Learning—A Matter of Life and Death

Associate Professor Seah Kar Heng
Department of Mechanical Engineering

The French feel a sense of shame if they cannot write grammatically correct French. The Germans and Japanese are equally meticulous when they write in their respective native languages. Why then are ethnic Chinese Singaporeans largely nonchalant when it comes to perfecting their written Chinese? I think the main reason is that there is no necessity for them to write in Chinese once they leave school. One might go as far as to say that there is no longer any need for them to read Chinese characters since everything is printed in English here and an English translation of the Chinese text is always available. Thus, it is human nature to select the path of least resistance.

However, there are Singaporeans who take the trouble to learn to read and write Chinese well in their adult years when learning a language is no longer as efficient as it used to be in their younger days. They do so because they wish to possess a sense of identity, are enamoured of the Chinese classics and wish to enjoy them in their original versions, or their careers take them to China. In the same token, some devout Muslims spend much time and effort in learning Arabic so that they can read the Quran in its original sacred language. Likewise, I persevered through demanding Hebrew and Greek lessons and sat for tests and exams at Queen’s University for a year each in order to read the original scripts of the Old and New Testaments.

From the above examples, one can deduce that students are motivated to learn only when there is a need to. When there are competing demands on their time and energy, most students will optimise their resources by investing them only in things that really matter. So if we want our students to learn anything at all, it is necessary to drive home the point that they are learning it ‘for their own good’. Prime Minister Lee Hsien Loong’s advice to “teach less…so that they can learn more”1 seems to suggest that it is no longer of paramount importance for us as lecturers to teach students for their own good, but we should counsel them to learn for their own good instead. Although the emphasis has shifted from teaching to learning and the onus to learn now rests on the students, we, as lecturers, still need to guide students in that direction.

For all living creatures, the quest for survival is the ultimate motivation. For example, to survive a cold and protracted winter, squirrels will spare no effort in storing up as many nuts as they possibly can. Likewise, migratory birds are motivated by the same reason to fly thousands of miles to warmer climes every autumn. Similarly, students will be motivated to master any subject only if it is a matter of life and death.

No matter what subject I teach, I always drum into my students the drastic consequences of not grasping the essentials of the subject matter. I remind them that if they do not know how to answer one of my test or exam questions, all they lose is some marks and a corresponding grade point. But if they cannot solve a problem for their future employers, it could cost them their jobs, their livelihoods, if not, their very lives. Similarly, if a law student writes something stupid when answering an exam question, he gets penalised in terms of his exam results. But if he says something stupid in

court as a litigation lawyer, he could lose an important case, not to mention his professional reputation.

The situation is equally poignant in the NUS Formula SAE race car project that I am currently supervising. I tell my students frankly that if they do not understand the fundamentals of mechanical engineering and make an error in the calculations, the race car that they design and build from scratch could fail, and the driver could meet with a tragic accident. Since my students are going to drive their own race cars at an annual international competition in USA, it behooves them to check their calculations meticulously before building the car. This is indeed a matter of life and death with no room for error. As the saying goes, “As you make your bed, so you must lie in it”, civil engineers know very well that failure to grasp the fundamentals of structural engineering can result in the eventual collapse of a bridge or building.

It is this quest for survival that motivates learning, whether in an educational institution or in society. My students will ferret out from books and the Internet, information that I have not imparted in class so that they can use it to complete their projects on time or to proceed with their research and earn a degree. They even do it to save themselves precious time and money. For example, a few enterprising students of mine have published a concise summary of my textbook, Manufacturing Processes, to save themselves time from flipping through the book during the open book exams. On the surface, this might appear to be a classic case of exam survival. However, I have heard reports that the students later sold the publication to their classmates to defray their school fees. This is also survival, but in the economic sense.

