Possibly everyone in the business of teaching becomes familiar at some point with the saying “Give a man a fish and you feed him for a day, but teach him to fish and you feed him for life”. Yet, in any protracted discussion on education, the axiom is bound to be raised again as if it were an end in itself, the final word on all that has fallen rather fashionably under the term independent learning. Its folk attribution to Laozi notwithstanding, a statement so frequently repeated in glee has the effect of encouraging one to feel less and less impressed. In my case, it has already put me off fishing as a hobby altogether.

Let me clarify at length my sense of discomfort here. To be sure, I do grant that fishing can have very profound recreational values; if this is debatable, I fall back on its status at least among the oldest professions to have given the human species a chance at mastering its own survival and future. In fact, for every fish I consume, I find myself compulsively grateful to the fish, the fisherman, and the fisherman who taught that fisherman. A proverb’s life is quite a different matter: it begins with a glimpse of truth via its wit, what combines—often in equal measures—novelty and extremely good sense. Once understood though, its words feel old almost too soon, at which stage very little can be gained from regurgitation alone. The pleasure it now offers lies elsewhere, in the way one is able to rediscover its underlying truth through careful and regular self-correction.

If mere citation then guarantees not a speaker’s but mostly a hearer’s engagement, you can see why showy public repetition is a rather worrying development. Indeed, when the speaking context itself appears increasingly to confuse “giving a fish” and “teaching how to fish”, this worry surges even further. I have always thought that “getting a fish” means not just being spoon-fed but also getting to the end speedily, with minimal struggle, while “learning to fish” acknowledges hard work and the risk of not even getting fish on some days. Yet, in this strange age, the saying has been bent often in support of flashy self-congratulatory slogans that invert the relation, such as ‘teach less, learn more’. From my own experiences, whenever I teach less, my listeners learn even lesser, but I have been assured that inspiring—not usefully differentiated from entertaining—does amount to teaching less. That puzzles me as surely helping someone to fish, as opposed to just giving fish, concerns teaching something and so teaching more.

An advocate of this ‘new pedagogy’ may correct me here by explaining that the dictate ‘teach less’ really means ‘teach smart’—another lamentable catchphrase. One is supposedly a smart teacher who plans lessons in a way that lets students regularly enjoy what they are encountering. The key assumption seems to be that fun is a reliable gateway to learning independently, that someone excited on milk will go on to eat meat better
than another who cuts his or her gums on meat. It implies, in other words, that a long and rough process of learning is often so soul-destroying that it can at best produce a healthy independent thinker by chance. Keeping students happy may be very rewarding for some, but my only point here is that the fisherman proverb does not say this at all. Everyone knows just how good one lazy hour feels, and so it baffles me that a lesson in fishing should be deemed naturally more enjoyable than a plate of free fish. Indeed, if one bothers to ask any Laozi critic, one will also realise that the application would not amuse Laozi much either.

The maxim is, quite simply, not about teaching less or smart but about teaching what is essential. Essence here is determined not by what is of interest to know but by what needs to be learnt, not by how fun fishing can be or how funny a fisherman is but by the mere fact that fishing is taught. No claim is made for the centrality of entertaining, simplifying or beautifying knowledge, or creating convenient closures, or, to be sure, the inverse right of a teacher to be indifferent, rude or sadistic. Nor is a link asserted between a student’s willingness to learn and an instructor’s competence and integrity: did not Laozi himself—if we are still engaging his wisdom—believe that real knowledge could be learnt but never taught? The fact that all these irrelevant meanings are added says a lot about our own modern classrooms where educators seem too consumed by the ranging opinions of their charges. As such, even if a teacher knows better, he or she feels compelled to choose this path of quick validation, where one can be loved more readily, openly and directly, over that on which any appreciation for teaching what matters may at best trickle in late, from thoughtful hindsight.

