About Synergy

Synergy is a scholarly forum for the discussion and debate of higher education teaching and learning at the University of Sydney. Produced by the Institute for Teaching and Learning (ITL), Synergy is published twice per year, usually May and October, and is circulated to staff through academic and research departments. Synergy is edited by Tai Peseta in consultation with the Director and staff of the ITL.

Contributions to Synergy

The Editor welcomes contributions from the university community all year round. Synergy particularly welcomes contributions written collaboratively by staff and students that:

- report on, or are critical reflections of an aspect of your teaching or your students’ learning
- report on a teaching, learning or curriculum initiative designed to engage students in active learning or inquiry
- use disciplinary research/concepts to develop ideas about teaching and student learning
- report on curriculum initiatives designed to bring teaching and research together to improve student learning

From 2004, scholarly and research-based contributions to Synergy will be counted under Criterion I of the University’s Scholarship of Teaching Index. Unless negotiated with the Editor, contributions must be limited to 2000 words, adhere to the American Psychological Association (APA) guidelines for referencing, and should be accompanied by a 300 word biography outlining significant teaching and learning research interests, publications and projects, and positions of leadership.

Publicising your event in Synergy

Staff and students of the University are welcome to publicise forthcoming higher education teaching and learning events in Synergy. These might be conferences, public lectures or seminars by visiting scholars, relevant to higher education teaching and learning. However, the Editor reserves the right to negotiate such publicity.

Subscribing to Synergy

If you are a staff member of the University of Sydney and would like to receive your own copy of Synergy, please visit the website to join the Friends of Synergy email list, or contact the ITL on +61 2 9351 3725.

If you are located outside the University of Sydney, a yearlong subscription to Synergy costs $10.00 AUS (GST, postage and handling included). Each printed back issue costs $4.00 AUS. A number of complementary copies of Synergy are mailed to academic/educational development units in the Asia-Pacific region however, additional copies incur a cost of $4.00 AUS per issue.

Contact the Editor

For further information about Synergy, visit the website – http://www.itl.usyd.edu.au/synergy or contact the Editor, Tai Peseta on (+61 2) 9351 4657 or email synergy@itl.usyd.edu.au

Design, layout and photos

Rachel Williams, Web and Publications Manager, ITL. Email: rawillia@itl.usyd.edu.au
Cartoons by Tamara Asmar. Email: tamara6moons.com.au
Photo of Koori Centre authors on page 8, taken by Curtis Flood
Students on cover photo: Yun Kyung Kwon and Min Jeung Park

Printing

University Printing Service
Top Floor, Services Building G12. Phone: 9351 2000 Email: ups@ups.usyd.edu.au

ISSN: 1325-9881
© 2004 Copyright of the articles rest with the author and all else with the ITL.

Disclaimer

The views expressed in Synergy are not necessarily those of the University of Sydney, the Editor nor the Institute for Teaching and Learning.
regulars

1 Editorial
   Tai Peseta

9 Profile
   Nerida Jarkey, Faculty of Arts

18 Book review
   Teaching with Integrity, Bruce McFarlane

19 ITL focus
   Projects
   Research
   Using ICT in teaching and learning

31 T&L snapshots
   Faculty of Rural Management
   University initiatives
   Teaching and learning conferences

features

3 Melanie Collier
   Giving students the ability and confidence to critically evaluate scientific literature

5 Koori Centre
   Indigenous philosophy in pedagogy and research

11 Willem Vervoort
   Part 1: A Boyer bush dance
   Part 2: I write therefore I reflect

21 Sarah Hyde, Greg Ryan & Peter Davy
   Self regulation: a key to life long learning in Medical Education

24 Murray Thomson
   Designing assignments that guard against academic dishonesty and promote deep and active learning

27 Paul Ginnis
   Learning by imagining in higher education

29 Gavin J. Faunce & Julie Hatfield
   Recent improvements in the first year psychology tutorial/demonstration program: procedures and outcomes
Welcome to the first 2004 issue of Synergy!

We seemed to have spent a good deal of 2003 in hiatus and are now happy to be back on track. Following the recommendations of our own Institute for Teaching and Learning (ITL) Academic Board Review, we’ve been engaged in some serious soul searching about how Synergy can better support, highlight and showcase the amazing teaching and learning work taking place across the University. After consulting with faculties, you’ll notice a few changes - a new look, a new Editor and a renewed enthusiasm for engaging in critical discussion of university teaching and learning. We want Synergy to be as dynamic as possible. We want it to reflect the diversity of teaching and learning conversations in a range of disciplinary areas and we want it to be a forum for sharing, communicating and critically interrogating our individual and collective practices. We look forward to working with you to achieve these goals.

It was always intended that Synergy be a forum for staff to reflect and write about aspects of their teaching and their students’ learning. Avid followers of Synergy will know that many of the articles that appear here are often the beginnings of conference papers or refereed publications. For those who are new to research and writing of this kind, we’re always really happy in the ITL for you to talk with us about supporting that transition. But we also encourage you to look beyond us for support, and, we know many of you already do. There is a growing community of academics interested in and committed to improving teaching, learning and pedagogy within the University, and while the ITL welcomes the opportunity to facilitate these connections, you might find a conversation with your Associate Dean (Teaching and Learning), or a member of your Faculty Teaching and Learning Committee to be much more informative.

Synergy is now the perfect forum for you to engage in scholarly discussion of your teaching and learning ideas. Two innovations support you in this process. First, all scholarly and research-based articles now contribute to the University’s Scholarship of Teaching Index. Authors can claim funds under Criterion I of the Index. Second, each article is now linked to an online discussion forum. This technology means that you can offer your reflections, chat with the author and engage with others, simply by clicking a few buttons. This is partly in the spirit of what Carnegie Foundation scholars Lee Shulman and Pat Hutchings (1999) call making teaching ‘community property’. It moves teaching and learning beyond the privacy of our individual consciousness and opens it out to critical inquiry, collegial review and evaluation. This might also be understood as progressing the work of the scholarship of teaching.

In this issue, Melanie Collier reflects on the challenge of developing undergraduate veterinary students’ capacity for critique in the context of analysing scientific research literature. As the university re-evaluates its policy on graduate attributes, Melanie’s article reminds us to think about the ways we embed ‘criticality’ in the learning outcomes of our units of study. A team from the Koori Centre – Katrina Thorpe, Peter Minter, Leah Lui-Chivizhe and Arthur Smith offer their vision of an indigenous philosophy in pedagogy and research. Is this a different pedagogy from the student centred learning perspective that now circulates as good university teaching, and if so, what additional dimensions does it bring to bear on the nature of the student experience? These ideas originally featured as a poster presentation in the 2003 Graduates
for the World Vice-Chancellor’s Teaching and Learning Showcase and we are pleased to be able to expose them to a wider audience. We are also very excited to include Willem Vervoort’s reflective piece on the relationship between research and teaching. A Senior Lecturer in the Faculty of Agriculture, Food and Natural Resources, Willem’s is the first piece of its kind to appear in Synergy and can be located methodologically in the educational research tradition of narrative inquiry, self-study and critical-fiction writing (Bolton, 1994; Clough, 2002). Paul Ginnis of the ITL then outlines the applicability of cognitive load theory or ‘learning by imagining’ to higher education teaching and learning contexts, and Murray Thomson from Biology shares his assessment strategies for addressing ‘inter-student’ plagiarism. While Murray urges us to consider the ways our assessment tasks encourage students to adopt deep approaches to learning (Ramsden, 2003), his article doesn’t shy away from the reality that plagiarism exists and strategies are needed to support academics in addressing it. We then move to an article by Sarah Hyde, Greg Ryan and Peter Davy of the Faculty of Medicine. Their work describes the outcomes of a pilot research study designed to gauge medical students’ ability for self-regulated learning. Finally, Gavin Faunce and Julie Hatfield consider ongoing improvements to the first year Psychology tutorial program. In all this work, there is a clear and obvious commitment to improving the student learning experience.

We’d also like to draw your attention to what we hope will become regular features in Synergy. In each issue, we profile the teaching and learning work of an individual member of staff. For this issue, we spoke with Nerida Jarkey, Director of First Year Teaching and Learning in the Faculty of Arts. We also update you on the work of the ITL; provide some teaching and learning guidance for staff thinking about incorporating ICT in their units, share with you faculty and university initiatives and continue to keep you informed of significant literature, events and conferences in higher education teaching and learning. If you have an idea for an article, would like to contribute to Synergy or perhaps offer feedback, please do feel free to get in touch with me or visit the website at:
www.itl.usyd.edu.au/synergy

A few thanks: Kim McShane for her steady editorial hand on past issues of Synergy, Rachel Williams for her patience, design vision and foresight, Tamara Asmar for her brilliant comic interpretations and to those faculties who were kind enough to respond to our call for feedback at such a busy time. Finally, I offer my appreciation to each of the academics whose scholarly work furnishes this issue of Synergy.