While it is the duty of every student to learn, it is our responsibility as lecturers to convince our students that what they learn is truly a matter of life and death. Once we can achieve this, I believe half the battle is won in our pedagogical efforts. Students will be motivated to learn for their own good, thereby eliminating the problem of spoon feeding and ‘forced feeding’. ■

Writing as Dialogue

Dr Sunita Anne Abraham
Department of English Language & Literature

In a CDTLink article published in November 2001, I highlighted the integral role of writing in the process of knowledge construction, arguing that if we genuinely believe that our students learn best by constructing and evaluating the knowledge that we wish them to acquire, we need to view learning as an apprenticeship not only to the modes of inquiry of a discipline, but also its writing/discursive paradigms. I ended that article with two suggestions on how we might use writing to drive student learning:

1. Creating writing tasks that engage students in problem-finding (as well as problem-solving) so that they might learn how to create a viable research space within which to articulate meaningful research questions; and,

2. Using peer feedback to help students experience writing as a dialogic process involving drafting and revision, based on self-critique as well as authentic reader feedback (Abraham, 2001).

I have been using both strategies above in individual writing assignments for a number of years now. But this semester (Semester 2, AY 2004/2005), I had the opportunity to adapt both strategies to suit a group writing assignment for EL1101E “The Nature of Language”, comprising 446 students from a variety of departments and faculties, only six of whom were English Language majors. What I would like to do in this paper is to focus on the peer review strategy, outlining both the process and the feedback received from tutors and students, in hopes that it might lead to further experimentation as we seek different ways to develop stronger writers and learners.

The Process

In tutorial one, the 18 tutorial groups (each comprising 25–27 students), were given approximately 20 minutes to form six smaller affinity groups of four to five members each. It was explained to students that the purpose of affinity groups was to provide intellectual, writing feedback to help students experience writing as a dialogic process involving drafting and revision, based on self-critique as well as authentic reader feedback (Abraham, 2001).

1. Although this is the process that most of us utilise in our own writing, the majority of my students say that they neither revise nor solicit feedback from their peers (i.e. the first draft is the final draft).

2. The primary reason for an even number of affinity groups in each class was to allow for the easy pairing of affinity groups functioning as mutual reading partners. For example, in a class with six affinity groups, there would be a total of three pairs of reading partners.
moral and practical support for its members. Each affinity group would take turns facilitating tutorial discussion, and work together on a small research project of their choice, culminating in a group-authored report of four to five pages.

All groups had a fortnight to prepare a first draft of their project report. A tutorial was dedicated to peer-review, and all groups were instructed to exchange drafts with the group acting as their reading partner at least two days before the peer review tutorial. This was to give each group time to consolidate the feedback they wanted to give their partner group before the peer-review tutorial. I provided students with brief written guidelines on how to read the drafts critically, highlighting questions to consider as groups read the introduction, body, and conclusion of their partner group’s draft. In the peer-review tutorial, each group would return their partner group’s draft, and take turns discussing/clarifying the written feedback given/received.

Since the idea is to encourage collaborative learning, the tutor’s role is minimal in the peer-review tutorial. The tutor only steps in, if and when pairs of groups ask for help with issues they are unable to resolve themselves after much discussion. I must admit there was some initial anxiety among some tutors about how the peer-review tutorial would work ‘in practice’. So, it was encouraging to receive positive post-tutorial feedback from these tutors, expressing surprise at how smoothly things had gone. The general report was that students knew exactly what to do, and got on with it, with only a few groups requiring assistance.

At this point, some readers may be wondering whether peer review needs to occur in tutorial given the availability of computer-mediated peer review in the form of, say, the IVLE ‘Project’ feature, which allows students to post comments online. The main reason I prefer face-to-face interaction for peer-feedback discussion is the opportunity that it provides for immediate clarification and repair.

In terms of student feedback on the peer-review activity, I was prepared for the surprise registered by some groups about the disparity between their own perception of their draft and their partner group’s perception of the same. Especially encouraging was the acknowledgement by several groups that giving feedback to their partner group had helped them clarify problems in their own texts. In helping to strengthen their partner group’s text, they were helping themselves—a win-win situation that none of the groups had anticipated.