That the former option has grown to a point where it can socially devalue the latter is indeed regrettable, although its current sway is not absolute. Especially when a proverb’s radical sense is so compromised that one cannot hear it again without mishearing, something original always remains to be rediscovered by just thinking contrarily. The last time I encountered the saying in a discussion on lesson planning with gimmicks, I found myself imagining a man who was precisely given a fish and slept very happy that night. When nothing came his way the following few days, his own hunger and curiosity led him to start experimenting and exploring independently. At first, he worked on methods of finding fish, and the process taught him skills relating to intuiting, devising and fine-tuning. When fish and fishing could no longer please him, he turned this knowledge to looking for new sources of food via methods such as hunting, planting, cultivating, domesticating and so on. My daydreaming broke off here, but its revelation should be obvious: there can also be a form of spoon-feeding in means that equate learning with angling for easy consumption. However, if challenge is a central concern, then even the gift of a fish can be effective; conversely, teach a man to fish, and he may still be eating fish at the end of his life.
The Bookends of USP Learning:
From WCT to ISM

Dr Johan Geertsema, Dr Andrew Leng, Dr Lo Mun Hou & Dr Barbara Ryan
University Scholars Programme

Most students’ tenure in the University Scholars Programme (USP) is ‘bookended’ by two learning experiences. In their first year, USP students enroll in Writing and Critical Thinking (WCT) modules, which introduce them to the genre of the academic essay. These modules treat writing and thinking as inextricable activities, enabling students to engage critically with texts and issues. USP students subsequently (usually in their third and fourth years) embark on advanced curricula, of which a key part comprises Independent Study Modules (ISMs). In these one-on-one classes, each student works closely with a faculty member on a topic devised by the student.

Seen this way, WCT modules and ISMs mark the start and end respectively of a student’s time in the USP. WCT modules and ISMs are very different kinds of classes in many ways; one introduces or initiates; the other is a kind of culmination. WCT classes are small, but not quite the individualised experiences ISMs are. Moreover, while writing classes are highly interactive, they are nevertheless guided by the writing professors (i.e. all four of us). ISMs, as the name suggests, expect students to be independent and very self-motivated. Indeed, unlike the intense and regular nature of WCT modules, students taking ISMs only meet their faculty members a handful of times during a semester, leaving students to do most of the work on their own.

Despite these differences, WCT modules and ISMs share much ground in terms of skills, goals and developmental templates, and we want to sketch, in this article, some of the continuities between these two kinds of USP classes. To begin with, the most obvious way in which these two types of classes are on a continuum is that WCT modules introduce students to the protocols of academic writing and research. The specific skills taught in writing classes prove indispensable when students write the longer papers that are the culmination of their ISMs or their honours theses. Most writing modules, for example, include sections devoted to helping students develop research skills, ranging from the slightly mundane (e.g. using library databases), to the technical (e.g. citations).

But useful skills introduced in WCT modules go beyond the technical. For example, students in WCT classes explore the key idea of “motive”, which Gordon Harvey defines as “the reason, which [a writer needs to] establish at the start... why a reader...might want to read an essay on this topic.” A motive is therefore the puzzle, problem or question that the essay grapples with. This concept translates easily to larger research projects like ISMs; indeed, “motive” is what students must confront most immediately as they draw up ISM study plans.

Many students feel challenged by this responsibility; they wonder, “how can I know what I am doing before I do it?” But just as Harvey distinguishes motive (the question) from thesis (the answer) in an academic essay, an ISM project can likewise be thought of that way. To see why, it helps to realise that a student may not know the answers at the start of an ISM. That student does need, however, to have a sense—through some preliminary research if necessary—of what his or her questions are and why those questions are intriguing. Put differently, students in ISMs cannot know in advance what their findings will be, but they need to know why the investigation is worth undertaking.

Since “motive” is a useful concept in both WCT modules and ISMs, it follows that WCT instruction on how to generate motives proves useful when students are conceptualising their ISMs. Question development constitutes the beginning of serious academic writing. Yet more is required of students to also learn that writing forms part of the process of generating ideas that produce a research question. In WCT modules, prewriting exercises to help students generate ideas include activities such as ‘free writing’, annotating and peer review. The process of crafting a research question thus involves interacting with a text (or texts) and with fellow-students (i.e. other minds). A growing
familiarity with this process leads students to a vital discovery—originality involves and requires exchange. The realisation that critical learning is dialectical paves the way for ISMs of high calibre.

In this sense, WCT modules do not simply introduce isolated (technical or even conceptual) skills that happen to come in useful later in ISMs. Rather, WCT modules introduce the very idea of critical thinking as an underlying principle for all academic activity. In WCT modules, instructors help students find, probe and ponder readings assembled by a working scholar to guide young learners through new conceptual terrain. Later in ISMs, students are expected to demonstrate the ability to not only make original discoveries from high-level scholarship, but also to locate pertinent research and justify its use. This aspect of an ISM could be the most daunting. But WCT modules lay the groundwork for it by emphasising the interrelatedness of independent learning, thinking and writing.

