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NUS National University of Singapore

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A Basic Design Course Sets Down a Structured and Practical Approach Based on Various Elements to Achieve the Best Results

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Department of Architecture

To better prepare students for architecture and design projects, the Design Section of the Department of Architecture, NUS, has been imparting fundamentals on basic design since 2002. Undergraduates in design and architecture schools study the fundamentals of design during their first year, based on the teaching developed in the great design schools of the 20th century, such as the Bauhaus, the Vhutemas, the School of Chicago and the School of Ulm. Known as ID1103 "Basic Design & Communication I", this foundational course conducted in Semester 1, Academic Year 2006/2007 focuses not only on the design process but also on the elements of design (e.g. colour, proportion, materials).

The course consists of three basic and interrelated elements for teaching and learning design fundamentals. The first element is a set of learning objectives that emphasises the development of the following interrelated attitudes, attributes and capabilities: individuality, especially in terms of design creativity and problem-solving skills (i.e. functional knowledge and cognitive strategies); acquisition of declarative and procedural knowledge and design-related perceptual motor skills; and profession-related self-management, organisational and planning abilities in keeping with particular needs, cultures and environments.

The second element is a set of teaching and learning principles comprising three components: a set of controlling parameters (e.g. design variables and constraints, economy of means and time management); a set of descriptive dimensions in the syntactic, pragmatic and semantic dimensions; and an intuitive approach that promotes research of originality and free-form thinking without fixed rules. This set of teaching and learning principles links the learning objectives with the

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inside

third element—sets of design exercises—and complementary problems in a logical and systematic manner.

The final key element of this teaching strategy has two parts: a classification of design exercises aligned with respective learning objectives (e.g. discovery exercises, analytical exercises and design information exercises) and a plan to project sets of design exercises in an ordered manner—introductory level exercises of relatively low complexity, intermediate level exercises of medium complexity and advanced level exercises of relatively high complexity. These discovery, analytical and design information classes of exercises are usually not mutually exclusive because a particular design exercise or problem may contain all three elements.

Case Study

A case study illustrates how "Basic Design & Communication I" develops the second principle of the teaching strategy, namely, a set of descriptive dimensions, in these analytical exercises.

These exercises feature the study and analysis of objects which may already exist or are being conceived, with reference to three logical and closely interrelated dimensions: syntactic, pragmatic and semantic.

This method of analysis shows the three descriptive dimensions has three characteristics. Firstly it allows an understanding of a product from different views. Secondly, it offers a 'motor' of creativity for the designer who identifies the advantages and disadvantages in terms of the syntactic, pragmatic and semantic points of the products currently on the market. And finally, this rational approach enables the clear communication of the design.

These three analyses were conducted by Chia Yan Wei, Koh Child Shen Donald, Fang Siwei, Liew Hui Min Cindy, Lee Yunn Si Olivia and Chen Huiqian, first year students in Industrial Design at the National University of Singapore in 2004.

Syntactic Dimension

The syntactic dimension refers to the analysis of the physical characteristics of each component including structure, materials and the functional relationship between the different components of a product or architectural project. More specifically, these analyses have been limited to details such as providing exploded perspective and/or dimensioned technical drawings and identifying materials and the systems of assembly of the components in a product. In professional design work, syntactic analyses take on a much higher level of elaboration and detail, such as estimating manufacturing processes and costs of products or projects.

Syntactic analysis—Figure 1 shows an example of this analytical exercise. A group of design students doing research on a joystick for video games has presented their syntactic analysis in three parts: (1) an exploded perspective showing the main components and their connection; (2) a top, bottom and front view with the dimensions; and (3) the advantages and disadvantages of the product from a syntactic point of view. The main advantage of this product is the replaceability of the individual components.

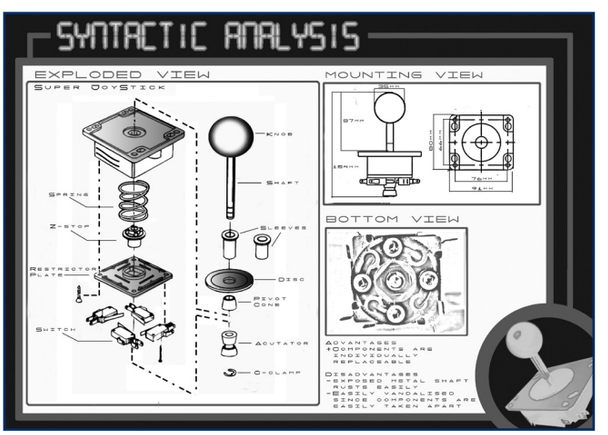

Figure 1. Syntactic analysis

The disadvantages are the exposed metal shafts which tend to rust and the easily disassembled components that may invite vandalism. The information provided gives a clear presentation and understanding.

