshop to students on how to do online research, and so I asked if I could also hold a workshop or discussion on the topic of academic citizenship. I had been reading books on collegiality and academic culture, and I wanted to discuss some ideas from this reading and see what a cross-section of NUS faculty had to say about key terms such as "collegiality". As a preliminary to this workshop, I interviewed twenty members of the Faculty of Arts & Social Sciences (half of whom had been here less than two years, half more than ten), asking each person to define "collegiality" and to say how it existed in his or her department.

Though the sample was modest, the results were fairly consistent. Less than half of the people I spoke with felt adequate mentoring is available at NUS, and many of those who were mentored said that it was a one-off arrangement set up by the department head. More striking is the difference between the ten-year and the two-year groups: 80% of those with ten years experience or more said they received no mentoring whatsoever, whereas only 60% of those in the two-year group felt they have received no mentoring. On the one hand, things are improving, but on the other hand respondents reported that mentoring at NUS is inadequate and that, even where relations are excellent, there is a general reserve that inhibits the sharing necessary to inter-disciplinary work.

Some of the anecdotal comments explaining views can be seen on my webpage (<http://courses.nus.edu.sg/Course/elljwb/cdtl/academic.citizenship.htm>). The most common advice received by the interviewees I spoke to was "keep your head down" and "go with the flow." Clearly this advice is at odds with the more recent statements that have been made about NUS's future direction, and many participants in the workshop expressed a mixture of hope about these proposed changes and worry that some of the root problems were not yet being addressed. Some of the more positive responses registered satisfaction with collegiality at NUS, and many claimed that relations between peers were better at NUS than elsewhere. On the negative side, rigidly hierarchical communication inhibits creative solutions to many university problems, and inter-faculty communication and cooperation are rare.

Part of the solution to the problems described will require institutional adaptation. President Shih Choon Fong has mentioned a "control culture" among the hindrances to creative problem-solving in his circular of 27 February 2002 (<https://online.nus.edu.sg/DB/infoboard/20222.pdf>) and again in his recent State of the University address (<https://online.nus.edu.sg/president/State%20of%20the%20University%20Address%202002.pdf>). Generally speaking, faculty members at NUS feel that there is a strong general desire to improve the academic culture of this university, but at the same time there is a general feeling that NUS needs to find better ways to communicate across ranks. The hope was frequently expressed in the discussion portion of the workshop that, as much as possible, NUS will discover ways to put ideas such as "faculty ownership" into actual practice.

At the individual level, anyone interested teaching, research, or socialisation in a university context might enjoy reading Robert Boice's book, *Advice for New Faculty Members: Nihil Nimus*, a book which makes hundreds of practical suggestions about how one can balance these three aspects of academic life. Boice has studied academic culture for thirty years and has a great deal to say about why some faculty members thrive and some founder in a university, and the recommendations he makes about this subject will interest new faculty members, those long-time faculty members who are open to new ideas and administrators who are truly interested in creating the conditions for an effective and enjoyable academic culture.

For Further Reading

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- Ip, Alex. (2001). 'Academic Controversy: The Key to Teaching Thinking in the University', *Ideas on Teaching*, No. 21. Singapore: National University of Singapore. <http://www.cdtl.nus.edu.sg/ideas/iot21.htm>. (Access date: 15 March 2002). ■

A Strategic Consultative Inquiry for Canadian Distance Education

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Established in 1983, the Canadian Association for Distance Education (CADE) is a national, bilingual and voluntary organisation committed to excellence in the provision of distance education in Canada. It is founded upon six objectives:

- promoting distance education nationally;
- advancing research into distance education theory and practice;
- providing membership services including professional development;
- enabling forums for interaction on a national, regional, provincial basis;
- representing Canada internationally in the distance education field; and
- continuing to provide learning at a distance.

CADE is consistently recognised by national and provincial governments for leading-edge information on models of distance delivery, application of technologies to distance/distributed learning and methods by which distance learners, institutions, businesses and organisations can be supported in Canada. In keeping with these goals, CADE was awarded a seed grant in 2001 by the Office of Learning Technologies–Human Resources Development Canada, to explore opportunities to enhance the support of institutions, workplaces, government, business and international marketplaces. The first step was to identify consultative research strategies for the project.

Consultation Methodologies

On the basis of an extensive literature review, a concise discussion paper, entitled *Exploring the Future: Options for CADE*, was initiated describing four potential models to meet multiple needs of a national distance/distributed marketplace. Specifically, the gradual and sustained approach and the research and policy approach were consistent with the structures of a ‘traditional’ voluntary association, while the collaborative network approach offered an innovative, flexible, dynamic and fluid capability to support a national distance learning association. A combined approach was discussed to bridge the ‘gap’ between these approaches.

To explore which of these models might prove the ‘best fit’ to the Association, three consultative inquiries were employed to capture the electronic, print and face-to-face communications currently used in the distance field. Knowing that organisations can experience significant transitions in expanding their roles (e.g. McCardell & Willment, 1987), a specialised needs

assessment methodology was developed for this study. The Opportunity Assessment Survey was completed voluntarily by the Association membership, and offered to conference delegates attending the International Conference of Distance Education–Canadian Association of Distance Education and the International Symposium of Educational Technology Conference. Both conferences also included presentations by adult graduate distance learners. Further, a series of questions were designed for CADE Board of Directors to use when leading focus groups (Morgan, 1993) scheduled throughout both conferences. Finally, the CADE website (see: <http://www.caded.ca/>) was adapted to enable responses to be sent through electronic discussion.