On its own, a realisation of that magnitude might be hard to grasp or implement. But here again, WCT training transfers seamlessly into many ISMs insofar as the former foregrounds incremental writing/thinking strategies. In WCT modules, each student crafts three progressively more challenging papers whose pedagogical function is formative and cumulative. To ensure that writing techniques learnt in previous assignments form the basis of techniques used in subsequent papers, WCT modules require:

1. ‘Close’ Reading (focused analysis of a key extract/passage)
2. Comparison (comparative ‘close’ reading)
3. Independent Research Paper that includes ‘close’ reading and comparison

Because ISM students must simultaneously explore and narrow a field of research, it can be beneficial to agree on ‘close’ reading tasks early in the semester. These focused—hence manageable—tasks require first-hand engagement with a primary text. But they also facilitate inquiry about other primary texts and secondary sources. Once ‘close’ reading skills are in place, comparative tasks facilitate controlled widening of an ISM’s focus. In Semester 2, Academic Year 2005/2006, this strategy helped an English major hone her broad interest in ‘nostalgia in C.S. Lewis’ to the more practicable task of comparing representations of nostalgia in passages from his science fiction and his more popular children’s fantasy, by using comparative ‘close’ readings of passages from these works as a basis for making larger comparisons. The result was an argument chosen for presentation at the USP Academic Fest in 2006.

Not every ISM will be presented in that collegial setting. Yet every ISM can be a collegial experience insofar as USP students learn, in WCT modules, how deeply intellectual work is enriched by peer review, networking of information and friendly support. Collegiality may seem extraneous to independent study. But studies have shown that this is certainly not true at the Ph.D. stage. Sternberg (1986) demonstrated that ABDs (All But the Dissertation)—Ph.D. candidates who have finished all their requirements save their dissertations—are less likely to drop out if they feel a sense of social affinity with classmates. Graff (2000) developed Sternberg’s research by arguing that doctoral candidates are socialised to succeed—or fail—on their own because “the message they get is that if you are any good, you will already know” (p. 1192). This attitude is purposefully countered by the academic exchange and dialogue fostered by WCT modules. These networks make it easier for ambitious undergraduates who might not realise the value of collegiality to seek guidance from peers confidently.

Collegiality exists in several identifiable forms in WCT modules; indeed, they are built into most WCT modules. For example, the feedback students get from their classmates on IVLE forums and in draft workshops is crucial to WCT coursework, and one-to-one draft conferences with instructors and tutorials at the USP Writing Centre are valuable means for students to engage in academic exchange. But students are stretched further if classmates brainstorm, before conferences are scheduled, about how best to make use of instructors’ limited time. Even the ‘lore’ (and gossip!) that more advanced students may transmit to students about to embark on ISMs can be valuable, if in different ways. As suggested above, the collegiality and camaraderie that foster a sense of others’ ability to contribute may not at first seem like a pedagogical objective. But by learning in a small-class setting what one knows and what one does not know, and how best to seek support, WCT modules add a vital skill to young learners’ independent study repertoires.
We have argued that there is a mutually reinforcing pedagogical relationship between the critical reading, writing and thinking processes and skills introduced systematically and incrementally in the USP’s first-year WCT modules, and those necessary to ensure the successful completion of an advanced ISM. Thus learning that the formulation of a genuine ‘motive’ is the indispensable starting point for a viable WCT assignment prepares students to devise a larger—and perhaps more open-ended—research question for an ISM with greater confidence. Equally to the point, we contend that by offering a rich combination of formal frameworks and informal, peer-support networks, USP modules ‘book-end’ students’ individualised skill-development and learning achievements.

References

Using Wiki to Write Lectures Notes Independently and Collaboratively

Dr Stéphane Bressan
Department of Computer Science

Introduction
The benefits of a student centred teaching approach and how it motivates individuals to learn independently, experientially and collaboratively have been well-documented. It is therefore pertinent to explore how educational technologies and tools can help educators and education technologists implement and deploy applications supporting constructivist strategies. In this article, I shall discuss the use of Wiki for authoring lecture notes collaboratively.