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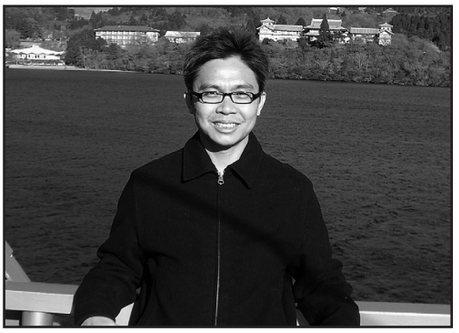
Enhancing Pharmaceutical Analysis Laboratory Classes



Assistant Professor Chan Chun Yong, Eric
Department of Pharmacy

Pharmacy education should correspond to the needs of the healthcare industry through quality learning in order to produce pharmaceutical experts who can take on challenging and multidisciplinary assignments. In addition to the curriculum's content, it is necessary to pay attention to the methods used in teaching pharmacy. Recent studies clearly show that teaching methods and teaching ideology are related to learning outcomes (Kember & Kwan, 2000; Prosser, Ramsden, Trigwell & Martin, 2003). In the 'hard' sciences which include pharmacy, teachers tend to adopt a teacher-centred approach to teaching (Prosser *et al*., 2003; Lindblom-Ylänne, Trigwell, Nevgi & Ashwin, 2006). The result is similar to a study of pharmacy education in Finland where students are encouraged to memorise facts (Nieminen, Lindblom-Ylänne & Lonka, 2004). Teachers can help students learn more than just facts not by trying to change the students, but by changing the learning environment. This can be achieved by adopting a more student-centred approach in teaching where the teacher pays attention to students' perceptions, class activities and students' understanding of the material in the learning process.

For the module, PR2104 "Pharmaceutical Analysis I", which I taught at the Department of Pharmacy in Semester 2, Academic Year 2006/2007, second year pharmacy undergraduates were expected to learn how to analyse pharmaceuticals via the use of functional group tests such as ultraviolet (UV), infrared (IR), atomic absorption (AAS) and atomic emission spectrophotometric (AES) techniques. The contents of these subjects are generally chemistry-based and very technical. "Pharmaceutical Analysis I" comprises lectures, tutorials and practical laboratory classes. It should be noted that students are often only enthusiastic about tasks and assignments if these are regarded as meaningful and important. It is therefore critical for the teacher to consciously connect theoretical concepts to real life applications. For the purpose of this paper, I will discuss and illustrate how experiments using real life products can help enhance students' learning experience in laboratory classes.

Health supplements containing natural products, vitamins and minerals are becoming increasingly popular. It is difficult not to notice ubiquitous advertisements on these products purporting 'wonder cures' and 'miracles'. It is widely accepted that minerals are important for the physiological functions of the human body. A quality control (QC) laboratory session is set up to determine the amount of minerals (e.g. calcium, magnesium, zinc) present in the Berroca® effervescent tablet, a health care supplement.

The two main techniques to determine mineral composition in pharmaceuticals are AAS and AES. It is necessary to understand that the theoretical concepts of both AAS and AES in pharmaceutical analysis are relatively remote and technical for undergraduate students. In total, 103 pharmacy students have to attend 12 sessions of 3-hour laboratory classes. Each session involves about eight to nine students who are further divided into working groups of four to five students each. Prior to the start of the experiment, students are given a short briefing and a scenario where they are the QC scientists performing analysis on a batch of Berroca® effervescent tablets. Other than the short briefing and reminders, no other detailed instructions are given to students with regards to the experiment.

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Avoiding 'Death by PowerPoint' and Its Impact on Teaching and Learning

Assistant Professor Ooi Wei Tsang
Department of Computer Science

On 4 April 2007, *The Sydney Morning Herald* reported a finding from research done by the University of New South Wales (UNSW) that our brain can process and retain information better if information is digested in either the verbal or written form, but not both at the same time (Patty, 2007). According to John Sweller, Emeritus Professor from the School of Education in UNSW,

> It is effective to speak to a diagram, because it presents information in a different form. But it is not effective to speak the same words that are written, because it is putting too much load on the mind and decreases your ability to understand what is being presented (Patty, 2007).

This finding supports the research by Garber (2001) as well as Felder and Brent (2005). After the Space Shuttle Columbia disaster which killed seven astronauts on 1 February 2003, the Columbia Accident Investigation Board at National Aeronautics and Space Administration (NASA) partially blamed Microsoft PowerPoint, arguing that the NASA engineers who assessed the wing damage had earlier presented their findings in PowerPoint slides that were crammed with too many bullet points (see Figure 1). Not only were the slides confusing, they also failed to highlight the significance of the damage to the NASA management (Thompson, 2003).

As I am fully aware of the pitfalls of cramming too much text into one slide, I have been experimenting with using simple slides which have only a few keywords or diagrams in my teaching. In this article, I would like to share my experience and my students' feedback on using simple slides in my teaching.

Keeping Slides Simple

In preparing the PowerPoint slides for my class, I strive to reduce each slide to its bare essentials. Important facts are always presented and explained using graphical or textual representations as far as possible. For example, I redesigned the slide in Figure 1 to show only the most critical point in Figure 2. Two sample slides from my class, CS2105 "Introduction to Computer Networking", are shown in Figures 3a and 3b.