Tai Peseta, Editor
Institute for Teaching and Learning

References


The ability to critically evaluate scientific literature is a graduate attribute for students studying the four-year Bachelor of Animal Science degree and a generic attribute that many units of study would see as desirable. Critical evaluation of information is one of the six standards put forward in the Australian and New Zealand Information Literacy Framework (Bundy, 2004). The framework outlines the required standards of an information literate person and thus a life long learner. It is interesting to note that we have been addressing another of the standards - the ability to find information effectively and efficiently - over the last four years through engaging students in workshops on information retrieval provided by the Faculty’s Liaison Librarian. Contrast this with the results of a survey of second year students. 80% answered no to the question, “did you undertake exercises in any first year courses designed to develop skills in critical evaluation of scientific literature?” and 91% answered they were not confident in their ability to critically review scientific literature.

Anecdotally, many staff members lamented the fact that students believed if they had read something in a journal it must be true and that they would never be able to question its findings. Staff also reported a lack of critical analysis of material read by students, findings that were also reported in Zoology students by Jones and Barmuta (2002). It is not difficult to put yourself in the position of the student. Why should they, with limited knowledge in the topic, be able to find fault with work published in a refereed journal by someone with expertise in the topic? The fourth year of the Bachelor of Animal Science degree requires students to carry out a research project and present a thesis in which an important part is a literature review. Presumably, the topic of the thesis is one that appeals to the student and will involve engaging with the current literature and building up a body of knowledge that should aid in developing the confidence to evaluate material. But, what of their ability to critically evaluate?

Where in the curriculum is this attribute addressed?

So what do we do to help students gain the ability and confidence to critically evaluate scientific literature? We know students start second year without formal exposure to the development of these skills and similarly, their second and third year courses have no formalised time devoted to it. Yet, in their theses, students are expected to critically evaluate research material! I decided this situation needed redressing but the question was how to find the time in an already crowded timetable to devote to this task?

What have we done?

In 2003 we introduced into a third year unit of study, a workshop from the Learning Centre on Writing a Critical Review. The workshop included examples of critical evaluation although these were not in the context of Animal Physiology. We set two assignments - one at the beginning and one the end of the semester, where students were expected to produce a critical review of a nominated journal article on a topic they were currently studying. Students were asked to read at least three other articles in the same topic area to allow them to place the current paper in context of findings by other authors. The first effort of most students was poor, with most reviews lacking critical evaluation and being merely descriptive. In the second assignment, I asked students to peer review the critical evaluation of one of their cohort. The surprising finding from this was that students were very good at picking out the lack of evaluation in the work of their peers even when their own submitted work was similarly devoid of critical comment. The students seemed to find it difficult to synthesise their own arguments even though they had been provided with guidance in the Learning Centre workshop.

What further improvements have we planned?

Despite the students receiving feedback, there was little improvement between the second and first assignments indicating that further work was required by some students to help them grasp the concept. However we are unable to find further room in the timetable for this and we have decided for this year to provide examples of good and poor critical reviews submitted by students. With the help of the Thyne Reid Innovations Education Unit in the Faculty of Veterinary Science we have developed exercises that involve reading these good reviews and answering questions that ask the student to highlight specific areas where critical evaluation of methods, results or discussion are demonstrated. These exercises will
be available on the unit of study WebCT site so that students can work in their own time. We have also included context specific examples in the workshop of critical evaluation in the hope that this may make the task more relevant for our students.

Curriculum design to aid development of critical evaluation

Since the third year students obviously found this a daunting task we have decided to introduce a vertically integrated approach to critical evaluation and expose students in a second year unit of study to critical evaluation. This will be built on in third year and prepare the students for their thesis in fourth year. This approach is supported by comments from students “the critical review was the first we had ever done - perhaps more coaching in these areas would be helpful” and “I already realised the importance of this attribute but do not believe I have mastered it in this course. Work should begin in earlier years”.

Last year the second year students were given reading material to introduce them to ideas about critical evaluation and an assignment where they chose a paper from a list of published papers to critically review. They were expected to source two additional papers related to the topic. 66% of students said their confidence in critically evaluating material had increased as a result of completing the assignment (encouragingly, 97% also reported an increase in their knowledge of the topic). This year we are hoping to initiate a timetabled workshop to introduce the topic; set an assignment and provide exercises in WebCT to support students. The approach taken by Denyer (2000) of giving students the materials and methods section of a paper without the “expert” commentary of the introduction or discussion to critically evaluate, may provide a good introduction for second year students. We would expect third year students to critically engage in all aspects of the research article.

Some may say that by teaching critical evaluation in a very context specific way we are not preparing our students to be true critical readers. But it is a starting point. I know that I would be more cautious about critically evaluating something outside my area of expertise than within a topic I am comfortable with.

This work is already proving to be vital in increasing students’ confidence and ability to critically evaluate scientific literature. Even though it has been a difficult task, we want our students to realise that “even students can legitimately critique a published paper” (Jones and Barmuta, 2002). In fact, it is a skill that should be transferable across units, applicable throughout a student’s whole degree program and into their professional practice.

References


Dr Melanie Collier is a Lecturer in the Faculty of Veterinary Science involved in the teaching of endocrinology, reproductive and renal physiology to first and second year students of Veterinary Science and second and third year Animal Science students.

She is a Unit of Study co-ordinator for a third year unit of Animal Science. She completed the Graduate Certificate in Higher Education in 2001 and has acted as a mentor to subsequent candidates for the same course. Melanie has presented at the last two Vice Chancellor’s Showcases the results of a Teaching Improvement Fund (TIF) funded project studying the conception and approach to learning of students of second year Veterinary Science students. She is the Faculty representative on the University’s Working Group on Research-led teaching and the scholarship of teaching.

You can engage with Melanie and others in a conversation about this article. Visit the online discussion forum at: www.itl.usyd.edu.au/synergy/forum or email at: melaniec@vetsci.usyd.edu.au
Koori Centre staff who designed the poster (see opposite page) have been asked to write a brief article describing the various elements and processes of its construction; what they mean, and how they relate to one another in an increasingly diverse teaching and learning environment. The following is a brief statement which seeks to do this at an exploratory level of significance.

Koori Centre academics are developing curricula that aim to recover and introduce to the University community specifically Indigenous forms of teaching and learning. This process begins as a response to the historically determined undervaluing of Indigenous knowledges following the impacts of colonisation. Since 1788 Aboriginal and Torres Strait Islander Australians have had to negotiate at least two juxtaposed ‘world-views’, and have developed unique and flexible approaches to learning and cultural exchange which can be of high value to present day students who learn and work in multifaceted cultural environments.

In recent years many prominent Indigenous and non-Indigenous educators have extolled the virtues of two-way teaching and learning. For many Indigenous Elders and educators this two-way concept has embraced the notion of taking the best of both Indigenous and non-Indigenous worlds as a knowledge base for understanding Australia, and as a means for relating sensitively and constructively in an increasingly globalised world.

Our examination of this relationship has contributed to an ongoing integration of Indigenous knowledges and pedagogic process into our teaching and learning activities. Like most academic units within the University, we teach students from many cultural backgrounds and, through our block mode program, growing numbers of Indigenous students from a wide range of geographic and cultural locations. In order to meet the diverse needs and interests of these students, particularly those who want to learn more about Indigenous Australia, we are in the process of fusing Western and Indigenous knowledges into a more holistic, inclusive, and critically responsive pedagogic framework. A priority for Koori Centre academics lies in reclaiming, developing and nourishing Indigenous knowledge systems and clarifying how these may better inform our teaching and student learning. For these reasons we have been attempting to embed Indigenous frameworks in the teaching of Indigenous Australian Studies.

Western and Indig-enous knowledges provide space for conceptualising a more culturally inclusive curriculum.

The work of the Alaska Native Knowledge Network (ANKN) has been useful in guiding us in some aspects of the development of culturally inclusive curriculum theory and practice. Alaskan Native educators have been concerned about how to cater for the educational and cultural well-being of all students, Indigenous and non-Indigenous. Consequently Alaskan Native educators have developed The Alaska Standards for Culturally Responsive Schools (1998).

Their development of “Cultural Standards for Curriculum” resonated with the work we are attempting to do at the Koori Centre. The ANKN has stated that:

A culturally-responsive curriculum fosters a complementary relationship across knowledge derived from diverse knowledge systems. A curriculum that meets this cultural standard:

- draws parallels between knowledge derived from oral tradition and that derived from books;
- engages students in the construction of new knowledge and understandings that contribute to an ever-expanding view of the world (Alaska Native Knowledge Network, 1998: 6).

Further, as discussed by Semali and Kincheloe:

“... examination of indigenous knowledge attempts to enlarge the space for dialogue denying the assertion of many analysts that European and indigenous ways of seeing are totally antithetical to one another.
These cultural and epistemological issues are complex and our concern is to avoid essentialist notions by invoking simplistic binary oppositions between indigeneity and colonialism” (1999: 23).

Historically, the creation of such binary oppositions has been both a project and outcome of invasion and colonisation. It is imperative not to nurture such a discourse within a university, inadvertently or otherwise.

It is also important to acknowledge that “…indigenous cultural experience is not the same for everyone; indigenous knowledge is not a monolithic epistemological concept” (Semali and Kincheloe, 1999: 24). Indigenous knowledges are broad and complex and, over time have been conceptualised in many different ways by diverse Indigenous communities.