Lecture Notes
The inseparable duo, lectures and lecture notes, is a part of the heritage of the German research university model adopted by American universities during the 19th century (Russel, 1991) and progressively by most universities worldwide. Although students often perceive note-taking as a boring, painful and redundant task, it is the first opportunity for them to engage in independent learning through critical analysis and synthesis of the lecture material and an important exercise in learning to write in the discipline’s language.

The Case
CS2102S “Database Systems (S-option)” is an optional extension to the core module, CS2102 “Database Systems”. CS2102S lets students apply their newly acquired knowledge and competencies to the study of ancillary database topics (for instance and in this case non-relational data models such as XML). The module’s teaching and learning modes are based on independent and peer learning as well as peer assessment. For two semesters in Academic Year 2006/2007, computer science undergraduates taking CS2102S used Wiki to create their own lecture notes.

Due to the module’s radical teaching strategy, the Wiki is used with few constraints and restrictions. Only students taking the module have access to the Wiki. They can freely create, update or delete the content. However, they can only modify but not delete the seven main pages constituting the front page and the six topic pages (the six main components of the syllabus). The web page’s content is frozen for a few days before the module’s final test and it is the only authorised document that students can bring with them for the test.

1. Wiki is server software that allows users to freely create and edit web page content using any web browser. Wiki is also the software powering Wikipedia.
In their direct or anonymous feedback, students recognise the learning benefits of the approach, but balance their feedback with criticisms of the rationale (“the...test will only allow students to [bring] in [the Wiki notes], thereby pressuring [students] to do a good job”), highlighting some of the difficulties such as the amount of effort and commitment required (“unfortunately we...don’t have enough time to study this way, [though forum discussion] and Wiki [are good ways to learn about the subject]”), and challenges inherent to independent and peer learning (“the Wiki notes have lots of errors and misunderstandings”, “[it] is [difficult for] us to verify [whether the information] is correct”).

**Designing Collaborative Notes Writing and Authoring Activities with Wiki**

The difficulties and challenges of independent and collaborative learning enhance students’ learning experience. Yet, there are two main issues that need careful management when designing and facilitating independent and collaborative note-taking activities—hive effect and plagiarism.

The hive effect is the collective creation of junk when the initial sense of ownership arising from individual participation in the collective task fizzles out with the loss of a sense of responsibility. An enthusiasm for creative work, a sense of ownership and the fact that the Wiki notes are the only authorised documents in the final test, motivate students to contribute. Colleagues to whom I have shown the CS2102S Wiki notes are impressed by their technical quality. Students are however, more critical of the collective effort and its results. As with any collective task, there are free riders and passive participants. Their existence makes those who contribute actively to the Wiki notes feel indignant. After using a Wiki for their course, Raitman, Augar & Zhou (2005) report that their students fear the loss of their work because of malicious or accidental deletion by other students or because of the lack of concurrency control despite the fact that it never happened.

Lecture notes in undergraduate courses, unlike research papers and thesis, are secondary writings that do not contain a significant amount of original work. It is difficult, in this context to differentiate plagiarism from note-taking. This is particularly the case until students are comfortable with analysis and synthesis. Since learning the discipline’s language is initially achieved by imitation, it is necessary to emphasise and to strictly and continuously enforce the citing of sources.

Hive effect, and plagiarism can be managed through control and assessment tuned to the needs, requirements and objectives of the module. In CS2102S, control and direct assessment are kept to their minimum. I have found it useful to give and impose both a plan (i.e. seven main pages with sections and subsections of the Wiki together with titles and topics to be developed) and a compulsory and single case for all examples in order to improve coherency.

**Conclusion**

With control, restrictions, fine-tuning and proper assessment, collaborative authoring software such as Wiki is an indispensable tool in a modern educator’s toolkit. Since the software is user-centred, its technologies and applications help students learn independently and collaboratively. The technology can be adopted without rejecting conventional teaching practices and their benefits. If managed well, such tools can leverage existing teaching practices to create an effective blended learning approach that helps students achieve better learning outcomes.

**Acknowledgement**

I would like to thank Elizabeth Ruilin Koh for an interesting discussion on Wiki and collaborative learning strategies and for the relevant references that she gave me. I would like to thank Ann Kian Yeo, Dennis Puk and Wee Yeh Tan from CITA for installing and managing MediaWiki (http://www.mediawiki.org) for this application.