Stripping each slide down to its simplest form allows students to focus on my explanations. Putting the right information on the slides also helps me communicate the important points across without distracting students with unnecessary words.

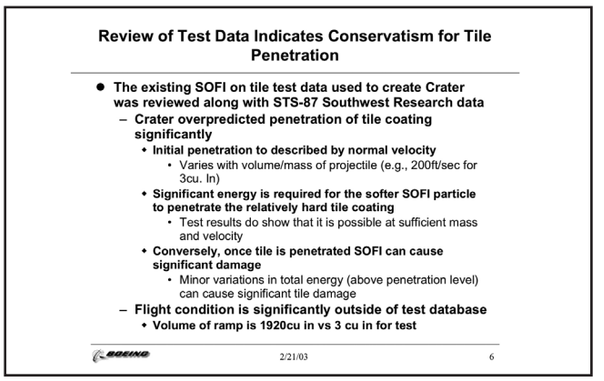

Figure 1. A sample slide from the Debris Assessment Team's briefing to the Mission Evaluation Board at NASA [Source: Parker, Chao, Norman & Dunham, (2003)]

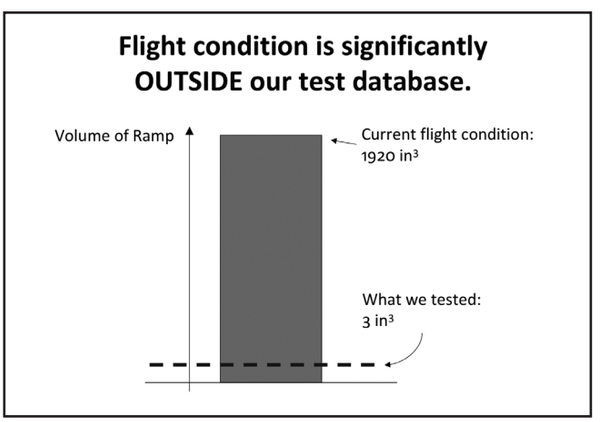

Figure 2: A redesign of the slide in Figure 1 with emphasis on the most critical point

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Enhancing Pharmaceutical Analysis Laboratory Classes

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The traditional method of teaching practical laboratory classes, which involves analysing samples or standard solutions already prepared for students, often means that students are not aware of the sample's origin and thus fail to appreciate the values of these spectrophotometric techniques in real life pharmaceutical analysis. This may result in surface rather than deep learning. The new approach of analysing the minerals in the Berocca® effervescent tablets during the practical laboratory class is likely to result in deep learning as students are handling a real life pharmaceutical product.

Results and Discussion

Students are not automatically capable of higher-order thinking just because they made it to the university. To facilitate the development of such thinking skills, it is the teacher's responsibility to create a stimulating learning environment and context. In the practical laboratory classes, students were presented with a clear picture of the potential applications of both the AAS and AES techniques that they were required to learn. The teacher concentrated on active learning methods such as discussion and group tasks so as to emphasise teacher-student interaction. The approach's outcome was positive as students were clearly motivated and participated actively in the experiments. As students were given minimum instruction for the experiments, each group had to discuss and strategise the optimal methods of achieving the goals of the experiment. This approach encouraged students towards self-directed learning. In this case, though the brief discussion among students did not require extra work, students learnt about team work and appreciated the importance of being a team player—a valuable lesson students can apply in their future careers. Students were also motivated when their experiments were acknowledged positively by the teacher. More importantly this approach made students responsible for their own learning.

During the practical laboratory classes, students were tasked to operate the instruments by themselves under the teacher's supervision. This teaching approach was important as it developed students' psychomotor skills, reinforcing what they had learnt during lectures. As the experiments helped students relate their academic knowledge to real life application, students became more aware of the value of pharmaceutical concepts and theories, and this helped students develop a passion for pharmaceutical analysis.

Further, the experiment was found to be highly suitable for undergraduate practical laboratory classes as Berocca® effervescent tablet is relatively inexpensive and readily available as an over-the-counter product in retail pharmacies. Most importantly, the tablets, unlike spiked samples, provided a meaningful linkage between the theoretical concepts and applications of AAS and AES.

In summary, the Berocca® effervescent tablet analysis experiment was suitable and feasible for the pharmacy undergraduate AAS and AES practical laboratory classes. The teaching approach connected students' academic knowledge to real life application, resulting in deep learning. As students see and understand the association between practice and theory, they learn to appreciate the significance of theories in pharmacy studies.

Acknowledgments

The author gratefully acknowledges the assistance of Mr Pasikanti Kishore Kumar (graduate student), Ms Oh Tang Booy (senior laboratory officer) and Ms Ng Sek Eng (principal laboratory officer) in the planning and implementation of the AAS and AES experiments. The author also expresses thanks to Ms Wong Li Lian (clinical pharmacy instructor) for suggesting the use of the Berocca® effervescent tablets for the practical laboratory class. Finally, the coordination of the pharmaceutical analysis module and the practical laboratory classes by Associate Professor Koh Hwee Ling is deeply appreciated.