In our units of study we privilege the voices of Indigenous Australia by involving Indigenous people as guest lecturers and by drawing on a variety of Indigenous works in film, fiction, autobiography, biography, dance, music, oral histories and art. Through our use of these various forms of Indigenous expression we strive to engage students on emotional, spiritual and intellectual levels. Students are challenged to move outside their ‘comfort zones’ and confront historical and contemporary representations of what it means to be Indigenous.

As we continue to mature this holistic approach to teaching and learning, our teaching emphasises healing and social transformation of the individual (students and teachers) and the wider community. An holistic approach acknowledges that personal and social transformation requires more than just an intellectual engagement with course content. Where there is an imbalance, for example, learning something purely on an intellectual level without emotional understanding, students can remain in a state of detachment. For meaningful learning to occur, a level of empathy is required on the part of teachers and students.

Harrison and Hopkins suggest that “…a scholarly, scientific attitude is appropriate to the task of understanding; but by sidestepping direct, feeling-level involvement with issues and persons, one fails to develop the “emotional muscle” needed to handle effectively a high degree of emotional impact and stress” (1967: 440 in Adams et al 1997:33). At the Koori Centre we aim to challenge and engage our students across a range of emotional, intellectual and ethical educational experiences, which is evident in the following small representative sample of feedback provided by undergraduate students in 2003:

“I only wish that other students get to experience this and break down the barriers of alienation and strangeness that surrounds much of our lives. What I have learnt and experienced today will stay with me for the rest of my life and I hope the children I work with will be empowered in the same way.”

“It (the Indigenous Australia unit of study) has helped me to perceive history in light of paradigms, discourses, and concepts, rather than just events.”

“I feel honoured having been bestowed with knowledge given by my professors, friends, and their families. Although the semester has come to an end, my journey of learning has just begun!”

“I have a much better understanding of Indigenous issues worldwide.”

“The course made me reflect on Indigenous Americans.”
The understanding of non-Indigenous and Aboriginal race relations helped my world perspective.

While the project reported on in this brief paper is still very much a ‘work in progress’, we have been heartened by progress made in both teaching and research, and the very positive responses that we have had from students, Indigenous and non-Indigenous, both domestic and international. We therefore agree with Semali and Kincheloe that there is a transformative power inherent in Indigenous knowledges and, furthermore, Indigenous knowledges can be used to foster empowerment and justice in a variety of cultural contexts (Semali & Kincheloe 1999: 15). Paulo Frie and Antonio Faundez have argued that: “…indigenous knowledge is a rich social resource for any justice-related attempt to bring about social change” (1989 in Semali and Kincheloe 1999:15). Like colleagues in other academic units throughout the University, we hope that students might be transformed by our teaching and motivated to engage in ethical and responsible thinking, scholarship and social action.

References


Katrina Thorpe has been a high school teacher, staff trainer and for the past 10 years, involved in Aboriginal education. She has taught Indigenous perspectives across a wide range of disciplines including Australian Studies, Sociology, Gender Studies, Education, and Nursing. Her interests include anti-racism and social justice education, Australian history and promoting the inclusion of Indigenous perspectives across all areas of education.

Peter Minter was appointed to the Koori Centre in 2000 following a 10-year career in Indigenous Education at the University of Newcastle and the University of Western Sydney. His research and teaching specialties include international and national Indigenous Rights history and theory, Indigenous cultural history and postcolonial theory, and comparative studies in media, literature and arts. Peter is a PhD candidate in the Faculty of Humanities and Social Sciences, UTS.

Leah Lui-Chivizhe has worked in the areas of adult education and training and universities for almost 20 years. Since 1998, Leah has worked with the Koori Centre, in teaching, research and program co-ordination roles. Her research interests include academic literacy learning, migration and cultural identity and post-colonialism.

Arthur Smith has been a teacher and consultant in NSW schools and, for the past 22 years, has worked in university based Aboriginal and Torres Strait Islander teacher education programs. He is currently Academic Coordinator at the Koori Centre and is primarily interested in Indigenous Studies teaching and learning effectiveness.

You can engage with Katrina and her co-authors in a conversation about these ideas. Visit the online discussion forum at www.ill.usyd.edu.au/synergy/forum or email at: Katrina@koori.usyd.edu.au
GULP!

COME ON. LET'S GO IN TOGETHER.
When Nerida Jarkey first started teaching Japanese Linguistics at the University nine years ago, she was already alert to the importance of the student learning perspective. In fact, she recalls quite clearly the first time it had begun to influence her ideas about teaching and learning. “After I completed my PhD, I worked for a while at the University of Uppsala in Sweden, teaching a course in English Linguistics. The Director of Studies who hired me came to sit in on some of my classes. At the end of one she said - ‘Nerida, that was wonderfully passionate and inspiring but have you thought about what students are actually learning in your classroom?’ It was then that I realised that I was teaching the way I had been taught - that the teachers I had admired were all very passionate and enthusiastic and that this had meant a great deal to me as a learner, but it made me stop and think that not everyone might be so turned on by it.”

Jarkey can even see parallels between university teaching and learning and her own research area. “What I like about my research into the semantics of grammar, is what it tells us about the human mind; about how people view reality, categorise reality and the ways that cultural contexts might influence aspects of the way we interact with the world. Now if I translate that to student learning, I can see that the context of students' learning may be relevant to the way they approach a task. These may be broad sorts of connections but I still find them very relevant and interesting.”

This is Jarkey’s second year in her new role as Director of First Year Teaching and Learning in the Faculty of Arts. And she comes to it with sterling credentials. In 2002, she won a Vice-Chancellor’s Award for Outstanding Teaching and in the same year, was a finalist in the National Awards for University Teaching. Last year, she also completed the ITL’s Graduate Certificate in Educational Studies (Higher Education). Jarkey’s obvious commitment to enhancing student learning pervades all aspects of this new role. Of the position, she says that it’s about “developing a learning community and context where Arts students can feel a sense of identity and belonging. But in order to understand how to go about addressing this issue, it’s important to know something about the Faculty. First, there’s the issue of size. Our first year students often feel overwhelmed by the sheer size of the Faculty and complexity of their programs, so we’ve done a lot of work to clarify degree pathways. Second, there is no core unit that all first year students are required to complete. This is really interesting because the feedback we get from students is that, while they really value having such wide choice in their studies, the experience can be one where they have difficulty in feeling part of a cohort.”

The role has definitely put a spotlight on the teaching and learning initiatives now underway in the Faculty of Arts. The success of the Arts Network Transition and Mentoring Program particularly, is a research-based and scholarly model for orientation and transition programs generally. Jarkey will present this work at this year’s Higher Education Research and Development Society Australasia (HERDSA) conference in July. She says that this program particularly, takes what Mike Prosser calls a ‘student-focused’ view of learning. “So rather than presenting first year students with the institutional context and organising orientation that way, we invite students to engage with a range of scenarios that mirror the complexity of problems and opportunities in academic life. The senior students we train to mentor our incoming first years have so many stories about first year that we draw on their experiences to plan the transition workshop. Paul Dwyer, Ian Maxwell and postgraduate students from the Department of Performance Studies then transform those experiences into what they call ‘forum theatre’ - a lively, entertaining, interactive and amusing set of scenarios about a first year student encountering for instance their first essay, a lecture with a massive reading list, a boss offering too many shifts and a love interest who is perhaps a bit too distracting. We see all those scenes and then the facilitator asks the actors to replay all the scenes, but this time with the audience being invited to intervene, to suggest things that this hypothetical first year student might do differently. This is just one of the many ways we try to take a student-focused and fun approach to transition.”

Another key initiative is the Competency in Written English Project, spearheaded by Jane Simpson in Linguistics with assistance from the Learning Centre. Working in large first year units of study, Jarkey says that students often need support to develop their academic literacies within their disciplinary contexts. “This project is about making the disciplinary specific aca-
demic literacies, like research and writing, more explicit to students. We do diagnostic testing and, through Teaching Improvement Fund money, we're beginning to develop a set of resources to support tutors' work with students. What's really good about the development of resources is that they can be used to support all students, as well as to plan the next iteration of the particular unit of study. In areas such as Linguistics, Asian Studies and History, we've now built up a range of materials that specifically address the academic needs of first year students within their units of study."

Jarkey says that the Faculty has taken a 'multi-pronged' approach to enhancing the first year learning experience, using these and a whole range of other initiatives. "We've been able to develop strategies to address the broader issues of identity and belonging at a range of different levels. At a faculty level, our strategic plan very much sets out our agenda; our work on the Transition and Mentoring Program, and the Competency in Written English Project really tries to get at both the social and academic integration in first year; we've worked really hard to try and develop clear unit of study outlines so that students know what is expected of them; this semester we've begun an exciting program to support tutor development, and then there are several smaller pedagogical projects, such as using small groups in online teaching, that address more specific teaching and learning contexts. So, the Faculty is working incredibly hard."

And Arts students seem to be noticing that change has been taking place. According to Jarkey, there are small improvements in the faculty's unit of study evaluation (USE) ratings and student course experience questionnaire (SCEQ) scales. "All these initiatives are still very much 'works-in-progress'. Certainly, students in our programs tell us that they are now able to identify their cohort earlier and with more ease. They also tell us things like they have a ready-made set of friends if they've been to the Transition Workshop, which is great too, but the challenge will be to capture all students not just those who elect to participate in our programs. The work we are currently doing with tutors will become increasingly important because it has the potential to reach all students."