**References**


Undergraduates should not be spoon-fed, and indeed some students resent teachers who simply load them with facts no matter how well the information is synthesised and organised. Many students, in fact, prefer to explore and discover things by themselves. From our own experience, the satisfaction of acquiring knowledge in a self-directed manner driven by curiosity is one of the most important factors that brought us to pursue a career in scientific research.

At NUS, independent study modules (ISM) require students to do a fair bit of self-directed learning (SDL). Designing a full, (four modular credit) ISM de novo and getting it accepted by the curriculum review committee is a great challenge. It may be very difficult for a single person to cover a novel topic not already in the curriculum in sufficient breadth and depth that would be worthy of an ISM. However, incorporating an SDL component in an existing module that comprises largely didactic lectures is common practice. This article provides a brief description of our experience in adding an SDL component to a module on life sciences.

An SDL exercise was included in a 3000-level module, LSM3213 “Molecular and Cellular Neurobiology” consisting mainly of lectures, mass tutorials and dry laboratory exercises in Semester 2, Academic Year 2006/2007. Students were instructed to do their own readings on a theme—molecular and cellular basis of learning and memory. The theme was not specifically discussed during lectures or tutorials, but aspects of it were mentioned in passing during various lectures. Students who have done compulsory core courses on molecular and cell biology in their second year would already have sufficient foundation knowledge to digest the review articles fairly well.

The SDL component aimed to challenge students to go beyond that by requiring everyone to write a mini-review or commentary on the theme. Based on a few papers from the primary literature, students could choose their own essay topic as long as it was related to the theme. Students were told that they will be awarded grades for organisation, originality, in-depth discussions and the synthesis of ideas. Getting students to do the essay by themselves was a deliberate deviation from the general group-based projects to which students were accustomed.

For some students, it was their first time working alone and they had to learn to tackle the readings by themselves. Some questions and comments from students included: “Why can’t I base my essays on reviews since these are easier to understand?” Or “Exactly how many papers should I refer to?” And “I really don’t know what to do, Please help!” While some needed a little more encouragement and hand-holding, the majority required no more than a little guidance on their thought processes via email to build up their confidence. Another interesting phenomenon was that some students felt strongly about certain neurological disorders (e.g. Autism and Alzheimer’s disease), and wanted very much to write on these despite the risk of detracting from the theme. Students wrote on a sufficiently wide range of topics to suggest that many, if not all, followed the instructions and did their own work.

Students’ achievement in the SDL component was generally satisfying. From the results, it was clear that a good number of students took the challenge seriously and put in a lot of effort to tackle the primary literature. Some essays have standards close to those written by professional scientists. Only a minority did not spend much time on the assignment. Although we did not conduct a proper debrief of the exercise for logistical reasons, students learnt much from it found the experience interesting. However, such a component can be a real chore to students who just want to cram as many modules as possible into a semester in order to graduate early.

On another level, the SDL was structured to serve a more important purpose. Students taking this third year, Semester 2 module were either graduating or advancing to the honours year, where they will conduct a research project carrying 16 modular credits. Graduates taking up a research position or honours students tackling
Independent learning, also known as self-directed learning or autonomous learning, is a form of learning in which the learner welcomes and takes responsibility for his own learning. The learner determines his learning needs and objectives, and acquires knowledge through his own efforts. The key traits of an independent learner are maturity and the motivation to learn. He must be able to reflect continuously on his learning and critically assess both the learning experience and the material so that he can initiate correction and modify his learning strategies if necessary.

One of the fundamental skills all first year medical students must develop is the ability to identify different structures in the human body correctly. The study of human anatomy serves as an entry point to clinical medicine and introduces students to specialised vocabulary used internationally in the practice of medicine.

The SDL component also made students learn how to gather information. This is fast becoming a critical skill with the exponential increase in information in a given research area. Students should be able to sieve through a vast amount of literature and limit themselves to papers pertinent to the key issue at hand.

Finally, students should learn to be able to critically evaluate and to synthesise a coherent and interesting review which addresses a specific topic and provide their own perspectives on existing data and ideas. An SDL exercise, properly designed to stretch the independence of students, will certainly add value to any module and enhance students’ learning experience.