Interim Results from the Consultation

While results are not complete, several themes have emerged. These include:

1. with the current areas of international development work presently underway by the Association, consideration should be given to developing an enhanced role/presence within the international community;
2. development of specialised support service for specific workplace occupations (e.g. instructional developers in educational and corporate settings, administrative and program managers, resources for support services, university/college instructors, e-learning businesses);
3. matching grants and potential associations with national and international bodies to develop collaborative research dialogue to support new technologies for online learning, web-development, bandwidth, internet and related provisions;
4. opportunities to provide third party evaluation services to work with national and international colleagues on the effectiveness of distance/distributed learning opportunities;
5. an invitation to adult distance education graduate learners to serve a specialised role within this national distance education association; and
6. significant international partnerships in the global economy would enable the Association to share, collaborate and extend the role of distance/distributed learning within international communities.

These themes underscore the importance of the dual researcher and practitioner perspectives within a national distance

Continued on page 12...

Using a Problem-based Learning Approach in the Dental Undergraduate Research Opportunities Programme

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The First Asia Student Clinician Program organised during the 17th International Association for Dental Research (South-East Asian Division) Annual meeting in Hong Kong, September 2002. (From left to right: A judge, the organiser, the Dean of the NUS Faculty of Dentistry, and a student representative from the top NUS UROP group)

PBL in the Faculty of Dentistry

As part of the vision to reinvent NUS as a global knowledge enterprise, it is necessary to empower graduates with life-long learning skills that will equip them to be independent learners. To facilitate this learning philosophy, problem-based learning (PBL) has been implemented since 1996 in the undergraduate dental students' clinical years as a supplement to the traditional lecture-tutorial system.

In the PBL approach, summarised clinical cases are presented to groups of 6–7 students for discussion. Questions are posed to stimulate the students' minds and raise certain learning issues. Next, each student independently searches for answers to these learning topics; they then present their findings to the rest of their respective groups during a subsequent session for further discussion. In PBL, tutors play a relatively passive role (vs. teacher-centred focus in traditional tutorials) by facilitating discussions and helping students derive answers

without spoon-feeding them. Consequently, students play more active self-reliant roles in the acquisition of new information/knowledge.

Undergraduate Research Opportunities Programme

The Dental Undergraduate Research Opportunities Programme (UROP) was introduced in 1997. The aim is to cultivate a research culture within budding dentists by exposing dental students to research methodologies and providing them with a better understanding of research work. Unlike other faculties where only selected groups participate, every student in the Dental Faculty is involved in UROP. Generally, 3–4 dental students are grouped together and supervised by academic staff from various disciplines. Students carry out their projects according to a study protocol, analyse the results and submit a research report to be assessed by a panel of 2–3 independent evaluators. A student representative from each group makes a research presentation during the Faculty Research Day. Top groups will be chosen to present their findings at regional conferences. Manuscript preparation is also part of the learning experience and students are encouraged to submit their publications to relevant international journals.

Adapting PBL in UROP

Philosophy: Marrying PBL with UROP is in fact logical as both dictate similar underlying principles in terms of philosophies and practices. In both learning experiences, student learners usually take responsibility for their own learning and assume active roles in acquiring solutions to problems, while supervisors/teachers act merely as facilitators (as opposed to functioning traditionally as information providers and figures of authority). In UROP, student learners generally have prior basic knowledge and/or practical experience in the subject matter/clinical discipline that serve as a foundation to the learning process; supervisors/teachers generally concentrate on developing a master plan of UROP learning to achieve a desired curriculum outcome. This learning process in both PBL and UROP is believed to better reinforce each student's existing knowledge base, enable deeper understanding and enhance integration and mastery of new information.

Practice—A Personal Experience: The titles of the UROP projects were given to small groups of student learners. Learner-led discussions were carried out to establish the known and identify the unknown, thereby drafting a preliminary problem statement for initial focus. In order to understand the background of the study and clearly define the problem statement, students engaged cooperatively in gathering, organising and/or re-organising evidence-based information through extensive literature search and review as well as problem-centred discussions. The process was an intensive one, requiring critical appraisal and careful interpretation that would lead to the revision and refinement of each problem statement as well as facilitate the formulation of a hypothesis and the eventual construction of a verifiable protocol with meticulous details. Systematically conducting a well-designed experiment, including organised data collection, mandated diligence and discipline. The results of the experiment were then statistically analysed. Prudent interpretation of the findings was another important learning process that required critical thinking and objective analysis to test the hypothesis.

Continued on page 12...



Creating a Scenario to Explore Problem-based Learning

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In May 2002, I was given an opportunity by CDTL to present a problem-based learning (PBL) seminar, using simulation to provide an experience for NUS staff that would mirror 'real' PBL processes in action. Participating teachers who experience PBL at first hand (as 'students') are more likely to adopt it in their papers/courses than others who may only theorise about its use. What follows is a description of how I helped participants explore PBL processes using this approach.

A. PBL and the 'Archaeological Site'

One of the overriding purposes of PBL is to engage students in processes of problem solving and decision making. Here, less value is placed on reaching any one solution to a problem, and more on learning gained while pursuing selected problem(s).