Jarkey also mentions that these initiatives are the result of a collegial and collaborative spirit amongst staff and students in the Faculty. "I'm absolutely delighted that through this role I've been able to really broaden my sense of being part of a community and I'm particularly indebted to the Faculty Teaching and Learning Committee, the Dean, and many others for that. It's particularly important that our staff are involved and consulted with as these changes take place."

So, what, according to Jarkey, is the Faculty's next challenge? "The change to 6 credit points is a challenge, but an exciting opportunity for us to look at the nature of the BA degree. It's a chance for us to ask questions about what the appropriate outcomes for our students are, and what support is required for students to achieve them. Handling the nuts and bolts of this change is a really big job but sorting out what we want graduates to be, know, understand and be able to do is crucial to the core of every degree program. It's part of humanising the degree and instilling a sense of pride in being a student in the Faculty of Arts.

Nerida Jarkey spoke with Tai Peseta of the ITL. For further conversation with Nerida about initiatives in the Faculty of Arts, visit the online discussion forum at: www.itl.usyd.edu.au/synergy/forum or email at: Nerida.Jarkey@arts.usyd.edu.au

---

**Synergy** 10
This article was originally written in 2003, while I was enrolled in the Graduate Certificate in Higher Education at this University. During this time I seemed to sense a feeling from some of the discussions and the educational literature that: a) research and scholarship in teaching is somehow different from traditional research; and b) research and scholarship in teaching is undervalued and misunderstood. This feeling has led to the following question: Should I invest time in becoming a scholar in teaching and will this also benefit my overall research? The article is written from my own personal (academic) perspective as a researcher feeling burdened by teaching duties. Considering the diversity in definitions of scholarship, I will, for the purpose of this article, use Elton’s definition (2001:p45): “a deep understanding of what is currently known in a discipline and which illuminates both research and teaching”. Reading this, I am not sure I have achieved ‘scholarship’ within my own discipline.

To stay within some of the tradition of articles in Higher Education journals, this article is set-up as a dialogue, initially between two friends from the forest: Mrs. Stork; the educational expert; and Mr. Willem Beaver, the stream hydrologist, who lives with his brother Ed (the engineer) in the nearby Beaver pond. Later on several other inhabitants of the forest appear. First there is Zoef de Haas (or Zippy, pronounce ‘Zoef’ as Zoof, as in Moose, a somewhat pea-brained, fast moving bypasser, then there are a couple of rowdy geese and finally, there is some interaction with Myrtle Moose, the philosopher of the forest.

A quiet afternoon in the Forest ('Arcadia')
Willem Beaver and Mrs. Stork are enjoying a quiet cuppa at the edge of the stream. Willem Beaver has been visiting Mrs. Stork, since he is having problems with the delivery of hydrological concepts to the little Beavers.

W. BEAVER: Last semester’s work with you has really improved my teaching, but I wish I had more time to actually work on my teaching. I really have to start doing research again.

MRS. STORK: Does this mean you consider research to be different from teaching? Have you thought of using research in teaching as a form of research you could undertake?

W. BEAVER:??

MRS. STORK: For example, you could research how your changes in teaching have affected the understanding of hydrology of your students.

W. BEAVER: That does not sound like real research to me. I have read some of the literature in teaching and I find it longwinded and woolly. Nah, nothing for me, it has no real numbers in it. I don’t understand how that stuff gets published.

MRS. STORK: But that is because education research is different to your ‘research’. We use different techniques, which are well accepted within the discipline. It is typical for someone like you from a science discipline not to value our research and only value what you call ‘real research’, which has numbers.

They bicker on for a while, arguing for and against using statistics and numbers and repeatable experiments and getting further and further off track.

W. BEAVER: Well, if I say a Stork has two legs, than that can be observed, and can be verified and therefore that is real research.

MRS. STORK: But you should know from philosophy of science that such a Popperite view of the world does not take into account that some Storks might actually have one or three legs. If you would observe a stork with one leg pulled up, and you might not see the other leg. Does that disqualify this animal as a Stork? Observations always have a value in it.

ZOEF DE H (passing by): What is going on here, such a ruckus, you have startled me!

MRS. STORK: Oh, it is just the typical situation: we get in these endless discussions about what constitutes research and scholarship. The only thing I am trying to say is that the scholarship of teaching is as valuable as what Willem considers ‘real’ scholarship and which Boyer (1990) would call scholarship of discovery.

After they have explained to Zoef what scholarship means (which takes a while) Zoef gathers up his confidence:

ZOEF DE H: Now what does Boyer actually say that does not seem to make sense?
MRS. STORK: Well he points out that there are four classes of scholarship (Brew, 2003) - the scholarship of discovery, which is closest to the idea of research; scholarship of integration, which deals with cross-disciplinary connections; scholarship of application, which deals with the application of knowledge to issues; and finally, scholarship of teaching, which deals with the planning, evaluation and application of teaching.

W. BEAVER: See, there you go, even Boyer says it is different from ‘real research’, what did I tell you?

MRS. STORK: Well yes, it is different, but it is equal, and that is the problem. It never seems to be considered equal in society. As soon as something is ‘scientific’ it is considered to be more valuable than something ‘educational’.

ZOEF DE H: But why is it placed outside the other categories? Doesn’t that create the problem in itself? Isn’t scholarship in teaching also scholarship of discovery?

MRS. STORK: Some argue, it actually is all three of the above.

ZOEF DE H: So, why is it placed outside the other categories? I don’t get it.

W. BEAVER: It suddenly dawns on me that it probably isn’t different and should therefore not be apart.

MRS. STORK. (after some thought): O.K. I am willing to go along with that but you still are not willing to engage in research in teaching, and as such in scholarship of teaching.

W. BEAVER: I am a Hydrologist. If I would have wanted to be a scholar in teaching I would have studied Education, and then I would have valued educational research higher. You should be happy that I am showing interest in your subject. And to counter your remark: you are not really valuing scholarship in Hydrology.

MRS. STORK: But scholarship in teaching is very useful for you as a hydrologist, considering the problems you are having in teaching the young beavers.

W. BEAVER: How do you know Hydrology is not useful to you?

ZOEF DE H (seeing that this is getting out of hand): I also believe it should not be a distinct category. Clearly scholarship in teaching is just as much about discovery, integration and application as scholarship into History, Psychology and Physics. So this leaves only the perception that it is valued differently by people in other disciplines.

W. BEAVER: I don’t see a problem there. Of course it is valued differently by hydrologists, because we are interested in Hydrology. That is what we are good at so we would value it highest. I just hear the whining of a spoiled child if I hear complaining about the under-valuing of scholarship in teaching.

MRS. STORK: See, you don’t value scholarship in teaching!

W. BEAVER: Rubbish! Of course I value it. Why would I otherwise be talking to you? Do you value research in Hydrology?

MRS. STORK (choosing to ignore the last question, turns to Zoef): The problem is that in society research in teaching is not valued as much as say, research in Medicine.

ZOEF DE H: Could it be because health affects us more personally? I mean, is research in Hydrology valued as much as Medicine?

W. BEAVER: I would think not. I have always said that if someone would die due to lack of hydrological research than we would get a lot more funding. It seems to me that there is always a difference in how research is perceived. My work in Environmental Hydrology has only recently achieved a little attention even though environmentalists have banged their heads against the wall for decades. Maybe the educational specialists need to do this too. Things like the Environment or Education will never be valued as much as Health, because it does not affect you directly.

ZOEF DE H: What you seem to be saying again is that anything that affects us directly is valued highest. This is true for your own preference for hydrology, Mrs. Stork’s preference for education and my own preference for carrots. This seems to suggest to me that what we are talking about is a perception of value.

W. BEAVER: I can agree with that.

Mrs. Stork mumbles on a bit, but realises there is little progress to be made with these two.

Dissent

Willem Beaver is feeling quite good about himself after, what he believes is a definite argument on why he can devote most of his time on hydrological research and ignore research in teaching. Basically the argument goes like this: you concentrate on what you are good at, and do the best you can with the rest, given available time. After breakfast the next day he sets out for a walk along the stream to ponder his next research project. Just when he starts thinking about a young sapling for morning tea, he meets a couple of geese standing around complaining to each other (as Geese tend to do).
W. BEAVER: What... oh... What? Well... it is not that easy. It is a complex system in which different factors and stakeholders need to be taken into account. There is flood mitigation, environmental flow requirements, irrigation water supply, water for drinking, washing and grooming, recreational values, fishing, living, swimming, etc.... etc... You can't expect me to come up with a quick answer to all of those problems.

W. BEAVER: But you don’t understand what we are trying to do. Such decisions have to be based on careful and well-designed experiments that give us conclusive results. How do we compare and quantify effects before and after larger releases? What about uncertainties in the calculations? Maybe we will have an enormous down-pour tomorrow and then I will be blamed for floods and the loss of valuables, such as nests and eggs.

W. BEAVER: I am sorry Myrtle. (The Moose’s name was Myrtle) I didn’t see you there, I must have been thinking.

MYRTLE MOOSE: Thinking is gooood, …… Thinking is gooood.