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Learning Outside the Classroom: Residential Programmes

Dr Lawrence Chin
Department of Real Estate

Curriculum Design

The four-year real estate degree course at the National University of Singapore essentially prepares students for professional careers in real estate. Job opportunities for real estate graduates in both the private and public sectors include urban planners, property consultants, financial analysts, valuers, marketers and real estate managers.

In real estate education, the basic issues at hand are the curriculum design and deciding what knowledge and skills to impart. In addition, the curriculum has to keep pace with recent changes in university education, which is to develop and equip students with specialist knowledge and at the same time, impart a well-rounded education.

Traditional Delivery System

The programme's core modules are taught through traditional lectures and these classes typically range from 150 to 180 students. The lecture method facilitates the dissemination of theories and principles to a large audience in a single setting. In lectures, the learning environment is generally passive in nature. In other words, depending on the teacher's interests and teaching skills, students may or may not be actively involved in the learning process. Small-group teaching or seminars are conducted in tutorial groups.

Students are obviously no longer impressed by PowerPoint presentations though they are a vast improvement as compared to the good old days where teaching was mainly done with chalk and board. Students want to see the 'real' side of real estate because the very nature of the discipline is practical. A house or building is made of brick and mortar, not just a collection of words or a set of principles. In other words, the challenge is to inject realism into the class and show students how theory is put into practice.

'Out of Class' Learning

Students are brought to actual sites or property developments through local and overseas residential programmes organised by the department. Some of these field trips included visits to a mega-integrated development like Suntec City in Singapore, a huge

Figure 1. Visit to the Growth Triangle developments in Batam, Indonesia

Figure 2. Talks and visits on real estate projects in Ho Chi Minh City

petrochemical installation like Jurong Island, or even projects as far as the Suzhou Industrial Park in China and the elderly retirement village in Gold Coast, Australia. From feedback, students learnt a great deal from seeing the real things first hand. These visits helped students to relate what they had previously learnt in lectures and tutorials to real world projects, reinforcing what they were taught. It is also through such trips that students learnt how the content and concepts in different modules are integrated into real world projects and developments to form a 'complete picture'.

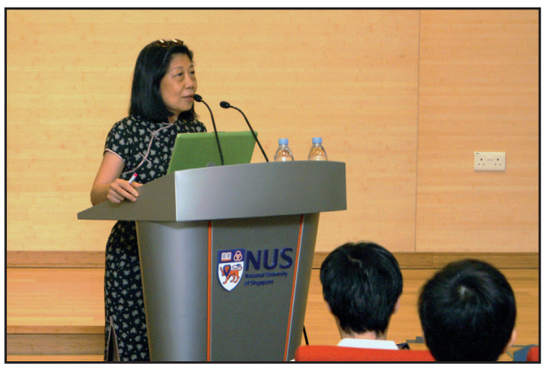
Organising a field trip, especially an overseas one, require early planning with the host organisations as the administrative and financial arrangements can be overwhelming. Some practical issues include sourcing of suitable projects, arranging for meetings with senior government officials and looking for local guides or translators. Moreover, there could be concerns for safety and security with a large group of students. From students' point of view, financial costs could be an important consideration if they wish to participate in overseas visits.

Conclusion

Real estate is a significant asset in the economy and therefore the curriculum should be designed to ensure that graduates are equipped with the necessary knowledge and skills to develop innovative solutions to real estate development and investment problems in a rapidly evolving global market. Theory is only one side of the education equation. Equally important, if not more, is the need to integrate the discipline's practical applications into the classroom and get students to view and think critically about issues and problems in the real world context. Professors have the option to include residential programmes and field visits as part of their arsenal of instructional and pedagogical tools to make learning relevant and stimulating. ■

Outstanding Educator Award (OEA) Public Lecture cum Award Presentation Ceremony for 2005/2006 Annual Teaching Excellence Award (ATEA) Winners

The OEA Public Lecture cum Award Presentation Ceremony for 2005/2006 ATEA winners was held at the University Hall Auditorium on 10 August 2007. Following the opening address by Professor Tan Eng Chye, Deputy President (Academic Affairs) and Provost, Associate Professor Victor Tan, one of the two OEA winners for Academic Year 2005/2006, gave a lecture on 'Teaching plus Technology minus Fear: An Experience of a Non-IT-Savvy Maths Lecturer'. Following the inspiring lecture, Professor Tan Eng Chye presented certificates to the ATEA Winners for Academic Year 2005/2006. ■



Associate Professor Daphne Pan, Director of CDTL, greeting the audience

Professor Tan Eng Chye, Deputy President (Academic Affairs) and Provost delivering his opening address

Associate Professor Victor Tan from the Faculty of Science, delivering his lecture on 'Teaching plus Technology minus Fear: An Experience of a Non-IT-Savvy Maths Lecturer'

Dr Chui Wai Keung, an ATEA winner from the Faculty of Science, receiving his certificate from the Deputy President (Academic Affairs) and Provost