Flashcards and the Leitner Cardfile System: A Useful Tool for Learning Human Anatomy Independently

Dr George W Yip
Department of Anatomy

Independent learning, also known as self-directed learning or autonomous learning, is a form of learning in which the learner welcomes and takes responsibility for his own learning. The learner determines his learning needs and objectives, and acquires knowledge through his own efforts. The key traits of an independent learner are maturity and the motivation to learn. He must be able to reflect continuously on his learning and critically assess both the learning experience and the material so that he can initiate correction and modify his learning strategies if necessary.

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their research project would need to read, extract and synthesise facts and methodologies from the primary scientific literature. Thus a prior exposure to such an activity would help students cope with the demands of their research work or projects and impress their future supervisors.

Any SDL component should enhance students’ learning experience by building on their prior understanding of the topic and developing their ability to assimilate new information independently. Essentially, for an SDL component to be effective, it should be structured to stimulate students’ interest by getting them to think about gaps in their knowledge of the topic. This requires students to assess the information taught in class and question whether their knowledge of the topic is sufficient to understand what has been taught. Getting students to develop interesting questions is key to encouraging students to delve deeper into an area of their interest and to read beyond the topics covered in class. More importantly an SDL component should create in students, an awareness that the information on any given field is not cast in stone and that what is taught in class or written in textbooks are not complete or absolutely correct.

The SDL component also made students learn how to gather information. This is fast becoming a critical skill with the exponential increase in information in a given research area. Students should be able to sieve through a vast amount of literature and limit themselves to papers pertinent to the key issue at hand.

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One of the fundamental skills all first year medical students must develop is the ability to identify different structures in the human body correctly. The study of human anatomy serves as an entry point to clinical medicine and introduces students to specialised vocabulary used internationally in the practice of medicine.

Flashcards have long been used as a study aid in vocabulary learning. With this tool, the learner writes a new word or phrase on the front of each card and its meaning on the back. The cards are then shuffled, and the learner can use the cards in a question and answer format to acquire new vocabulary. In this way, the cards provide instant feedback on the learner’s performance in a safe environment without peer pressure. One example of such cards is “Netter’s Anatomy Flash Cards”, where different parts of the human body are illustrated on the front of the cards in full colour (using the same anatomy illustrations found in Netter’s Atlas of Human Anatomy) with names of the structures printed on the back.
However, the learner may encounter problems if he were to go through a stack of flashcards sequentially. Research has shown that we forget most of what we learn within a short time. Furthermore, some course materials are inevitably more difficult to learn than others. Thus study time could be more effectively spent by focussing on the difficult materials (i.e. selective learning) rather than relearning an entire series of flashcards sequentially, which could lead to boredom and frustration.

To address this, a German psychologist, Sebastian Leitner (1919–1989), developed a Cardfile System\(^1\) for selective learning. The learner starts with a box with several compartments and goes through his entire stack of flashcards. Cards that have been correctly answered are transferred to a higher compartment, while incorrectly answered cards are left in the first compartment. Thus the first compartment contains cards that the learner finds difficult and he is able to prioritise his time and put in more effort on these. The whole process is repeated several times until all the cards are promoted to the final compartment.

One advantage of using the Leitner Cardfile System for learning anatomy is that the learner does not merely review the flashcards passively or memorise anatomical terms mindlessly. Since the learner has to recall the material rather than rely on recognition, the learner is encouraged to draw on his personal experience and utilise learning techniques such as association and reflection to master and internalise the new knowledge.

The Leitner Cardfile System is not limited to learning new anatomical terms. In recent years, the NUS undergraduate medical curriculum has undergone numerous changes, including a greater emphasis on horizontal integration across different subjects and disciplines, and vertical integration across all five years of study. Medical students studying anatomy in lectures, small group tutorials, practical classes and problem-based learning groups can construct flashcards that integrate information from other medical sciences.

For example, first year students learning about the course and distribution of the median nerve in the upper limb in anatomy can construct a set of flashcards that incorporates information on nervous impulse propagation (physiology) and neurotransmitters (biochemistry). As students proceed to higher levels, information on neurotropic drugs (pharmacology), carpal tunnel syndrome (medicine and surgery) and repetitive stress injury (occupational medicine and epidemiology) can be added to the cards.

In a manner similar to mind maps, flashcards work best when the learner customises their design. Thus students should be encouraged to prepare their own flash cards as the preparatory process will sharpen their thinking skills and help them assess the study material critically. As illustrated by the above example, customised flashcards that are prepared conscientiously are useful in helping students learn human anatomy and other disciplines in the medical curriculum independently.\(^1\)

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1. For more information on the cardfile system, see http://www.flashcardexchange.com/docs/leitner (Last accessed 7 January 2008).