Hence, I chose archaeology as a problem area so that participants from a range of disciplines could engage in a common language, experience the kind of processes they can give their own students, without the academic pressures of 'having to be right' in their speculations. Here are the steps:

1. I begin by asking participants to place a chair in the middle of the room to form two or more 'monumental piles'. I explain how these monuments constitute an archaeological site.
2. I ask participants what archaeologists do and why. I invite them to form pairs and 'enrol' each pair as archaeologists. Their task is to examine the site thoroughly in their capacity as 'professional' archaeologists and address the following questions.
 - The age of the site?
 - The use(s) of the site?
 - The people who used the site?
 - The reason(s) for the decline of the site?
3. I ask the pairs to form groups of 4 or 6 and then to listen to each group member's views about the site. The concept allows ambiguity—it is free of 'cultural baggage', and gives no clues to any period in archaeological history.
4. Group members are encouraged to reach a consensus on all questions, even if this simply entails an agreement to differ. It would be unusual for experts in any field to reach agreement without contention or negotiation first,

reflecting perhaps the complex nature of authentic problems.

5. The groups are then invited to identify gaps in their knowledge, given their tentative hypotheses: What don't they know? What do they need to find out? What assumptions are they making about links between ideas/concepts?
6. Next, the groups have to decide on what resources they need to substantiate their claims? Where are these resources situated? Resources might encompass historical documents, journal articles, web links, visitor expertise, media archives, or any other artefact enabling insight and support for the groups' assertions.
7. Having decided what is needed to justify claims, each group then creates an action plan to facilitate an organised pursuit of the problems(s), the collection of resources, and ultimately the presentation of findings. This presentation often consists of an oral presentation, supported by a brief written report/executive summary. Decisions have to be made about what needs to be done, by whom, and by when.

B. Reflecting on the Process

Participants are invited to reflect on the efficacy of the process, their role and feelings within the unfolding PBL simulation, and implications for the adoption of PBL within their own classroom settings. The simulated archaeological site provides a 'real' world context. Knowledge used to pursue the problem is constructed from the participant's past and current experiences. The questions allow for multiple responses. Even though archaeology is not the discipline of any of the participants, they claim that the learning is relevant and clearly reveals structural principles of PBL in practice. Many decide to try out the archaeology model with students to gauge interest and reactions to the PBL notion. This is prior to engaging students with PBL within their own discipline area.

Overall, the archaeological scenario engages participants actively at each stage of PBL. Participants work with problems in ways that encourage reasoning skills, knowledge application, and which closely resemble those in the real world setting. Finally, this provides a non-threatening way of introducing change where the encouragement to succeed and the right to fail are both upheld. ■

TA TRAINING



105 Teaching Assistants, mainly from the Science and Engineering faculties, attended this year's TA training programme from 17–19 July which consisted of workshops and seminars on the topics of *Teaching and Learning in Higher Education*, *Learning in Small Groups*, *How to Enhance My Presentation Skills*, *Motivating Students by Responding to Their Work*, *Assessment of Student Performance* and *Enhancing Teaching and Learning with the Use of IT*. The programme was very well received and various participants responded with the following feedback:

- “A new perspective to teaching. It was a fun and enriching course.”
- “Every lecturer gave a clear, lively and well-organized presentation. Sincere, friendly and every topic was made simple to understand.”
- “I like the presentation practice, group discussions, Q&A which allows the students to ask problems they face in practical.”
- “Well-organised and planned, lots of new & refreshing ideas brought up. Improved my ideas of teaching as a whole.” ■



Student Workshops



In September and October, CDTL organised several ‘Learning for Success’ workshops for NUS students like *Presentation Skills* and *Group Dynamics* (conducted by Dr Kevin Carlson), *Reading for Understanding and Retention* (Ms Lisa Lim), *Letting Go: Physical Relaxation Techniques* (Ms Verena Tay), and *Using the Internet: A Workshop for Undergraduate Research* (Asst Prof John Whalen-Bridge). Student response to these sessions was overwhelming. ■



Professional Development Programme (Teaching)



From 23–25 July, CDTL organised another intensive course of the Professional Development Programme (Teaching), or PDP-T, for new academic staff with less than three years of experience. The seminars and workshops within this PDP-T covered areas such as demonstrations of classroom teaching; discussions on the NUS student, using IT in teaching and learning, how to conduct tutorial/lecture classes, assessment and lesson/curriculum design; and hands-on micro-teaching sessions for participants to try new methods of instruction and gain feedback from others.

Feedback from participants of this engaging and informative PDP-T include the following:

- “Comprehensive coverage of ‘life-cycle’ of teaching—from planning to implementation.”
- “Useful in terms of food for thought for new methods of teaching, student expectations.”
- “The stimulating discussions with the speakers. Their innovative style of teaching was also very interesting.”
- “Importance and ways of communication with students.”
- “That it allowed participants to have fun while getting a chance to do things.”
- “The interactive sessions which make you think interactively & constructively.”
- “Active participation and sharing of ideas and problems encountered.”
- “Practical demonstrations of theoretical concepts.”
- “Useful. Could build in more flexibility as people from different disciplines have different needs. But I understand it is a different task. Thanks!”
- “Overall, I appreciate the commitment, on NUS’s part, in teaching excellence. There were many useful and interesting examples demonstrated. I feel re-energised.” ■



TLHE SYMPOSIUM



After months of careful planning and hard work, CDTL carried out its largest and most successful conference to date, the *Second Symposium on Teaching and Learning in Higher Education (TLHE 2002)*. The first component of TLHE 2002 consisted of two pre-symposium workshops conducted respectively by Prof Barbara Gross Davis and Dr Marshall Lih on 3 September. Held at CDTL's Seminar Room, these sessions gave participants new perspectives on teaching and learning.