The audience listening attentively to the address by Deputy President (Academic Affairs) and Provost

Dr Koh Woon Puay, an ATEA winner from Yong Loo Lin School of Medicine, receiving her certificate from the Deputy President (Academic Affairs) and Provost

TA Training *Programme*

64 Teaching Assistants, mainly from the Science and Engineering faculties, attended the TA training programme on 23–24 July which consisted of workshops and plenary sessions on motivating students by responding to their work, assessing student learning, teaching and learning in small groups, presentation skills and hands-on micro-teaching sessions for participants to give a demonstration on how they conduct their classes and gain feedback from others. ■

Professional Development *Programme* (Teaching)

From 6–8 August, CDTL organised another run of the Professional Development Programme (Teaching) or PDP-T for new academic staff with less than three years of teaching experience. The seminars and workshops within this PDP-T covered areas such as how to conduct lecture/tutorial classes, assessment/ curriculum planning, using IT tools in teaching and learning and hands-on micro-teaching sessions for participants to try new methods of instruction and gain feedback from others. ■

Calling All Writers

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

- CDTLink (700 words maximum per article; photos & illustrations in hard/digital copy are welcomed)
- CDTL *Brief* (text-only publication; 1,000 words maximum per article)

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

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Fax: (65)-6777 0342 ■

Goodbye!

CDTL would like to thank the following for their invaluable services:

Ms **Ong Ming Hoon**, our Management Support Officer who left in February; Ms **Rita Roop**, our Administrative Officer and Ms **Sharon Koh**, our Publications Officer, who left in July. ■

Teaching & Learning HIGHLIGHTS

Faculty of Arts and Social Sciences

A Fieldtrip to Sarawak

The old cliché says every picture is worth a thousand words. That came true on a field trip in September 2006 to Sarawak. 16 Honours-year students and three academic staff from the Department of History explored the colonial and decolonisation history of that state. They drove out one day on a prearranged visit to a kampong near the border with Kalimantan, inhabited by the indigenous Bidayu people.

The team's mission was to explore the border area around Kampong Stass, the site of an old Commonwealth military installation used from 1963 through 1966 as part of the campaign to defend Malaysia during the Confrontation with Sukarno's Indonesia. The Stass area was the scene of frequent military engagements, and it was hoped that the visit would help students better understand the military dimension of the conflict. The kampong leaders took it a step further. When the team arrived in Stass, the entire population, all wearing traditional costume, turned out to greet the team and treated the team to a presentation on the history and culture of the Bidayu people. This included photos and souvenirs from the Confrontation, as well as discussions with local survivors of that period. But the highlight of the visit came when the hosts insisted that the three academic staff join them in the ritual Bidayu dance to purify the meal presented to honoured guests. While jumping up and down, trying to follow the gyrations of the hosts, the staff looked up to find every student filming away, between doubling over in laughter. The Bidayu did what the staff could never have done: they made themselves, and therefore their history, come alive for students. That pleasant surprise was a teaching moment and a good reminder that the extra effort can pay off in unexpected ways. ■

NUS academics and Bidayu village elder, Sarawak, September 2006

School of Design and Environment

Using the Virtual World to Model Real World Problems

As virtual reality becomes increasingly popular as a teaching and learning tool, it was introduced in a module, BU4280 "Development and Building Economics" in Semester 2, Academic Year 2006/2007, to show students how real world problems can be better visualised through the use of Information Technology (IT). In the construction industry, the complexity of problems often relate to product design, process coordination and human communication. Hence, multi-dimensional modelling for enhanced visualisation is key. By using a common platform, IT will allow various participants of a construction project to understand, communicate and share design and process information more effectively.

The demonstration of the virtual building tool in lectures provides students with a three-dimensional view of a 'walk-through' in a proposed building. The aim is to let students see that when one is operating in a complex project environment, a clearer visualisation of the situation through the use of IT can help one better understand, plan and deal with the problems as early as possible in the process. Overall, it was much easier to bring this point across as students could watch, learn, as well as enjoy the media display, all at the same time. ■

Avoiding 'Death by PowerPoint' and Its Impact on Teaching and Learning

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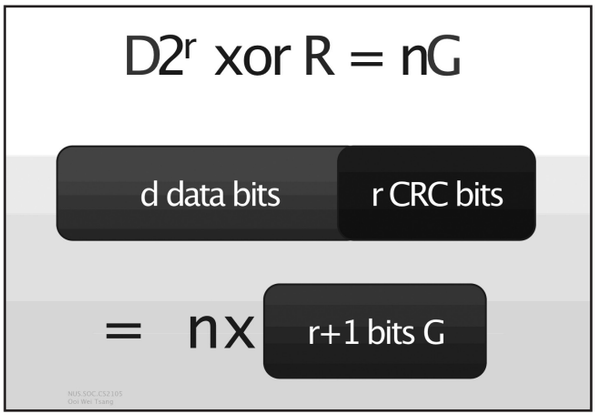