Moos spend an awful lot of time thinking and pondering while they stand in lakes and streams ruminating. “They’ve got brain, others just have grey fluff blown between their ears” (Milne, 1994:133)

MYRTLE MOOSE: I heard you had a bit of a debate on Research in Teaching and Learning the other day (News travels fast down-stream).

W. BEAVER: Well, that’s probably an understatement. I felt quite strongly about certain things, and felt these needed to be aired. However, right now, I am not so sure anymore.

MYRTLE MOOSE: It seems to me that the main issue is your personal perception of time pressure. How do you divide yourself between quality teaching and quality research? In the end it is an issue of learning. Attending to student learning limits your personal learning in Hydrology, but aren’t you both learning the same subject? I think this is one of the questions Rowland (2000) points out, and isn’t that part of the definition of scholarship of teaching (Brew, 2003).

W. BEAVER: I find Rowland (2000) a bit of a bore. On the one hand he talks about integration of teaching and research but on the other hand his view of research keeps coming back to doing more educational research. I think what I am seeking to improve teaching through doing better hydrological research. This might be a professional deformation but I find it harder to marry scholarly inquiry into teaching with hydrological research than if I worked in ‘softer’ areas such as Arts or Education. It is true that teaching some of the basics helps me better understand my own research. But my research goes well beyond the basics in an undergraduate degree, and at some point I still need to learn. Teaching in the form of post-graduate supervision, or even honours supervision is relevant to research. But it beats me how first or second year teaching can be helpful after an initial increase in personal basic knowledge has been achieved.

MYRTLE MOOSE: But you could teach them more relevant issues - issues related to more topical questions. Would this not...
improve your research questions, or be more efficient. And aren’t we all about research-led teaching?

W. BEAVER: It does improve the general information that I need for writing proposals or developing new research ideas and this is more efficient. However I have to spend time on learning hydrology myself. I don’t see how it is possible to explain this higher level of hydrology to undergraduates without having taught the basics. I mean, in the end I don’t think I can expect the average student to learn the basics by themselves, which I have spent several years on. That would almost be going back to lecturing in its oldest form: I tell the student what I think is interesting and I leave it up to the student to be up to speed with the basics. I don’t think that is the meaning of research-led teaching. To answer the real research questions I need all the knowledge I have and have to learn new knowledge at a rapid pace and there is little of that knowledge which is at undergraduate level. Regarding research-led teaching, in the first and second year level, I talk about research in general terms to try and make them see where the problems are. In third and fourth year we can work on real questions, but I still think you first have to help them understand the fundamentals.

MYRTLE MOOSE: O.K., so there are two issues here which need to be resolved simultaneously. The first is how to improve students’ understanding in undergraduate hydrology by better teaching. The second is how to efficiently work on hydrological research, while still improving teaching. So what we are looking for is an optimisation scheme to optimise both. It might also be about the connection between the teaching and the research: where do they actually overlap?

W. BEAVER: I think your optimisation is not possible given the major difference in teaching and research material. As said, I think the connection is in the basics and I can give examples, but in the end, it is very difficult to bring the first and second year students in the area of my learning. Challenging fundamentals (Rowland, 2000) is fine but a lot of the basic hydrology is about measurement and prediction and these are based on knowledge of physics and mathematics. It is therefore mostly about the application of basic science and there is little use in challenging fundamentals at that point, because we do not talk about fundamentals. We could only challenge the validity of the assumptions.

MYRTLE MOOSE: This still seems like a very teacher-centric view: You decide what you believe is good for the student to learn. Maybe if you try to discover the issue from the other side you can make them overlap more.

W. BEAVER: That is something I can keep thinking about. Have a good day!"

W. BEAVER: A good day to you as well!

And with that, they both went on their way. Myrtle downstream to look for new tasty bits, and Willem, deeply in thought - upstream.
2. I write therefore I reflect

Intermezzo
Most articles on the interaction between teaching and research have been written by academics for which education is the subject of their teaching and their research. I have not yet come across a paper, on the same subject, written by someone who is wholeheartedly committed to research in a Science area. This paper probably does not fill this void. Up to this point, Willem Beaver’s behaviour might be compared to the classic model of the relationship between teaching and research in which the two constantly pull away from each other (Brew, 2003). But the relationship between teaching and research is more complex and should be further developed.

A letter arrives
It was on a fine day, about two weeks later, that Mrs. Stork received a letter from Willem Beaver. She was quite surprised but also somewhat relieved by this fact. The last meeting with Willem Beaver and Zoef the Hare had left her somewhat unfulfilled. She admitted readily that there were differences in opinion about how research and scholarship in teaching should be valued but she did feel that her main message had gotten across - it is important to spend some time on scholarship of teaching as this might improve some of your research work. She had however worried about the fact that she had not had any contact with Willem since that day. She had spoken to Zoef about it but he had been in a hurry (as is often the case). Also, Zoef had an even different interpretation of the conversation. He felt that he had been the major mediator in the process and supported both parties to rethink some of their securities; clearly everything wasn’t always what it seemed. (“Sometimes it [a woozle] is, and sometimes it isn’t” (Milne, 1994:37).

But on the day that Mrs. Stork received the letter, she looked at it and waited some time before she opened it. It wasn’t that she was worried about its contents. She was quite convinced that Willem was a gentleman, and besides, they had parted quite amenable. Mrs. Stork didn’t receive that many letters. The idea that someone had actually taken the time to write to her pleased her and she wanted that feeling to last a while. She also liked the suspense of an unopened letter. Once it was open and read, the suspense was gone. So she placed the letter on the table and looked at it. Sitting in her chair, she tried to guess what Willem would want to write to her about. It clearly would be about research in teaching and learning, and possibly the letter was going to reiterate his earlier remarks. Repeating his remarks did not seem very logical, considering his complaints about being too busy. Why would he bother writing a letter if she already knew his views from their conversation two weeks ago? This meant that it had to be something new and important. But if that was the case, why had he not come over to talk to her? He only lived a little way down stream. Was it because he felt that she was not listening to his remarks? Was she listening to his side of the story? There she sat, wondering about this and that, not knowing exactly what to expect, and in the end starting to feel somewhat insecure. She recalled something she read in Rowland (2000) - that insecurity is often a good starting point for developing different thoughts.

It is of course well known that each person brings their own background to the negotiations. Mrs. Stork could see that they might have stayed at that point if they had not managed to discover a shared context. On the other hand, Willem had offered some shared context: “I do value research in teaching!” But what had been her contribution? From her perspective, research and teaching fitted well together - but could that be an education-centred view? By this time curiosity had won out, and she opened Willem’s letter.

The letter
Dear Mrs. Stork,
I am generally not a letter writing person, but Rowland (2000) suggests writing as a means of reflection so I decided that it was worth a try. Of course I will not immediately try my hand at prose, so I thought I would start with a simple letter. For the last two weeks, I’ve been thinking about our discussion and I seem to have moved in different directions. I have followed up some of your suggested reading and had some discussions with different academics in the forest - Mr. Owl, the historian, my brother Ed, and Myrtle Moose. In addition, I have given a few more lectures and this has given me some further insight. Besides, it is a rainy evening and I am stuck in the beaver dam waiting to see if it will hold. I have decided to make a small overflow in the dam to let more water through and I hope I have got the design right. If I haven’t, than this letter might never reach you.

Teaching and all that
Hydrological research is close to my heart because, as I pointed out the other day, it is why I decided to seek a career as an academic. I admit that this might be a limited view of academia, since in its purest form, it is as much about teach-
ing as it is about research. This limited view might be more common in the Science area since most of the academics rise from the ranks of lonely postgraduate student, through to postdoctoral or research fellow level and then become a lecturer. In many cases, the first two steps in academia are purely research-oriented (in fact we sometimes get complaints from the “research only” ranks if we ask them to teach). In Rowland’s (2000) terms, the personal context was quite skewed when I entered at the lecturer level. Some academics get enthused by new phenomena and so they happily engage in scholarly inquiry into teaching and spend many of their waking hours thinking or living teaching. But most academics in the sciences tend to stay with their first love, which is research.

I don’t think the issue is that I do not understand that I can improve my teaching and that I would not want to teach well. In fact it frustrates me madly that teaching is not as easy as I thought it was. Just as in research, I like to do things well, and in teaching and it just does not work that way. But we are frustrated that there is little time for both teaching and research, and we tend to see teaching therefore as a chore. Clearly we are making decisions in terms of time. The evolution of the survival instinct in our species tends to put strong emphasis on the short term and on loud signals. (“I have learnt that it is not what you say, but how often you repeat it.” (D.E. Radcliffe, pers. comm). Such loud signals tend to drown out the more subtle and long-term messages - similar to life in a lecture theatre. The loud signals can, at some point, become so annoying that you need a holiday.

In academia, most of the short-term and loud signals come from administration and teaching duties. I think this is due to their rigid schedule and progress related to the semester system. On the other hand research has a much softer signature, except when the reporting time comes up. I constantly find myself looking at my list of ‘things-to-do’ and say: “If I can finish that and that, than I will have some time for research.” This longing, almost craving, for a few hours of research time only reinforces my resentment to spend again another hour on teaching, reflection on teaching or anything related to it, however scholarly it is being sold to us.