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**Self-learning is Self-reliance**

**Dr J Sivaraman**  
Department of Biological Sciences

Self or independent-learning requires students to take responsibility for their own learning. In the process, students acquire the knowledge and skills needed to make responsible decisions for their own learning. Independent learning can be fostered by opportunities and experiences which encourage student’s intellectual development and his/her capacity for independent and reflective judgment. All these are based on students’ awareness of their own interests and talents and an appreciation of learning for learning’s sake.

Independent learning involves interaction between the educator and students. The lecturer plays the
role of a facilitator and shows students how to learn independently. For example, the lecturer can motivate students to learn independently through well-organised and interesting lectures or encourage students to learn through trial and error. The lecturer should also provide adequate feedback on students’ learning and encourage them in their efforts. Further, students should be allowed to learn at their own pace and feel in control of their learning.

Students learn independently when they reflect on the lecture and follow up with an independent study or from other students, tutors and lecturers around them when they engage in practical work. Students also learn independently when they search for information on the Internet and in the libraries.

With the concept of self-learning in mind, I attempted to promote self-learning in a cross-faculty graduate level module, BL5201 “Structural Biology and Proteomics”. The objective of this module was to provide students with a strong foundation on basic concepts on structural biology and proteomics with a special emphasis on recent developments. I believe that at the post-graduate level, students should be given opportunities to explore and discover information by themselves. Thus we used a series of lectures related to fundamental concepts and recent advancements to stimulate students’ interest in the subject.

Tutorial sessions aimed to cover all bioinformatics aspects of students’ structural biology projects. In addition to lectures, tutorials and oral presentations, students were required to write critical reviews on recent research papers from top-level journals. Students could choose from four major areas within structural biology and proteomics but their oral presentations and critical reviews had to come from two different research areas. The oral presentations helped boost student’s confidence while the writing exercise encouraged students to be creative.

Further, all students were given unique assignments to solve real world practical problems/queries on multiple aspects in structural biology. I provided unique protein sequences to each student who was then required to elaborate on 15 fundamental structural biology questions pertaining to the assigned protein sequences. Such practical problems helped students learn how to handle real world problems. During tutorial sessions, students were asked similar questions to make sure that students could solve the problems successfully and independently.

In summary, the activities in the module enabled individual learners to take responsibility for their own learning and develop skills essential for lifelong learning.

Service Learning:
Where the World is Your Classroom*

Mr Ng Kiat Han
4th-year undergraduate
Department of English Language & Literature

In Semester 2 of Academic Year 2005/2006, I enrolled in a new class at the Faculty of Arts and Social Sciences. This module was GEK 1052 “Community Service and Social Action”, and it was an education experience that was refreshingly different from the other modules undergraduates were used to. At the first seminar class, the professors informed us that the module was a novel technique in local education: service learning. This essay argues that it is a worthy mode of pedagogy that should be embraced by institutions of higher learning.

The module entails the study of community service, specifically activism. The professors, Dr Kenneth Paul Tan and Dr Daniel Goh, had arranged for an entire series of dialogue sessions with important personages who are key figures in their areas of
community activism. These communities include the arts community, the homosexual community and a whole variety of other peoples often discretely obscured from the public eye.

To begin with, the course pack for the module was a large collection of academic essays. Every week, all students had to read a chosen essay and answer a question posted by the professors on the IVLE. These answers are, in effect, short student essays that pertain to the subject matter and critical slant of the relevant topic that week. Braye (2005) explains that “writing promotes critical thinking in ways that no other intellectual activity can match” (p. 169). Indeed, writing is central to the class. 40% of the course grade was based on the IVLE forum posts and two other essays constituted 30% each. Ostensibly, this module has an inherent bias to those who are themselves able writers. But this is fallacious, for writing in this module is not the employment of fancy histrionics or literary architecture. The forum posts involve examination of facts from the given essays and a goal-directed reflection of this information. Linguistic legerdemain alone cannot answer these questions. For instance, an IVLE forum post had to answer questions such as: “How do the concepts of assimilation, pluralism, multiculturalism, and cosmopolitanism differ from one another?”. Not only must a student know the definitions of these words, an appreciation of these words as social concepts must also follow. Students are directed to relate these concepts to real life, in particular the relevant community in the dialogue session that week, or the student’s Cross-Cultural Understanding Discussion Group (CUDG) project.