The symposium proper was held from 4–6 September at the Engineering Auditorium.

Over 200 educationists took part, including some 40 overseas delegates from 13 countries and more than 50 who were non-NUS staff. The keynote lectures by Dr Marshall Lih (National Science Foundation, USA), Prof Chong Chi Tat (Provost, NUS) and Prof Barbara Gross Davis (University of California, Berkeley), invited lectures by Ms Denise Chalmers (The University of Queensland), Prof Tim Hill (University of Bristol), A/Prof Ora Kwo (The University of Hong Kong), Prof Gabriele Lakomski (The University of Melbourne) A/Prof Belal E. Baaquie (NUS), Prof Susan C. Piliero (Cornell University), Prof Malcolm Tight (University of Warwick), Prof Peter Jarvis (University of Surrey), Prof Ivan Png (Vice Provost, NUS) and oral presentations by some 70 teachers provided stimulating insights on pedagogical strategies, approaches and learning outcomes, as well as generated much discussion, debate and food for thought.

An exhibition showing the latest teaching aids/equipment and books on teaching and learning was held in conjunction with the symposium. The participating exhibitors were Blackboard Inc, WizLearn Pte Ltd, Pantropic Online Pte Ltd and PAVE System Pte Ltd. Various books on teaching from various universities worldwide were also displayed.

Complementing the main programme, the symposium participants were treated to a dinner banquet, lunch buffets and local delights at the coffee breaks. During these relaxing sessions, the participants had ample opportunities to renew friendships and make new acquaintances.

The positive feedback received from participants of TLHE 2002 has encouraged CDTL to consider organising another symposium, tentatively scheduled for 2004, to further promote debate on teaching and learning issues in higher education and camaraderie amidst the international academic community. ■



PRE-SYMPOSIUM



TEACHING & LEARNING highlights



Legal Writing faculty being trained on Conversant Media, a peer-to-peer collaborative software which they hope to use in Semester 2 to train students in mootng techniques

small tutorial-sized groups (12 to 13 students) that increases in-class participation and optimises opportunities for one-on-one feedback. Written assignments receive comprehensive critiques on analysis, organisation and style. Rewrites to implement such comments are required. The legal writing faculty, principally staffed by adjuncts with strong practice credentials, employ a 'law practice' model to simulate the demands and expectations of law practice within the classroom. While it remains to be seen whether the programme will train a better-skilled breed of Singapore lawyer, one tangible difference has already been observed: First Year law students this year seem to be spending a lot more time writing and researching in the Law School's newly renovated library! ■



Dr Chung Yuen Kay, Head of Human Resource Management Unit, School of Business, conducting the experiential exercise on empathy to Year 2 medical students

(d) professionalism and coping skills. In addition to lectures, the course will be taught through active participatory learning methods such as practical exercises, case studies, self-assessment and simulation exercises. ■



Students at work, online

Each group is responsible for preparing written responses to 1–2 tutorial questions and uploading these answers onto the IVLE Workbin according to their respective tutorial class one day before each tutorial to facilitate downloading by their tutorial mates. Students come to the class to **comment critically on and improve upon** their work and create their own set of 'Grade A model answers', instead of merely providing basic answers. 5–7 minutes are spent reviewing each question, thereby adding to the students' subject knowledge, guiding them to think critically and preparing them

Faculty of Law

Legal Analysis, Research and Writing Programme

During the first semester of AY2002/03, the Law Faculty launched a comprehensive Legal Analysis, Research and Writing programme, Asia's first. The programme is designed to systematically equip law students with analytical, research, writing and communication skills that will help them excel in the competitive international market for legal services. The programme's core courses will be taught over two years as compulsory modules in Years One and Two, using hands-on practice and realistic scenario-based learning as principal teaching methodologies.

Students will learn by doing, and will be expected to 'do' regularly. To implement this pedagogy, the course breaks with tradition. Instead of the usual lecture-tutorial teaching model, virtually all teaching takes place in

Faculty of Medicine

Professional Development and Communication Programme

The Professional Development and Communication Programme aims to develop the professional skills and personal competencies of medical students in the area of interaction and communication with patients and their family members, peers and members of the health care team. At the end of the module, students will learn to be more compassionate and be able to work effectively in interdisciplinary teams to provide humane and professional care to patients. The course will be taught from Year 1 to Year 4 by an integrated team comprising clinical staff from the Faculty of Medicine and academic staff from the Human Resource Management Unit. Course topics include: (a) self-awareness and self-assessment; (b) empathy, rapport building and listening skills; (c) team work and conflict management; and

NUS Business School

Getting the Best Out of 1-hour Tutorials

The first-year course, *Legal Environment of Business* (BH1004/GEM1004), imparts basic business legal knowledge to students via the lecture-tutorial mode. While the lecturer explains basic concepts during lectures, the weekly 1-hour tutorials guide students in the applications of these principles to 7–15 short hypothetical questions set in advance by the lecturer. For students to gain the most from each weekly tutorial, the course instructor, Ms Lan Luh Luh, created and uses a special website on the Integrated Virtual Learning Environment. Students are divided into groups of 4–5 at their first tutorial.

for an open-book examination where generally more than textbook answers are required to score well. This approach encourages students to share their knowledge and claim common ownership of their work. Students are frequently reminded that the quality of their ‘model answers’ depends on how much they have put in **before and during** the tutorial discussions. Thus there is no fear that students might just download the answers and refuse to turn up for tutorials, as they know that it is only through the tutorials that they learn how to improve and refine their answers. Consequently, students are constantly challenged to create ‘perfect’ responses that would constitute ‘Grade A’ answers in the eyes of their tutor and peers, often resulting in a satisfying experience for both tutor and students. ■

School of Computing “Is My Proof Correct?”