Finally, to drive home the message that the onus rests on the writer to create the most effective text possible, each group was given a fortnight to revise their texts and provide a one- to two-page auto-critique, explaining how they had attempted to engage with the feedback received from their reading partner. This step is important because obtaining feedback is relatively easy. What is challenging is deciding what to do with the feedback obtained. Looking for (converging/diverging) patterns in the feedback, and deciding which suggestions to accept (wholly or partially) and why, are skills that all good writers must master. The sooner we introduce our students, therefore to the challenging task of engaging positively but critically with reader feedback, the sooner they can begin taking greater ownership of their writing and learning.

**References**

---

**“I Hear You”: Using Student Feedback to Improve Your Teaching***

Associate Professor Alice Christudason  
Department of Real Estate  
Former Associate Director, CDTL

**Students’ Evaluation of Teaching**

This paper considers how formative and evaluative information obtained through student feedback (SF) can serve as a valuable guide to achieve desired learning outcomes in a Singapore Studies module SSD1203 “Real Estate Development and Investment Law” offered to students from various faculties across NUS. Based on my experience of teaching the module to students from diverse backgrounds, this paper focuses on the importance of obtaining SF and responding...
timely to students’ concerns to improve their learning experience.

Providing Avenues for SF

Teaching students from diverse backgrounds is challenging. As it was my first time teaching a Singapore Studies module to such a diverse cohort of students, it was important to put some mechanisms in place for students to provide regular and timely feedback. This way, I could respond to their feedback quickly and make appropriate changes to help them learn better. The following were issues I had to bear in mind when getting SF:

- **Finding the right time to obtain SF.** It is important to obtain SF soon after the first class so that I can know students’ first impressions, and how the pace, level and methods of instruction have been received.

- **Using a combination of avenues for obtaining SF.** Students could provide feedback through the following semi-formal avenues: (a) short questionnaires/surveys administered during tutorials; (b) emails; (c) the Integrated Virtual Learning Environment (IVLE); and (d) a class representative appointed as the go-between between students and me. The other informal avenues for SF include: (a) chatting with students; (b) speaking to individual students or groups randomly and to group representatives on a regular basis; as well as (c) encouraging students to slip notes under my door or into my pigeon hole. I am not averse to the idea of receiving anonymous SF; I would usually examine them carefully to see whether there were nuggets of truth.

- **Providing a ‘safe’ environment.** It is important to let students know that nothing (well, almost nothing) they say will be held against them! Any number of SF mechanisms would be useless if students did not feel ‘safe’ to voice their concerns. From the outset, I make it clear to students that they should feel free to approach me. However, these were merely words. I demonstrated to students through my actions that I do indeed, take SF seriously.

Responding to SF

The following section outlines some changes made specifically in response to SF received in the course of teaching the module. Some changes were made in consultation with my co-teacher while others were done autonomously.

Types of tutorial questions

Based on my teaching experience, I had initially set fairly complex case studies for students to analyse during tutorials. However, after the first tutorial, SF indicated that students were having difficulties with the questions.

The general sentiments were:

I’m from the Arts and Social Sciences. I find this module very interesting and useful as it has given me more insight. ...So far the only difficulty pertains to the tutorial questions. I don't really understand [them] and find it difficult to sieve through large amounts of materials to pinpoint the relevant information.

This alerted me to the difficulty students have in handling scenarios with complex legal issues. Tutorial questions were quickly reformulated to provide a little hand-holding in the form of structured questions at the beginning before students move on to answer the analytical questions on the case studies.

**Answering techniques**

We are students from Arts, Engineering, Computing etc. While the previous tutorial reinforced the concepts we learnt...it did not equip us with the techniques to answer legal questions.

This was a difficulty similar and related to the first one. Thus, I promptly decided to provide students with a bare-boned structure on the approach to legal analysis with a particular focus on the rationale behind the legal positions.