Figure 3a. A PowerPoint slide explaining how Cyclic Redundancy Code (CRC) is computed

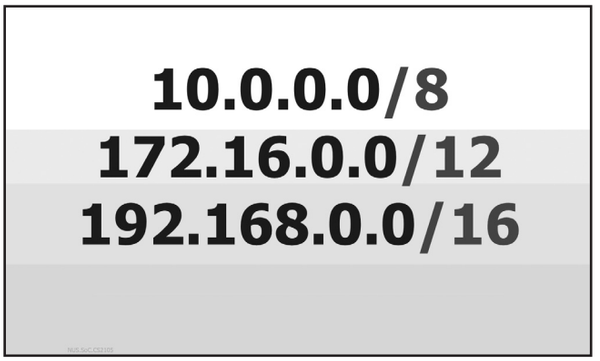

Figure 3b. A PowerPoint slide listing the range of IP addresses reserved for private networks

Impact of Using Simple Slides on Teaching

Preparing such slides has helped me and my teaching in several ways. Firstly, I now have to think carefully about the main point I want to convey to students when I prepare each slide. This is different from preparing slides that are full of bullet points; I tend to just dump data and text mindlessly into the slides. Secondly, preparing simple slides also makes me think and come up with the best and simplest method to explain a particular concept to students. Finally, simple slides force me to be better prepared for my lectures since there are often no words on the slides to guide me, and thus help me avoid the common 'sin' of reading from the slides.

Student feedback showed that my presentations were great. Students were able to understand many complex concepts I taught in class and some students explicitly credited this to how I used diagrams in my slides. However, there were also students who complained that my slides were 'bad'.

Impact of Using Simple Slides on Learning

Although I used the slides as *visual aids* in my lectures, students who wanted to use the slides as *notes* said my slides were not useful for revision and preparing for upcoming lectures. My slides are useless by themselves without explanation. Thus, students often had to refer to my explanation by watching the webcast lectures when they revised and this was a time consuming task.

Since my slides cannot be used for revision, students had to take their own notes. In a short survey on my students taking CS2105 "Introduction to Computer Networks" in Semester 2, Academic Year 2006/2007, 67% of students said they took notes during my lecture. While 64% of students agreed that they can understand the material better when they make their own notes, 60% said they cannot focus on the verbal explanation and take notes simultaneously. Some students said that they felt insecure because they were afraid they might have missed out some important information in their notes.

Summary

The best way to present information is to use simple slides with diagrams without too much text or too many bullet points. Though this practice works best in both business and academic presentations, students who are accustomed to using PowerPoint slides for revision may not find such slides useful. One obvious way to address this is to provide a separate set of revision notes using the 'notes' function in Microsoft PowerPoint. Alternatively, the lecturer could also pause between slides to give students more time to take their own notes during lectures. With a little thought and creativity, lecturers can deliver their presentations effectively using simple slides, help students with revision and avoid 'death by PowerPoint'.

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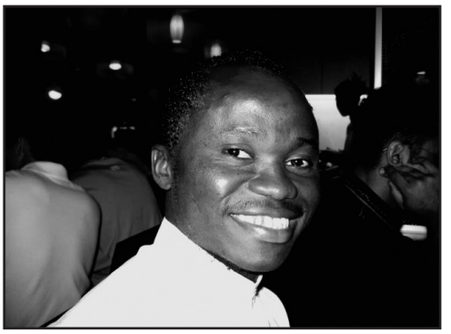
Pursuing My Passion: My Experience as a Teaching Assistant at NUS



Mr Fadeyi Moshood Olawale
Department of Building

Teaching is My Passion

I have always had a passion for teaching and I was glad when I was given the privilege to attend the training programme for Teaching Assistants (TA) in Semester 1, Academic Year 2006/2007 at the Centre for Development of Teaching and Learning. As a teacher, I see myself as a communicator, a disciplinarian, a conveyor of information, an evaluator, a classroom manager, a counsellor, a decision-maker, a role-model and a surrogate parent. The TA training was an opportunity to improve my teaching skills.

Essential TA Survival Skills

Attending the TA programme was one of the best decisions I have made in my life. Through the programme, I picked up essential lessons and skills that will serve me well in my teaching career. Personally, I did not realise how exceptional our TA training programme at NUS is until I attended it. The following paragraphs give an overview of some essential TA survival skills I gained through the programme.

Punctuality

One of the major things I learnt during the training is to go to classes on time. This will communicate to students that I am serious about what I am going to teach. Also, if a teacher is punctual, students will not have excuses to be late. As part of the training, all workshops and seminars in the TA training programme started punctually.

Class preparation

A teacher must not go to class without preparing for it even if he/she has been teaching the same module for many years. This is because every batch of students brings with them different challenges. Apart from being well-prepared, a teacher should make his/her class interesting and informative by updating the contents of his or her course constantly. If a teacher is unable to teach or answer students' questions satisfactorily because he or she did not prepare well for the class, students may lose their confidence in the teacher and this could affect their attitude towards the course.