The yearly course on discrete structures (CS1231) conducted by the School of Computing attempts to lay a strong foundation in logic and proofs before proceeding to apply these in mathematical structures. Our thought processes can be reduced to several logical inference rules, of which Gerhard Gentzen (1935) formalised it with a goal of coming ‘as close as possible to actual reasoning’. We implemented this deduction system for propositional calculus as a java applet and deployed the applet over the Web via <http://www.comp.nus.edu.sg/~cs1231/pc.html>. A proof can be keyed in interactively and the proof-checker will highlight the correctness of each step. This automated checking frees our teaching staff from the repetitious task of checking students’ proofs. We intend to extend the proof checker to predicate calculus, and then to add an ad-hoc natural language translation system, so as to reach the final goal of checking math proofs worded in English. ■



The proof-checker at work

School of Design & Engineering ‘Transfer of Learning’ Seminar

As part of its regular series of semestral Teaching Seminars, a lunchtime dialogue session was organised for staff members of the Departments of Building and Real Estate with Prof Alex Ip, Associate Director at CDTL. Prof Ip commenced his presentation by comparing the significantly different teaching/learning environments he had experienced while he was a Teaching Assistant at Rice University (USA) and his early days at NUS. Initially, the teaching methods that had worked so well for him in the US simply did not seem to yield positive results here at NUS. This triggered him to start on a journey of self-discovery, understanding the implications and benefits of an ‘active’ process of learning (e.g. the adoption of methods which would engage the learner’s cognitive processes) and enabling students to transfer their learning to new situations, thereby instilling a love for learning in students. After Prof Ip’s vivid recounting of the obstacles and triumphs of his journey of discovery, a lively and engaging Question and Answer session followed. ■



Prof Alex Ip’s ‘Transferring of Learning’ Seminar (August 2002)

University Scholars Programme

Students Take Charge of Their Own Learning and Development

The University Scholars Programme’s Global Programme aims to bridge the gap between academic learning and the wider world of responsibility and performance. Through active participation in a variety of activities outside the academic curriculum, the Global Programme encourages the development of leadership qualities and well-rounded personalities with a broadened outlook. In addition to activities coordinated by the faculty, students propose and organise activities on their own initiative. This semester, students from the University Scholars Club organised the University Students Symposium on Environmental Issues on 3 August 2002, with the objectives of enhancing students’ awareness of environmental issues and commitment to protecting and conserving the environment. The symposium brought together leading academics and environmental industry professionals, and was attended by students from Singapore’s schools, junior colleges, polytechnics, and universities. Students are also planning a community service project to Vietnam in December 2002 (Venture Vietnam) in conjunction with the Singapore International Foundation. Their purpose is to build a village kindergarten and to develop a website to document the cultural practices, folklore, and the arts of the ethnic community with which they will be working. ■



Guest-of-honour Mr Lim Swee Say, Minister for the Environment, delivering the Keynote Address at the University Students Symposium on Environmental Issues (3 August 2002)

A Strategic Consultative Inquiry for Canadian Distance Education

...continued from page 5

education association, and continue to speak to the critical importance of furthering international partnerships for the distance learning field.

Exploring the Future

Given the emerging themes developing from this current research consultation, it is clear that CADE continues to be a leader in the distance/distributed learning field. These research results indicate this is an Association that serves as the national voice of distance education by projecting the capabilities of a learning organisation. CADE has moved from a traditional organisation to an Association that actively reflects a collaborative network approach by working in partnership with others.

In conclusion, these results provide a barometer of current suggestions from keen participants within and outside our membership. Further, this strategic consultative research inquiry method has reaffirmed the six aims and objectives of

the Association, and has extended the parameters by identifying enhanced national and international innovations to expand the role of the Association within the distance/distributed learning field. A final report outlining further discussion on this innovative research will be available for readers on the CADE website in Spring 2003.

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- Willment, J.H. & Campbell, B. (2002). *Exploring the Future: Options for the Canadian Association for Distance Education*. Ottawa, Canada: Canadian Association for Distance Education. ■

Using a Problem-based Learning Approach in the Dental Undergraduate Research Opportunities Programme

...continued from page 6



A student representative from the top UROP group with his supervisor at the First Asia Student Clinician Program organised during the 17th International Association for Dental Research (South-East Asian Division) Annual meeting in Hong Kong, September 2002

Efforts were concurrently made to compare and possibly integrate the findings with that from previous reports, using relevant rationales and justifications. Like PBL, UROP also entailed that a manuscript be submitted as a report. A multimedia presentation was the last, but not the least essential, component of the learning process.

Difficulties Encountered: Applying PBL to UROP and creating a more conducive atmosphere for critical thinking was usually time-consuming. Due to constraints in the curriculum schedule, intervention from supervisors was necessary at times to ensure adequate and timely progress. It was also important to anticipate students' learning needs and provide sufficient resources so that the teaching/learning goal was achievable through guiding without spoon-feeding. Managing group dynamics and clarifying expectations of teamwork (including areas of individual responsibility and accountability for learning) were other crucial facets that required observation and monitoring. Teachers also had to balance the following: inspiring curiosity and interaction; providing a setting for the disintegration/integration or dissection/synthesis of concepts; conveying results and maintaining standards. To improve implementation, we are in the process of further objectively

evaluating how the PBL approach can be applied in UROP.