This is all good and well but this only gives me some time to air my frustrations. The question really is: How do we integrate teaching and research better? In a recent paper (Brew, 2003) Angela Brew conceptualises a new model for the relationship between teaching and research. In this model the academic community (which includes Boyer’s (1990) four forms of scholarship) drives student learning and teaching and through this drives conceptions of research. This means that: “what [we] understand research and scholarship to be are key influences on how we conceptualise the nature of student learning” (Brew, 2003:12). Teaching and research totally overlap and feed on each other, which seems highly idealistic.

(From a research-led teaching perspective, I would actually think the model should start at our conceptions of research). However, I was inspired by her model and tried to draw my own perception and understanding of the interaction of teaching and research.

Within all of these circles consists a force field, which I think the Physicists might be able to tell you more about. In general, research is still a different activity from teaching; even research in teaching (education) is different from the actual act of teaching. Similarly, administration is separate. Of course, there is a clear overlap in all of these, marking and markers meetings can be considered teaching and administration and writing a research report can be considered an act of administration. This means that the circles are never disconnected. The boundaries on all three activities are the Institution and the Society. Each impacts on the individual academic in conflicting ways - in terms of demands on each of our three activities. Some might argue that there are even more circles, such as professional activities and student supervision. I feel that both of these are actually included within the other circles. In fact, I might even be so bold to exclude the administration circle, since it is always in some way related to the other two. The optimisation we strive for is then located in increasing the overlap between Teaching and Research, which is possible (to a certain extent), as M. Moose talked about. In particular, methods such as Problem Based Learning can help integrate some of the teaching and research. These techniques draw on the use of real life problems as a way of focusing teaching and to instil a sense of research in the students. This can definitely improve teaching activities and as such deliver gain in time, after some initial time.
investment. But how far can we make the two rings overlap?

Let me talk a little about research now since most of the focus has been on how to change our teaching. Can we change our research to suit our teaching better while being academically recognized in our preferred area of research? There are again several limitations, mostly related to funding. In order to get funding in your favourite area of research, you need to have done at least some research in this area, which means a time investment and learning in this area. Some of the teaching is not really in our research area, even though it is relevant for students who are interested in a broader overview of the subject.

After pondering this further, I can now focus my Figure 1 in more detail to explore where I think teaching and research overlap. You’ll notice that I’ve continued to ignore the administration component:

In Figure 2, I have tried to highlight where the possibilities of overlap lie in terms of teaching and research. These possibilities lie mainly in the area of conceptual, theoretical or investigative problems. Those are the areas where we can develop new ideas and question ideas that exist. It reminds me both of the ‘journey’ and perhaps even the ‘layer’ conceptions of research in Brew (2003). I think this is also aligned with what Rowland (2000) identifies as the shared context. Problem Based Learning lies in this area. In research however, there are areas that cannot easily be aligned with teaching. For me, these are collecting of data, publishing, developing meaning and interpretation of data, and in the area of applied research. In these areas there is little connection with the act of teaching, even though problems or components might be used as examples in teaching, or students might be engaged in components of these activities. There is always a need to actually collect data and produce something. We do not all sit behind our desks and think. Cutting edge science in terms of technology development might also be positioned here.

The area of applied research is really a problem. Here we are asked by society to deliver outcomes, integrate concepts and to discover new outcomes. This reminds me of Brew’s (2003) ‘trading’ and ‘domino’ conceptions of research. However, it is exactly this area that in the Sciences tradition, seems to be most heavily funded, because society currently demands solutions to problems (Fig. 1). It means however that research is being pushed away from the overlap with teaching, partly due to the pressure to deliver outcomes. On the other hand, a very applied area of research might also allow a better combination of teaching and research because the difference between the two cannot be clearly distinguished and the research can be used as case studies in teaching.

On the other side of the spectrum, there are sections of teaching that have little to do with research but are integral to the teaching program. These are topics related to generic skills, basics in the field of study, technical components of the field and summarising material in the degree. Although components of these are used in research, the teaching of those subjects does not help us with the doing of research. This might be the non-exciting component of teaching that Rowland (2000:121) talks about.

There are two other dimensions to this: What does the student actually want to learn (Elton, 2001) and what do we actually want the student to achieve (i.e. degree outcomes and generic attributes). A discussion of these two issues would make this letter too long. Besides the rain has cleared, the dam has held, and I think my thoughts have been cleaned by the water washing some of them away. The water must have carried them downstream for Myrtle to pick up. I think this might be a new start.

Kindest regards, by moonlight, Willem Beaver

Mrs. Stork sighed and put down the letter, the air coming in from the window felt fresh and clear. It was time for a new start.

References


Acknowledgements
I am deeply indebted to all the 2003 participants in the Graduate Certificate in Higher Education at the University of Sydney, and to the able and confident lecturers, Kim McShane and Angela Brew. Of this group, special thanks to Sandra van der Laan for alerting me to the dialogue style. The style also stays within the Science tradition with the dialogues between Achilles and the Tortoise from the mathematician Lewis Carroll and artificial intelligence explorer Douglas Hofstadter. I also want to acknowledge the Dutch Children's program, 'De Fabeltjeskrant', for the choice of characters. Special thanks also to Tai Peseta for encouragement, critical advice and persistence to publish this paper.

The Faculty of Agriculture and the University of Sydney have been my workplace since 1999, when I first arrived to take up a job as post-doctoral researcher. Before that time I had finished a PhD in Soil Physics and an undergraduate degree in Land and Water engineering. Since late 2000, I have been employed as the McCaughey Lecturer Hydrology and Catchment Management and been responsible for developing a teaching and research program in this area. Between 2000 and 2003, I have been responsible for the development and coordination of 3 new units of study. On the one hand this has been a blessing; I have been able to really develop units of study, since nothing existed in this area. But it probably has also led to the realisation that I should improve on my teaching and better understand student learning. Luckily my teaching load has been lessened a bit this year. I completed the Graduate Certificate in Higher Education in 2003, and really enjoyed interacting with fellow staff members on issues of teaching and learning. I have been particularly interested in the relationship between teaching and research and the development problem based learning in units. I am currently using problem-based learning in two of the units that I teach, and am keen to evaluate its effectiveness.

If you would like to talk with Willem about his article, visit the online discussion forum at: www.itl.usyd.edu.au/synergy/forum or contact him via email at: w.veroort@acss.usyd.edu.au


In Teaching with Integrity, Bruce Macfarlane considers the ethical dilemmas embedded in the every-day practices and contexts of university teaching. He casts a critical eye over the conceptual frameworks now being brought to bear on the work of teaching – the impact of massification; the turn to professionalism and ongoing professional development; the erosion of autonomy, together with the limits of reflective practice. Even as the student learning perspective comes to the fore in universities, these critiques form part of what Macfarlane identifies as the ‘pedagogic gap’. He argues that being a university teacher requires more than mastery of a set of skills or competencies, more than learning about how to facilitate discussion, use technology or assess student projects. In fact, he makes a case for situating teaching and learning development work within the study of and about higher education itself. In this context, university teachers ought not to shy away from the ethical and values-based dilemmas of academic professionalism.

Clearly, there are echoes here of Ronald Barnett’s work, particularly his seminal publication ‘The Idea of Higher Education (1990)’. But Macfarlane is much more practical in his approach. The book features a number of vignettes designed to showcase his concern for the integrity of teaching. There is the tutor who worries about the effect of an inappropriate comment in a tutorial; the lecturer who has reluctantly agreed to teach a module outside her research area; the academic who has to make decisions about essays that seem too similar; a Head of Department who is required to address student complaints about a colleague; and an established Professor who is being encouraged to embrace ‘innovative’ teaching and learning methods. These are the teaching and learning dilemmas (evaluation, assessment, managing student learning, balancing research and teaching) that academics face constantly in their work. And the list of course is exhaustive. But with each of these vignettes, Macfarlane encourages university teachers to see beyond the policy and procedural structures. He urges us to see the values in our teaching. He puts forward a set of virtues to support academics in grappling with their teaching responsibilities. Some of these include respectfulness, sensitivity and courage, and in this sense, Macfarlane’s book contains important lessons for the university community as a whole. TP.
projects

Internationalisation, Global Citizenship and Inclusivity Project

The ITL has always aimed to support an inclusive teaching and learning community. In the era of globalisation and internationalisation we have defined that community in the broadest terms - international, national and local. We have adopted certain principles to guide us in how we conceptualise and approach the task of preparing our students for a globalised world:

Philosophy

• We support the University in its goal of becoming an internationalised institution with global networks in the spheres of research, teaching and learning.

• We value the rich cultural diversity of our student body and work to foster inclusive teaching and learning practices in relation to cultural difference.

• We work with staff to develop internationalised and intercultural curricula in response to the global and local diversity represented by both staff and students.

• We work to develop attributes of global citizenship among all our students so they may contribute fully to society as members of local, national and global communities.

• We acknowledge the special place of Indigenous knowledges and perspectives in our academic community.