**Collaborative/Peer learning opportunities and continual assessment methods**

My original plan was that students would work in affinity groups prior to tutorials and then I would assess them based on their tutorial presentations. However, SF revealed that this approach was not feasible because students’ time-tables differed widely. Therefore, I adopted the buzz group strategy where students would do some self-study prior to tutorials and then form buzz groups during tutorials to engage in collaborative/peer learning and discussion. The buzz group strategy created the following alternative situations for assessment that helped students in the learning process:

- students’ participation during discussion time (including the informally appointed sub-group leaders and scribes in each buzz group);
- students’ participation in activities between buzz groups (e.g. pitting up one group against another); and
- students'/buzz groups’ participation in pop quizzes.

**Final assessment method**

A typical assessment format in law modules is the case study/essay question. However, since the module focuses more on helping students understand the rationale within legal positions, it was decided that the examination
format would include a choice of short structured ('breadth') questions followed by case study ('depth') questions.

**Webcasting lectures**

I generally avoid webcasting lectures as I prefer ‘real’ time contact. However, upon receiving several requests through SF and bearing in mind that students came from various faculties across the campus, I relented to a few lecture webcasts.

**Making the choice not to react**

It is necessary to exercise discernment in responding to SF. Being too responsive to SF can cause students to perceive that they can ‘bargain’ with me. However, when I decide *not* to react to certain SF, I let students know my reasons. The following were some examples of SF I chose not to respond to:

- **Provide extracts of relevant readings.** Students asked that I make copies of the readings available to them, but I did not want to ‘spoon-feed’ them. Instead, I reiterated on the importance of self-study and independent learning skills.

- **Remove mark allocation for IVLE participation.** SF revealed that students did not agree with the 10% mark allocation for IVLE participation as many were not confident enough to express their views in a ‘public’ domain. However, this feature remained as I wanted to encourage students to learn actively and develop their confidence through IVLE participation.

- **Provide ‘model’ answers.** There were numerous requests for ‘model’ answers to tutorial questions. However, I firmly refused to do so as I did not want to promote uniformity and rigidity in analysing and writing creative arguments.

**Conclusion**

All the efforts outlined above would require the teacher to put in extra time. In addition, I must be open to suggestions and be prepared to be told that not all is going well. Also, as someone who invites feedback, I must be prepared to *respond* to feedback.

This paper has outlined the importance of obtaining timely SF through various mechanisms. Some changes which I have made in response to SF are also discussed. It is crucial to exercise discernment when responding to certain SF. Also, it is always helpful to consult and discuss with a colleague if in doubt.

**References**


* This article has been adapted from Christudason, A. (2004). ‘When to Move and When to Stay: Responding and Reacting to Student Feedback’. Proceedings of the First International Conference on Teaching and Learning in Higher Education (TLHE), 1–3 December, organised by the Centre for Development of Teaching and Learning, National University of Singapore. pp. 252–257.

---

**Exploring the ‘Maze’ of Teaching**

**Mr Aaron Tan**

Department of Computer Science

For most NUS freshmen, the matriculation maze is usually the first ‘maze’ they need to get through and the first semester, their second ‘labyrinth’. Hence, during my first lesson on problem-solving, I would show the freshmen a maze problem (see Figure 1) and ask about 300–500 students in the lecture theatre to devise an algorithm or an idea that allows the mouse to get to the cheese.

Getting the attention of such a large class is certainly no mean feat given that students have an attention span...
of only 15–20 minutes (Anderson, 1995). To break the lecture’s monotony, I use a number of “change-up” activities (Schoenfeld & Magnan, 1994; Middendorf & Kalis, 1996), including switching the mode of delivery (e.g. putting aside the PowerPoint slides to show the class an animated algorithm, showing students a program development process from design to coding, or even getting some students to go in front of the class to perform some practical tasks). Punctuating the lecture with short breaks and fun tasks such as the maze problem (see Figure 1) also helps to engage students. Similarly, using interesting activities (e.g. how many times can you fold a sheet of paper?) (Peterson, 2004) to illustrate important concepts (e.g. algorithmic exponential growth) can also help students learn better.