Conclusion

Supervising UROP is a rewarding challenge in many ways. It is a challenge as it implicates an expectation of deliverables, both in terms of research output and teaching/learning outcome. It is also certainly rewarding if it successfully nurtures problem-solving skills as well as perseverance in students to conduct research and extend the boundaries of knowledge. Our efforts to integrate PBL into UROP further increase the challenge as we seek to empower graduates with the means to independently and constantly acquire ever-changing knowledge and perform beyond academic expectations.

References

- Pan D. *Learning to Teach, Teaching to Learn: A Handbook for NUS Teachers* (4th ed.). Singapore: Centre for Development of Teaching and Learning (National University of Singapore), 2001. ■

Inside the CDTL Library

If you want to gain new perspectives on teaching and learning in higher education or wish to do research in these areas, CDTL may have the solution you seek!

CDTL has been busily acquiring various educational journals such as:

- *The Journal of Higher Education*
- *New Directions for Teaching & Learning*

- *Journal of Higher Education Policy & Management*
- *Teaching in Higher Education*

All NUS teaching staff are welcome to visit the CDTL Library to access these journals. We are located at Level 6, Central Library Annex, and are open during office hours. Terms of borrowing can be viewed at <http://www.cdtl.nus.edu.sg/library/rules.htm>. ■

Teaching Students How to Use Online Resources

Assistant Professor Harvey L. Molloy¹
University Scholars Programme



There is no question that the Web has transformed how students and academics conduct research. Where once our only source of information was from books and periodicals, now the Web provides immediate access to a wealth of diverse information. Regardless of our academic discipline, the Web poses a challenge for us as teachers; namely, how can we teach our students to use online resources in their research? As a teacher of Writing and Critical Thinking in the Scholars Programme, my approach to this challenge has been to try and identify the most common problems my students encounter when using the Web in their research and to discuss these problems in class. The five common problems I've encountered are:

- 1. Limited evaluation by students of online material:** The student uses a website as part of his/her research without evaluating the motives for the site's creation and hosting. For example: A student writing on genetically modified foods takes information from a site dedicated to stopping the production of genetically modified foods without any reference to its source.
- 2. Few print references:** The student's research relies almost exclusively on non-refereed online material and publications.
- 3. Poor documentation:** The student fails to note the date an online resource was accessed.
- 4. Limited web search:** The student only looks at the first couple of results displayed by a search engine.
- 5. Plagiarism:** Many students feel that it is acceptable to copy an image without acknowledging its source or requesting permission.

I don't have the space to cover each one of these problems here and will offer instead a few thoughts on the first three difficulties which I feel stem from a lack of understanding of the mechanics of academic research and publication. With so many resources online, we need to discuss with students the role presses, refereed journals and notable academics play in maintaining research standards. One way of assessing an online resource is by identifying the editorial powers that have approved the publication of the information. Some students are tempted to rely exclusively on online sources—as it saves them a trip to the library—with scant regard for the quality of these sources. Clearly, we need to explain to students why

academic presses and refereed journals are important to our own fields of inquiry. As more academic journals and, to a lesser degree, books go online—through ventures such as print on demand—the distinction between online publication and print publications becomes increasingly insignificant. The medium—whether the information is delivered on paper or electronically through the Internet—matters less than the editors and publishers attached to the journal or the press.

That said, the very ease of online publication allows for a greater number of voices to be heard online. Students can be taught to value non-refereed websites as sources of primary information on a given field. For example, a student writing a research paper on autism would need to be familiar with the major figures who have published in this field, but might also supplement this research with information taken from online resources (such as the online journal *Autism* and numerous autism resource websites) as well the numerous personal webpages created by autists which attempt to convey the experience of being autistic to non-autists. At the same time, the student would need to be wary of relying too heavily on any number of autism-related sites which favour and promote a particular view of autism (that it is curable, or caused by diet, or by certain vaccinations, etc.).

What criteria for assessing websites should we recommend to our students? After a survey of 19 guidelines for assessing websites published by universities and colleges, Gurak (2001) identified a number of criteria, including:

- 1. Authorship:** The author's credentials and availability of contact information.
- 2. Currentness:** Frequently updated sites are less likely to have outdated information.
- 3. Purpose:** A consideration of the website's purpose and intended audience. Does it inform, explain or persuade? Is it intended for a specialised or a general audience?
- 4. URL:** An address ending in *.edu* is seen as often more reputable than a *.com* or *.org*—but an *.edu* address does not guarantee the accuracy of the published information.
- 5. Accuracy:** Appropriate references for the sources of information presented on the site.

Finally, a word about insisting on the need to include the date a site was accessed. Online documents and news

1. <http://www.scholars.nus.edu.sg/faculty/uspmhl.html>.

Continued next page...

Teaching Students How to Use Online Resources

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sources are notoriously malleable and unlike their print counterparts their early versions can literally vanish without trace. How one page looks today may well be different from how it looks tomorrow. The mutability of digital documents requires researchers to include information on when the researcher accessed the resource as well as the author, publisher and date of publication.