The Project

In the last few years we have been working on what we formally call a Global Citizenship, Internationalisation and Inclusivity Project. The project operates in a variety of ways and on a number of levels, including institutional research; university-wide teaching and learning events and initiatives; and an integrated approach to the inclusion of international and intercultural perspectives and practices into other ITL strategic projects. The University has recently had a particular focus on the issue of internationalisation, as evidenced by An International University, the September 2003 Report of the Committee to Review Internationalisation (www.usyd.edu.au/about/profile/pub/internationalisation.doc). However, as the principles above make clear, the ITL regards other, related issues as equally important. In the ITL's own report Diversity and Inclusive Teaching (November 2003) (www.itl.usyd.edu.au/diversity/itl_diversityreport.pdf) we draw upon our own and other institutional research to support this broader focus.

In suggesting ways of achieving more inclusive teaching and learning, students' views were central, alongside the perspectives of staff. The appendices to the report contain a wealth of teaching and learning strategies from our own University community. We welcome feedback on our new project and encourage you to visit the website at: http://www.itl.usyd.edu.au/diversity

For further information contact the Project Coordinator, Dr Christine Asmar on: C.Asmar@itl.usyd.edu.au

Research-led Teaching (RLT)

Mike Prosser and Angela Brew recently returned from an international colloquium on research-led teaching in the UK. The colloquium - Research and Teaching: Closing the Divide attracted the world's leading scholars in this area. Angela presented the work of the University of Sydney in an institutional case study about bringing research and teaching together. The ITL would like to thank and acknowledge the members of the Research-led Teaching Working Group. Find out more about the University's RLT Project at: http://www.itl.usyd.edu.au/rlt or download the papers from the colloquium at: http://www.solent.ac.uk/rtconference

research


are you using online technology in your courses or units of study?

This easy to follow checklist was compiled in the context of the University’s Information and Communications Technologies (ICT) and Internationalisation, Global Citizenship and Inclusivity Project. The ICT project aims to support staff using technologies in their teaching and learning, but most of the checklist is equally applicable to other teaching contexts:

In planning the unit, ask yourself, have I:

- established ‘ground rules’ or ‘netiquette’ for how students will address each other in online discussions?
- modelled inclusive approaches myself in how I communicate with students?
- used Plain English in all my instructions?
- avoided unnecessary jargon, slang and idiom?
- provided paraphrases or glossaries for essential technical terms?
- been very clear about what students are expected/required to do?
- avoided cultural stereotyping (eg referring to all engineers as Bob or John)?
- avoided culture-specific jokes and anecdotes?
- used international/ inter-cultural examples where possible?
- allowed self-paced learning for those who need more time with the material?
- thought about the cultural composition of groups?
- been flexible on deadlines if students have pressing cultural or religious commitments (eg Indigenous students attending funerals; Muslims fasting in Ramadan)?
- encouraged students to share, and respect, diverse views (peer learning)?
- allowed students to negotiate?
- assignments appropriate to their backgrounds and relevant to their careers?
- helped students reflect on, and develop, attributes of global citizens?
- taken into account the variety of students’ technology skills (eg experience with platforms, packages, providers)?
- thought about equity issues in terms of students with disabilities; limited access to computers; or limited funds for downloading and printing, limited visual access?

You can also access other teaching and learning tips on:

- Orienting students to University Life
- Communicating Expectations
- Giving Feedback
- Encouraging Academic Honesty

Lifelong learning features prominently in the University’s new framework for Generic Graduate Attributes, along with scholarship and global citizenship. The ability to self-regulate is a key aspect of lifelong learning (Blumberg, 2000; Denton, et al 2000; Dolmans & Schmidt, 1996; Schutz & Davis, 2000). Successful self-regulated learners are able to:

- Decide what knowledge and skills to learn
- Diagnose learning needs realistically, with help from faculty and peers
- Relate to teachers as facilitators, helpers, or consultants and take the initiative in making use of their resources
- Identify human and material resources appropriate to different kinds of learning objectives
- Select effective strategies skillfully and with initiative
- Evaluate their own work and get feedback from others about progress
- Detect and cope with personal blocks to learning
- Renew motivation for learning when motivation lags (Knowles, 1975; Zimmerman & Martinez-Pons, 1986)

The development of self-regulated learning (SRL) abilities has been a core objective of the University of Sydney Medical Program since its inception in 1997. Problem Based Learning (PBL) is the educational approach used to achieve this. While there is considerable evidence that PBL influences the development of these abilities (Albanese & Mitchell, 1993; Evensen & Hmelo, 2000), few studies have looked systematically and in depth at how this development occurs. Additionally, in the current climate of educational accountability, it is important to show that students are developing the attributes that the program is setting out to achieve.

The research study
We wanted to explore the extent to which students are developing their SRL abilities in the first year of the Medical Program. We observed three PBL groups during the Cardiovascular Sciences Block at the end of Year 1 for evidence of developing SRL behaviours. Each group comprises 8-9 students and a tutor. All groups explore the same PBL cases in the same order - a new one each week for the duration of the 6-week Block. To standardize our observations, a schedule based on an extensive literature review was developed and tested in the weeks prior to the study. This was also used as a training exercise for inter-rater reliability. We were looking for evidence of a range of SRL behaviours by students, including: making a comment/proposing an idea/providing an insight; asking a question; reflecting/self-evaluating; seeking further information.

What did we find?
To date, we have analysed the observation data from just one of the PBL groups (see Appendix 1 sample extract), but preliminary data from the other two groups indicates similar patterns of student behaviour. Figure 1 indicates that ‘comment/idea/insight’ was the most common interaction observed. This included students contributing knowledge to the group, relating anecdotes from their previous PBL cases or from their clinical experiences, and suggesting possible hypotheses about the PBL case presentation. Figure 1 also shows that the frequency of all behaviours (except reflection/self-evaluation) increased between weeks 2 and 6 of the Block. Figure 2 shows an increase in frequency with which resources such as textbooks were used during the tutorial. These increases may be explained by students’ developing knowledge and familiarity with cardiovascular science concepts; combined with the increasing difficulty of the PBL cases across the Block.

Statements indicating reflection and self-evaluation (e.g. admitting to not understanding something or summarising the groups knowledge to date) were limited in both cases. The low frequency of this...
category might be due to students not feeling comfortable reflecting aloud to the group or believing it is the role of the tutor to summarise and evaluate. Clearly, this is a skill that needs further development among the second year students in this pilot study. Another reason for the low frequency might be due to the interaction of the group and the dialogue. In all interactions observed, discussion of content knowledge dominated and the interaction amongst group members was so fast paced that time for reflection and self-evaluation appeared limited. This is something that a tutor could facilitate and model to help improve and develop this self-regulatory skill amongst students.

An important factor in the PBL process is the nature and extent of tutor intervention. Table 1 shows that compared with student interaction, the tutor prompts were few in number. The data also appears to support the notion of an inverse relationship existing between tutor intervention and SRL behaviour - the fewer the tutor prompts, the more SRL behaviours are likely to be exhibited by students. Analysis of the data from the remaining two groups will shed further light on this proposition.

The tutor of this particular group was actively following the discussion and only intervened when students were digressing or having difficulties. As Hadwin (1996) observes, knowing what to ask, when to ask it and when to share expertise is the foundation of effective facilitation for self-regulated learning. This tutor also asked strategic questions to prompt reflection on, and analysis of, learning processes.

Concluding remarks
The results of this pilot study are encouraging. The ‘snapshot’ that we took of tutorial process indicates that our students appear to be developing the SRL abilities that are required for successful lifelong learning. We acknowledge though, that some indicators of self regulation were not included in this study - students’ study habits, and independent learning outside of the PBL tutorial. A future extension of this study method will involve following-up the classroom observations with independent interviews. Although limited in its scope at this stage, our study has demonstrated that a reliable ‘snapshot’ can be taken of students SRL behaviours using a well-constructed observation schedule. As such, it can provide other disciplines with a worthwhile approach to evaluating their students’ development of SRL abilities.

References

Table 1: Frequency of tutor interventions

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Week 2</th>
<th>Week 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comments/prompts</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Questions</td>
<td>10</td>
<td>25</td>
</tr>
</tbody>
</table>

Figure 2: Frequency of resource use


### Appendix 1: Extract of observation data: Group discussion of PBL case issues

#### PBL Case 5.02 "Going downhill" - Block 5 (Cardiovascular Sciences)

**Data Extract**

**PBL Session 2**

<table>
<thead>
<tr>
<th>Issue being discussed</th>
<th>Extract from tutorial observation notes (names changed):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathophysiology of the failing heart</td>
<td>Stage of PBL tutorial process: hypothesis testing and review of learning</td>
</tr>
</tbody>
</table>

**SRL Behaviours**

<table>
<thead>
<tr>
<th>Key:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C = Comment/Idea/Insight;</td>
<td></td>
</tr>
<tr>
<td>Q = Question;</td>
<td></td>
</tr>
<tr>
<td>R = Self-Reflection/evaluation;</td>
<td></td>
</tr>
<tr>
<td>I = Seeking information</td>
<td></td>
</tr>
</tbody>
</table>

Peter (returning to hypotheses) suggested heart failure was asymptomatic and infection was not a cause (C). Soon Lee disagrees with this (C). Susan asks what causes left heart failure (Q). Ron answered pulmonary oedema (C). Joanne said that the right side causes left sided heart failure (C). There was some discussion of whether pulmonary oedema is left or right sided heart failure and is a symptom of right sided heart failure (George, Ron, Peter, Susan) (C). Soon Lee asked is pulmonary oedema the same as pulmonary congestion (Q). Peter answered (C). Ron adds that it is very acute (C).
As academics we often try and direct our students way from surface learning approaches towards deep and engaging strategies. We are overjoyed when our students show command of individual concepts and use them in synergy to produce original work. A superficial approach to learning lies at the other end of the scale, and sadly some students extrapolate beyond surface learning into an academically dishonest approach and resort to cheating in order to gain the assessment marks that they desire. We can think of a student who is reading the instructions for a university assignment for the first time, to be at a fork in the road. At this point, many will consider whether to adopt a surface or even dishonest tactic versus a deep approach. This article describes a set of strategies designed to dissuade students from considering plagiarism in order to complete their assignment. It considers the ways in which a research exercise combining skill and creativity can motivate student engagement with their learning. I will illustrate this with examples from approaches taken during 2003 in BIOL1003 Human Biology, a unit of study with 1300 students.