In addition, managing students’ short attention span and their diverse academic backgrounds and learning styles not only necessitates some degree of flexibility and balance in my teaching approach (Brightman, 1998; Felder, 1998), but also warrants an instructional design that takes into account students’ varied learning needs, especially those of weaker students. This problem is compounded especially in a large class—the lecturer could either end up making the stronger students feel bored or intimidating the weaker ones.1 Moreover, how many tricks can a teacher pull in a lecture without turning it into a circus act?

Taking these factors into consideration, I incorporate the following three elements into my instructional design:

1. Design tutorials and lectures to provide a progressive coverage of course material;
2. Provide timely feedback to students through the virtual classroom; and
3. Emphasise on the assessment of problem solving skills.

Due to space constraints, I shall elaborate only on the first point in the next section.

**Designing Tutorials and Lectures to Provide a Progressive Coverage of Course Material**

Apart from regular tutorial questions, I usually include additional materials such as an exploration section to inculcate independent learning, a check-it-out section for quick answers, a learn-from-your-mistake section and an optional challenger section. The aim of this mix is to cater to students’ diverse learning needs.

Knowing that students would often need time to make sense of knowledge before they can internalise it, I use two strategies in my teaching. The first is to provide a progressive coverage of a particularly difficult topic (e.g. introducing the topic first with its intricacies stripped, then revisiting it for a more complete treatment the second time or a third time towards the end of the course to address more complex issues). In this way, students are exposed to the topic a few times. Such a strategy, which plays on the effect of repetition and spaced-out learning, has been found to be more effective than extra lessons or remedial classes, especially for problem-solving modules. However, the instructor has to plan and organise the course material carefully. Another strategy is to cover a difficult topic over two separate days. For example, I would start teaching the topic during the second hour of a lecture and continue with it in the next lecture.

Most of our students do see the value of quality education. Despite the occasional complaints whenever they face a tough assignment or tight deadline, some students do yearn for challenges.2 As teachers, we should provide students with an environment that is conducive for them to take up challenges.

![Figure 2: Getting the mouse to the cheese.](image)

Self-reflection applies to teachers and learners alike (Dewey, 1933). Not only can we learn from the insights of more experienced teachers, we can also save ourselves from the misery of ignorance or complacency. To avoid getting stuck in the ‘maze’ of teaching, one should pause, ponder and assess our position from time to time. Understanding our strengths and weaknesses could serve as a prelude to reviewing our strategies.

Returning to the maze problem at the beginning of the article, a simple way for the mouse to get to the cheese is to keep its left paw on the wall as illustrated in Figure 2. However, the ability to turn this idea into a code is, of course, another matter. Still, more often than not, students would be amazed by the simplicity of such an idea and the realisation of a way—albeit not the best—to get out of a maze, should they find themselves in one.

**References**


---

1. For more resources on teaching large classes, see the website of Center for Academic Excellence (CAE). [http://ase.tufts.edu/cae/](http://ase.tufts.edu/cae/) (Last accessed: 21 October 2005).

2. Based on a survey on reduction of curriculum intensity conducted by School of Computing, National University of Singapore in 2005.
Introduction

When I was a student at the National University of Singapore (NUS), I was taught by dedicated teachers who cared for their students. When I attended graduate school at the University of Chicago, I was influenced by teachers who excelled in their research. Though my current philosophy of teaching is partly shaped by my former teachers, it is evolving as I teach and learn with my students at NUS.

Teaching Philosophy

Firstly, I believe that a good teacher is one who is genuinely concerned for his/her students and always prepared to go the extra mile to help them in the learning process. For example, teaching compulsory modules to a large class of undergraduate students may be more challenging than teaching elective modules to a small class of graduate students because the former group of students are less academically prepared and more diverse in their backgrounds. A good teacher would be motivated to put in effort to identify the learning needs of the large group of undergraduates, and use appropriate teaching methods to help them learn better.