Class organisation

It is the teacher's responsibility to keep the class organised. While this may sound like an impossible task, it can be accomplished if students respect the teacher. A teacher who has a good knowledge of what he or she teaches and keeps his or her relationships with students professional, is often one whom students respect.

Relationships with course instructor

TAs should communicate with the instructor(s) in charge to understand their duties and responsibilities. Apart from this, there should be regular reviews with the course instructor(s) and these should start right before the commencement of tutorial activities.

Other areas covered during the training programme included maintaining academic integrity, handling student diversity, managing time in the classroom, getting to know the class, handling common student complaints and so on.

My Experience as a TA

Student feedback (both positive and negative) reflected the extent to which I was able to apply what I learnt during the TA training programme, my relationship with students and how they liked my tutorial classes. The following are selected comments from students:

Strengths

- He is kind, patient, encouraging and always willing to help any student in need. He is also willing to spend time outside of tutorial hours to help needy students. Thank you!
- He is very organised and goes round to help check our work and solve the problems we encountered.
- He pays more attention to those who are slower; he leads us step by step and explains what he is doing.
- He is able to explain difficult concepts concisely.
- He is understanding and patient towards students. He has good knowledge.

Suggestions for improvement

- Try to be more aware of the allocated time as tutorial sessions sometimes ended late.
- It would be good if he can speak louder and clearer.
- I cannot understand his accent sometimes, but this is alright.
- Be more patient and teach slowly.
- To be more open towards class discussion so that we can help our peers.

My major shortcoming was that I was not able to manage my allocated time effectively during the tutorials. I plan to improve on this and other shortcomings when I take tutorial classes again in this semester (Semester 1, Academic Year 2007/2008). ■

Avoiding 'Death by PowerPoint' and Its Impact on Teaching and Learning

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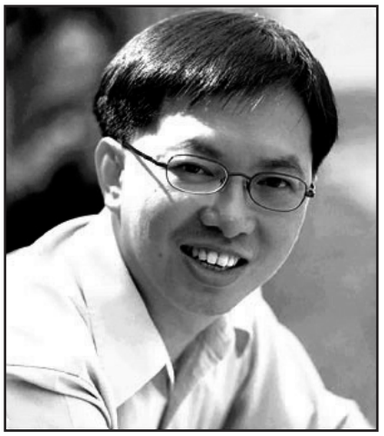

Strategic Framework for a Quality Graduate Programme

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Department of Real Estate

This paper outlines a strategic framework on how to develop a premier graduate programme, which is important to enhance the brand name of a higher institution as well as be sustainable under a self-financing structure. The strategic roadmap covers five critical aspects to a world-class graduate programme using the acronym CLASS which stands for: **C**urriculum, **L**inkage, **A**wareness, **S**taff and **S**tudents.

Curriculum refers to the structuring of a fresh and flexible syllabus which will be both appealing and relevant to the needs of the target market. Bearing in mind the target market, the course curriculum should be guided by two basic questions: Firstly, what would these practitioners and executives need to know? Secondly, how can the programme prepare them for leadership positions in the industry?

Linkage involves forging strong ties and associations with the alumni and industry, as well as forming global partnerships with reputable universities and prominent professors. One cornerstone of the programme would be the active involvement of overseas professors and prominent practitioners to teach in the programme. Together, curriculum and linkage symbolise the essence of the educational product.

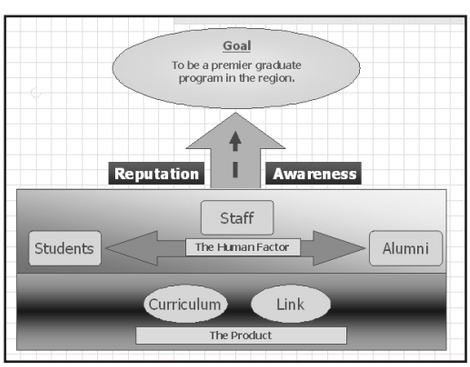

Figure 1. Roadmap to a world-class graduate programme

If curriculum and linkage are the hardware of the programme, then **S**taff and **S**tudents are the programme's software. Staff, should not only be knowledgeable in their field of expertise, but should also be effective teachers and good communicators who can link theory with practice. They have to appreciate that graduate education needs to be more prescriptive rather than descriptive, and place the emphasis on problem-solving and knowledge application without compromising academic rigour.

Students, the target customers, should ideally comprise a good mix of motivated local and international students who will be future leaders of the industry. Instead of the traditional one-way flow of knowledge from teacher to students, learning at the graduate level is more dynamic because students also learn from one another. Hence, one selection criteria for admission to a graduate programme is whether the prospective candidate can contribute to classroom discussions. In this respect, the applicant's practical know-how and work experiences will be important considerations.

Finally, an **A**wareness of the programme can only be developed through continuous and proactive publicity and promotion exercises. Coming up with an exciting marketing brochure is only the first step to enhance the image of a graduate programme. Other ways to create awareness and presence include:

- advertising in strategic publications,
- participating actively in major conferences attended by the industry, and
- engaging with key practitioners and organisations continuously through research collaborations and consultancies.