Recommended Reading

For my workshop notes on 'Teaching Students to Use Online Resources', please see: <http://www.scholars.nus.edu.sg/writing/onlineresources.html>. In addition, John Whalen-Bridge in the English Language and Literature Department has a valuable

webpage on hyperresearch at <http://courses.nus.edu.sg/Course/elljwb/cdil/cdil.internet.research.htm>. Other useful guidelines can be gained from:

Bolter, J. David. (1998). 'Hypertext and the Question of Visual Literacy'. In D. Reinking, M.C. McKenna, L.D. Labbo & R.D. Kieffer (Eds.). *Handbook of Literacy and Technology*. New Jersey: Lawrence Erlbaum. 3-13.

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Learner Analysis in Instructional Design: The Affective Domain

Associate Professor Yeap Lay Leng

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Introduction

The process of systematically planning, developing, managing and evaluating the instructional process is instructional design (ID). Inherent in ID are certain fundamental elements, namely task analysis, performance objectives, **learner analysis**, media selection,

instructional strategies, evaluation and re-examination (*Figure 1*). The sequential structure of the areas allows instructors to visualise the problems as manageable units.

The key to instructional design is learner analysis. This element focuses on the diversity of learner characteristics.

Together with task analysis and performance objectives, it determines the resources to be selected and the instructional strategies to be implemented.

How can learners' affective characteristics be assessed?

Most educational systems measure students' performances by their mastery of cognitive objectives instead of the affective goals. This is a neglected area because affective characteristics are 'hidden', not easily expressed, subjective, imprecise, developed slowly, personal, private and difficult to observe and measure (*Figure 2*).

Assessing learners' affective characteristics is an on-going process through constantly interacting with the learners prior to, during and after instruction. Because of their general nature, affective characteristics are best drawn informally through non-confrontational conversations, diaries, incidental encounters, one-to-one chit-chats, social gatherings and interacting with colleagues who know the learners. More f

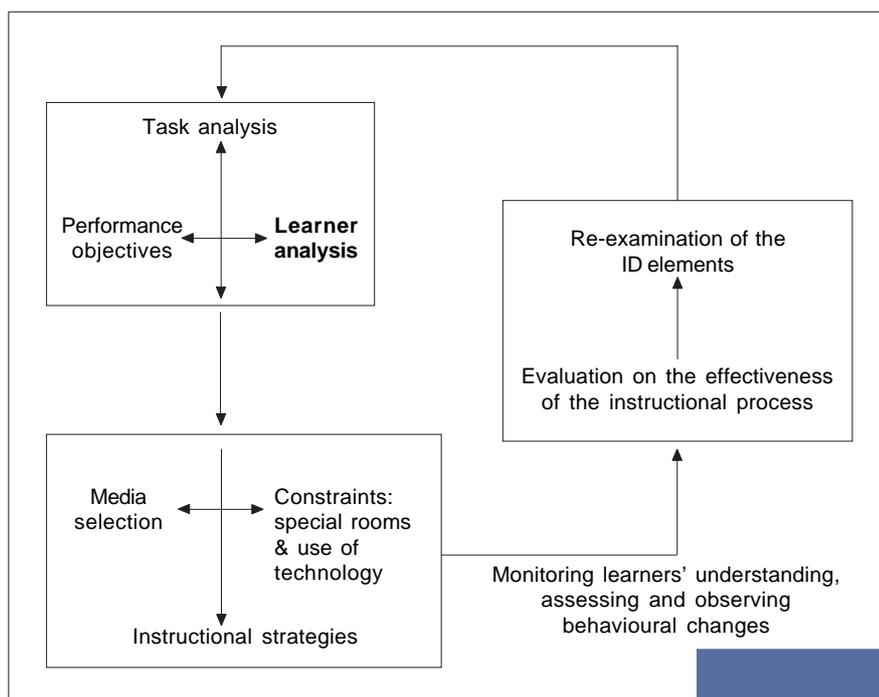


Figure 1: Instructional design process

instructional activities using videos, games, and simulations to determine the learners' levels of commitment to the affective objectives.

Are affective characteristics 'taught' or 'caught'?

Affective characteristics can be learned capabilities that affect human performances. A two-prong strategy of 'taught and caught' is recommended. For affective characteristics to be 'taught or caught', 'performance support systems' must be first made easily accessible (Biggs & More, 1993). Affective characteristics can be best 'taught' in an instructional environment by integrating them into the formal and hidden curriculum. Krathwohl's taxonomy of affective objectives (Ornstein & Lasley, 2000) is a model commonly used in education (Figure 3).

The taxonomy is a framework that classifies the affective objectives into specific levels of commitment to the desired affective changes in the learners' value system (Woolfolk, 1998; Ornstein & Lasley, 2000). Instructors can describe the desired affective changes in the form of instructional objectives. The objectives will in turn describe the different kinds of behaviour the learners are expected to attain. From these objectives, lessons can be designed to include what are to be taught, when and how they are to be taught, approaches to adopt and the forms of assessment to implement in order to gauge the extent the desired affective behaviour has been attained.