Braye (2005) says “the activity of writing (active, dialogic and recursive) requires many of the thinking processes (assimilation, evaluation, analysis) that we associate with higher levels of thinking, levels of thinking [that] can be difficult to access in other ways” (p. 169). This is absolutely correct, since it is not merely qualitative writing that the professors look for; it is, more significantly, quantitative analysis. As there may be students with less-than-stellar linguistic abilities, it would be less than prudent for their grades to suffer merely because of the occasional flaw in grammar. These students should therefore face no immediate disadvantage enrolling in such classes. Lubling (2005) says that his students submit “a weekly reflection paper, allowing [him] a continuous insight into the students’ thoughts and practice” (p. 192). Language, especially academic language, is a powerful vehicle for thought, and this quality should not go unnoticed or disregarded.

The speakers for the dialogue sessions included women’s activist and past president of the Association for Women for Action and Research Dana Lam, Substation’s artistic co-director Lee Weng Choy and conservation advocate Dr Shawn Lum. These speakers, particularly the ones commonly thrust in the media spotlight like gay activist Alex Au and playwright Alfian Sa’at, have a strong appeal to the youth. Such dialogue sessions primarily bridge the gap between the communities in the course—communities which may be very far removed from our lives—and us students. This experience is something no amount of textbook reading can bring. All students had to sign up with a group that would facilitate every dialogue session; each group had to transcribe the speaker’s interactions with the students, as well as submit a reflection paper dealing with the main aspects of the session. Having us students engage critically with the speakers demystifies their work and further connects us with the communities discussed.

All this was augmented with a Cross-Cultural Understanding Discussion Group (CUDG) project. This project was entirely self-directed, and students were at liberty to select a community for which the group project would aid. This is another highlight of service learning, for it crystallises all the abstract theories expounded in class and makes them utterly relevant to real life. This project, as with the dialogue sessions, helps us students understand hitherto-unknown communities by allowing us to meet real people and hear them relating real experiences. Lubling (2005) points out that “understanding is an existential event that challenges the whole person’s intellectual and motor habit” (p. 185), and this goes beyond what mere knowledge can do for a person. Clearly, all aspects of the module—including the CUDG project, the readings and the dialogues—feed off and influence each other. Students are encouraged to interact with other people, and this is a critical hallmark of service learning.

My group created a digital map of the Faculty of Arts and Social Science with maps and photographs of the Faculty’s compound that would allow students to familiarise themselves with the architecture of the school. This was primarily
to facilitate the movement of the community of physically-disabled students about the complex passages in the Faculty. To accomplish this CUDG project, we had to locate such students to learn of their difficulties in navigating the school. After interviews and investigations, we gained an awareness of how such students lead their educational lives in campus. Several things can be discerned, chiefly that communities of people that need aid are far closer to us than we imagine. In addition, and more importantly, every student has every capability to effect change and improvement for these communities.

The module was a most refreshing experience, and I enjoyed it immensely. This is significant, especially since it was a class that was neither in the scope of my major discipline nor areas of expertise; this shows that the smooth transition of any person out of his or her comfort zone to an alien educational landscape can be facilitated with independent service learning. I learnt a great deal about the people around me and the class made me think critically on issues that impact on social domains. It only goes to show that this pedagogy can be transposed to any field in education. The class was an exegesis of the world, and I was given the opportunity to investigate its vastly different social mechanisms, as well as engage with these aspects of the social spectrum equipped with a critical imagination. This is most valuable, for similarities between social groups quickly became apparent and I gained a profound appreciation of culture across these communities.

There is a massive potential, especially since all its non-traditional work—such as the dialogue sessions or CUDG projects—is ultimately symbiotic with the class and can be manipulated to give many educational benefits. Furthermore, the learning experience in universities like NUS stands to be heavily enriched. After all, acclaimed pedagogue Martin Buber says that “the purpose of education [is] to develop the character of the pupil, to show him how to live humanly in society” (Hodes 1972, p. 136). Evidently, service learning does precisely that.

References


* This article was written when the author was a third-year undergraduate at the Faculty of Arts and Social Sciences.