In short, the target goal is to develop a brand name through a solid product, a dynamic community and a strong presence. ■

A Basic Design Course Sets Down a Structured and Practical Approach Based on Various Elements to Achieve the Best Results

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Pragmatic Dimension

Pragmatic dimension analyses how a product works and how it is to be used. This includes a study of the user functions, user interface features and ergonomics of a particular existing or conceived design. As in the case of syntactic analysis, more consideration needs to be given to products of increasing complexity and this in turn requires a much higher level of refinement and detail including maintenance considerations and user-centred design studies.

Pragmatic analysis—Figure 2 shows a solution to this analytical exercise. The students presented this in two parts: (1) a series of photos visually explaining the use of the product with a focus on the ergonomic position of the hand to control the stick; and (2) a list of the advantages and disadvantages of the product from a pragmatic point of view. The advantages are: it is intuitive to hold and use, it can be held in many ways, it only requires the wrist to move, it offers a comfortable grip due to its smooth surface and small size, and it is suitable for both left- or right-handed users. The disadvantages are: it is tiring for users after extended use, it can be slippery when the users' hands get sweaty, it is too small for large hands, it poses a risk of wrist injury or back/shoulder stiffness to users if only the wrist is used, and finally, it may cause blisters after prolonged use due to friction between joystick and the hands.

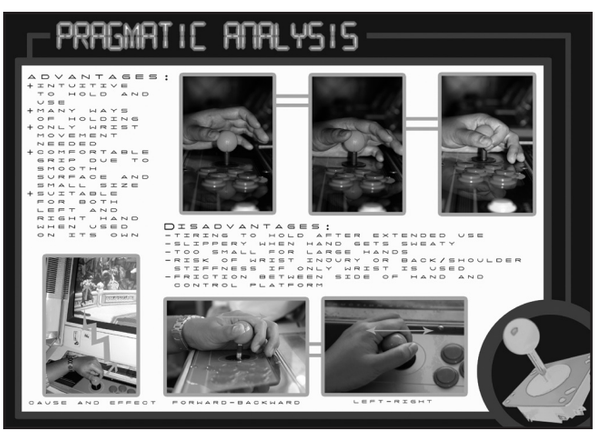

Figure 2. Pragmatic analysis

Semantic Dimension

The semantic analysis of objects—which includes the consideration of the context, form analogies and the spirit (or emotional response to the inherent images and messages) projected by an object—allows for the realisation of the variable place occupied by images in society according to different cultures. Nowadays, designers practise in a technologically advanced multimedia society where symbols and images occupy an increasingly important place.

The semantic analysis has been limited to three main components: firstly, the context in which the product is supposed to be used (e.g. in hotels, restaurants, apartments, schools). Secondly, the associated form analogy which, in effect, is a comparison between the product and other objects with similar forms or features and which are often used to explain a principle or concept. Finally, the spirit or emotional response evoked by the product in general (e.g. a notion of speed, sophistication, simplicity, action and peace). This spirit may be illustrated during the

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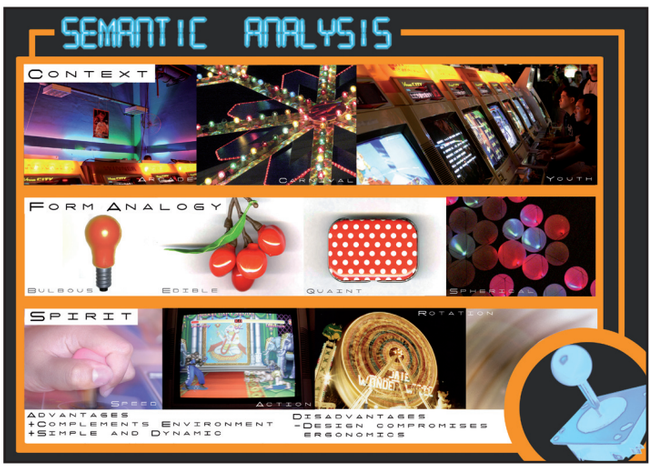

Figure 3. Semantic analysis

analysis by a related image and also by keywords. As for the other dimensions, the related complexity increases progressively from the stage of design fundamentals through to the level of professional work.

Semantic analysis—Figure 3 shows a solution to this analytical exercise. This semantic analysis is presented in the following manner: an understanding of the context where the product is used; and research on the form analogy, and finally the spirit or emotional response evoked.

The first band (Figure 3) shows the context of this kind of product related to young people playing a video game at a fun fair. The form analogies relate to the game and childhood products such as bulb, sweet, cherry and so on; and the spirit provoked links to the notion of mechanical rotation and speed that characterise the feeling when operating this kind of joystick.

This set of descriptive dimensions can apply to more complex levels of industrial design during final-year projects.

The author is developing this theory in more detail in a book entitled *Design for a Contemporary World: A Textbook on Fundamental Principles*, to be published by Singapore University Press in 2007.

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

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