Affective characteristics can be 'caught' from an informal environment like

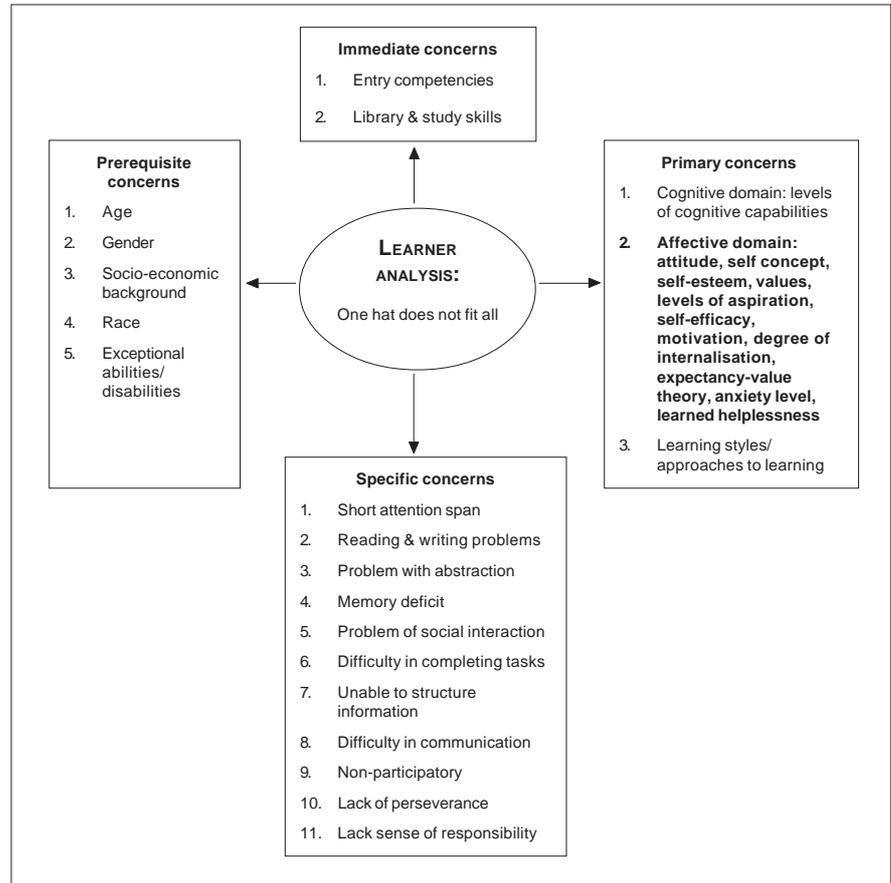


Figure 2: Summary of learner characteristics

extracurricular activities, peer groups, field trips, outings, family members, social gatherings and the media. More structured activities can include sharing of success stories, conversational pieces, news highlights, meeting with actual role models, role playing, simulations, using videos, games, the media, case studies, current affairs, personal encounters, autobiographies and testimonies from speakers to depict the desirable of affective characteristics.

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Commitment to the specific levels of affective objectives	Ornstein & Lasley's taxonomy of affective objectives
Aware and attending to what surrounds the learners and their willingness to take heed of the stimuli.	Receiving (Low)
Respond and interested by participating and asking some questions.	Responding
Accept and believe by debating over the issue or making a personal stand on certain value systems.	Valuing
Involve actively and commit by organising activities like meetings, working committees, support groups related to a value system.	Organising
Integrating into the learners' personality to become part and parcel of their whole value system and character.	Characterising (High)

Figure 3: Taxonomy of affective objectives
Adapted from Krathwohl's taxonomy of affective objectives

Calling All Writers...

CDTL invites you to contribute to any teaching and learning topic for CDTLink (700 words maximum per article; photos & graphics in hard/digital copy are welcome).

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

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Summary of President's Remarks

Prof Shih Choon Fong set the stage at the retreat by clarifying NUS's goals in the following areas:

- **Teaching**
 - Nurture curiosity, creativity, critical thinking and enterprise.
 - Remain relevant to the demands of a rapidly transforming society.
- **Learning**
 - Merge academic rigour with the thrill of discovery.
 - Stimulate minds and encourage cross-disciplinary discourse.
- **The Way Ahead**
 - Actively synthesise education and research to create the essential tenets of scholarship.
 - Create an intelligent community of scholars who will share responsibility in advancing NUS's missions in teaching and learning.

emphasised that there was no 'universal guide' to good teaching, but students could always tell whether teachers were passionate about their subject; he noted that teachers should evaluate how much Information Technology (IT) to use in their classrooms, as IT could potentially compromise independent reading and note taking.

A candid panel discussion on major issues in undergraduate tuition followed. Involving Prof Ivan Png (Vice Provost), Prof K.P. Mohanan (Deputy Director, CDTL) and A/Prof Rachel Davis (Vice Dean, School of Business), the discussion touched on the following issues:

- **Staff Training:** Prof Mohanan discussed the aim, structure and content of the Professional Development Programme (PDP). This discussion highlighted the need to track the impact of the PDP on the individual's teaching performance. The participants also agreed that there should be greater cooperation between Faculties/Departments and the programme to supplement and reinforce the efforts of the PDP.



- **Assessment and Learning Initiatives:**

A/Prof Davis noted that a number of faculty members across NUS were already experimenting with various examination models, ranging from 100% Continuous Assessment (CA) to some combination of traditional paper exams and CA. The participants agreed that a university-wide study examining the impact of these initiatives on student learning outcomes would be useful.

Prof Png stressed that NUS needed to differentiate its students from other institutions through its innovative teaching practices. Consequently, it would be important to monitor the response of Singaporean and multinational enterprises to the quality of students produced by NUS.

Feedback on the retreat elicited from faculty members indicates that the student contributions were particularly helpful as they provided the learner's perspective. The participants also felt that the issues raised at the retreat should be fed back to all NUS teachers. ■



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.

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