Secondly, I believe that a good teacher inculcates good learning attitudes in his/her students. Sometimes when I teach a module that requires students to have prerequisites, I realise that many students have actually forgotten what they had learnt previously in the foundation modules. These students, who have satisfied the requirement to move on to other modules, have returned what they had learnt to their teachers after the exams. Since it is natural for students’ retention of content knowledge to diminish over time, it is important for teachers to encourage students to adopt good learning attitudes so that they may benefit in the long run.

Thirdly, I believe that a good teacher is also an active learner. He/she is constantly responding to student feedback and learning how he/she can teach more effectively. In this aspect, the Centre for Development of Teaching and Learning (CDTL) provides abundant resources and courses to help teachers improve their teaching skills. When I attended the courses conducted by CDTL, I also benefited from interacting with other teachers. After acquiring new teaching skills from these seminars, I usually like to test what I have learnt on my students. To check the learning outcome, I solicit, listen and respond to student feedback informally long before the final exams so that I can improve on my teaching and students can benefit for the rest of the semester. Responding to student feedback not only shows the teacher’s sincerity, but also invites further feedback.

In summary, a good teacher goes the extra mile to help students from different backgrounds learn better, inculcates good learning attitudes in the students and responds to student feedback to improve his/her teaching.

Some Attempts

In this section, I shall share some of the changes I have introduced in my teaching of macroeconomics

When I first taught EC4152 “Macroeconomic Analysis III” in Semester 1, AY 2001/2002, I introduced open-book examinations. The change was meant to discourage
students from using a ‘10-year-series’ approach (preparing for exams by attempting past years’ exam questions) to study for exams. With the switch to open-book exams, students are now encouraged to understand the essence of macroeconomic models and know how to apply the theories taught in class. As an instructor, I have to think beyond what is given in the textbooks, lecture notes and tutorials to set creative questions. Encouraged by the positive feedback from Honours students taking EC4152, I proceeded to introduce open-book exams for EC3152 “Macroeconomic Analysis II”, which I first taught in Semester 1, AY 2002/2003.

Another change I implemented was that students no longer had to submit tutorial assignments. In the past, students (in groups of three to five) had to submit the weekly tutorial questions assigned to them. To me, such an arrangement was unfair because the assigned tutorial questions could be easier in one week, but more difficult in another. With the change, tutorial questions and problem sets are now discussed in small groups during tutorial sessions, but students need not submit them. Instead, I introduce an open-book midterm test so that all students get to attempt the same questions. Students also get their answer scripts returned with my comments so that they can learn from their mistakes and know what to expect in the final exam. I make it a point to explain to my students the rationale for the change and share the idea with a colleague who also gives a midterm test instead of tutorial assignments.

A more recent innovation was the introduction of group projects in EC3102 “Macroeconomic Analysis II” which I first taught in Semester 2, AY 2004/2005. After attending a teaching symposium organised by FASS and CDTL in 2004, I adopted the “Oprah Winfrey” idea from a colleague. During the lecture, students form their own groups, work in teams to use/extend/criticise a theory taught in class and relate it to a case in Singapore. After consultations with the lecturer, each group will prepare a six-slide PowerPoint presentation. All group presentations together with the lecturer’s comments and suggestions are posted on the IVLE and made accessible to all students so that they can learn from one another. Selected group projects are presented in the semester’s final lecture. Many students commented that they have learnt much from interacting with one another in teams, and applying the theories to real-world situations, especially cases in Singapore.

Conclusion
Due to space constraints, I shall stop at these three examples. The innovations I have made to the courses are meant to change students’ learning attitudes. Weaker students do learn from better students when they work in teams. As a teacher, we need to be patient, caring, and encouraging towards students, especially the weaker ones. I am grateful for the opportunity to share my teaching experience and I look forward to reading your contributions too.

---