Assignments Using Novel Research to Drive the Development of Skills and Creativity

In Human Biology, students undertake a piece of original research for an assignment. They write it up as a scientific manuscript that is then marked for the purpose of summative assessment. In this way summative assessment is used to motivate students to learn a new set of skills - writing the manuscript and developing creativity in composing the discussion section (Chudowsky and Pelligrino, 2003). An example of one research project was an investigation into the effects of nasal dilator strips on heartbeat rate after light exercise. Athletes, who want to increase the flow of air through the nose, wear nasal dilator strips to pull out the lateral sides of the nose. 250 student volunteers performed a stepping exercise with and without the nasal strips while other students organized the experiments and recorded data such as heartbeat of the subjects.

Setting an assignment for students that engages them in a novel research investigation and trains them to write a scientific manuscript is a good example of outcome based education. Major and Taylor (2003) point out that giving a student a clear indication of the destination of a learning exercise is a good way to help them map the road to that destination. Showing students how skills learnt during an assignment will help them in later life, builds motivation for the learning exercise. University teachers may wish to outline to students, the real-life applications of research, writing, skill development and creativity for honours and postgraduate study as well as their relevance to industry.

Shifting Focus from Summative to Formative Assessment

After students carry out their research experiments, the next stage is the writing process. The assessment focus now shifts from summative to formative purposes. For example it is a good idea to have the students bring in a draft of their assignment for feedback. This process can identify any major faults in their learning approach. It can also be highly motivating for students to find that there is help and assistance in a challenging learning experience. Cameron et al (2003) propose that complex tasks often require a student to build a “scaffolding” of learning processes. In research, this scaffolding or ‘mind-mapping’ includes linking concepts such as prior research, statistical analysis and discussion in light of the new findings. Formative feedback on the research-based manuscript helps students to see the links between their research and the field more broadly. Many students react very positively to formative assessment and start formulating their own plans for future novel experiments after formative assessment and discussion of their draft manuscripts. When the teacher observes their students linking new skills together as a basis for creative thinking, they know that they have facilitated deep learning.

Academic Dishonesty; the Antithesis of Deep Learning

One of the first steps in supporting students to adopt a deep approach to learning is to think about the design of the assessment task. In our Human Biology unit, the novel research exercise has proven quite successful. But many academics are still shocked to learn that many students plagiarize their university assignments Maslen (2003), and that the problem is one of major proportions in many areas around the globe. In a study of 291 British university science students, Underwood and Szabo (2003) reported that approximately half
the students said that they would be willing plagiarize to avoid failing a unit of study. Authors such as Evans (2000) have noted that about 20 years ago plagiarism was actually hard work and students had to at least take the time and some mental effort to transcribe documents. In contrast, nowadays with a computer and the Internet they can cut and paste in seconds.

In the Faculty of Science, where we have a lot of large classes, often with numbers of students counted in quadruple digits, any attempt to detect plagiarism has been seen in the past as a daunting task. In Human Biology, we came across anecdotal evidence that suggested that prior to 2003, many students were plagiarizing in part or full. My objective in 2003 was to set in place mechanisms that would obliterate any gain by attempted cheating in Human Biology and provide an incentive to honestly engage in the academic work of the assignment.

**Assignments Using Research Preclude Some Forms of Academic Dishonesty**

Plagiarism can be divided into two forms – one, copying text from published work and two, using the work of another student. Using assignments based on new research not only drives deep learning but also eliminates the possibility of plagiarizing from prior work because there is no source to plunder. It is also tempting to speculate that if the students are involved in the study as researchers they will feel some ownership of the project and may feel a stronger involvement in the learning process.

When students are steered into a project that centres on creative work that cannot be copied from prior work there remains the option to copy from other students. The next step in assignment design should tackle this issue. Inter-student plagiarism itself is a category that breaks down into 2 sub-categories, 1) plagiarizing from students from previous years, 2) plagiarizing from current students. Plagiarizing from previous years’ assignments is a well recognized practice and colleges all over the world are known to have libraries of assignments that can be recycled (Underwood and Szabo 2003). Setting an assignment that require a novel synthesis of ideas and is not repeated annually also cuts off the lure of web site paper mills such as “The Evil House of Cheat”, which offer thousands of assignments that students use as fodder for plagiarized work (Scanlon and Neumann 2002). Das (2003) suggests that the best strategies against plagiarism are the ones that prevent the event from occurring, and the strategies that I have described above counter as many types of plagiarism before the event, as is possible.

**Eliminating the Temptation of Inter-student Plagiarism**

In combating academic dishonesty, all that remains after constructing a research based and annually changing assignment is plagiarism between current students. This is an important consideration as there is evidence that academic dishonesty is rife in Australia and there is no reason to suppose that this University is immune. One of the problems with detecting inter-student plagiarism in Human Biology for example is that there are usually over 50 markers each with over 25 assignments to mark. The chances of two students even having the same marker are small and if the plagiarist changes some of the words around or mixes and matches from say 3 other assignments, the chances of detection by conventional means fade to almost nothing.

I decided to use the CopyFind plagiarism detection software (free and downloadable from: (http://plagiarism.phys.virginia.edu/software.html), developed by the University of Virginia, USA to:

- gain objective data on local plagiarism.
- identify students in need of counselling
- act as a deterrent inter-student plagiarism; the only form of plagiarism left in a novel research based assignment.

This is an incredibly powerful application that can be programmed using simple but effective parameters to ignore legitimate levels of similarity between students’ assignments but only detect sections of dishonestly duplicated text.

The Human Biology students were advised in 2003 that they were to hand in both a hard copy of their assignment as well as submitting an electronic copy via the WebCT site. Students were made fully aware that these files would be scanned for plagiarism. A number of instances of plagiarism were detected. The students who plagiarized were interviewed by at least one of a team of 5 academics and the information obtained from these interviews was invaluable in learning what drives students to try and cheat. All students were asked to write a written submission on how they plagiarized the work and their thoughts after some reflection on their actions. The interviews and submissions helped us in discovering some of the factors that contribute to plagiarism and develop our strategies to combat this form of cheating. Two themes of particular interest follow.

**The internet plays a big part in dissemination of material for plagiarism**

I encountered several instances where one student sent an assignment to several friends via e-mail who in turn each sent it on to several of their friends and so on to produce an amplification effect.
Chat networks also play a major role in inter-student cheating where one student coaxes another to cut and paste sections of an assignment into the chat window. Sometimes a student repeats the practice until piece by piece they acquire large sections of work to plagiarize.

**Plagiarism has become an entrenched culture for some students**

Some students told us that there were networks of friends that automatically responded to assignments with plagiaristic behaviour. For some of our students to actually do an assignment themselves was unthinkable and a concept that was entirely foreign to them. This behaviour has also been observed by Underwood and Szabo (2003) who found that 6% of tertiary science students viewed cheating through plagiarism as a “way of life”. A proportion of the dedicated plagiarists in Human Biology did, however, respond in a positive (albeit grudgingly) manner to the anti-plagiarism software. I observed and talked to many students who, before the assignment was due, very vocally voiced their dismay that they would actually have to do an assignment themselves. Nonetheless, they diffidently acquiesced to the new discipline and said that for the first time they would engage in the learning experience.

I hope that many other academics will take up the challenge to design assignments that promote deep learning and close the road that goes around the academic mountain to encourage their students instead to climb to the peak.

**References**


This brief review will discuss how and when students might use mental practice to enhance learning. Hopefully, Synergy readers can use these resources to imagine how such techniques might be adopted to suit their teaching and learning contexts. Suitably sequenced imaginative activities should encourage students to adopt a deeper approach to learning than they might otherwise (Biggs, 1999).

**Mental Practice in Complex Educational Domains**

The term “mental practice” (MP) has been defined as “…the symbolic, covert, mental rehearsal of a task in the absence of actual, overt, physical movement” (Driskell, Copper and Moran, 1994; p.481).

Other terms for MP are mental or covert rehearsal, or imaginary practice. There is a large body of experimental research demonstrating MP of both physical and cognitive skills can enhance learning, compared to a control condition, particularly when:

- the task to be learned has at least some cognitive operations (e.g. planning, comparing and contrasting), as opposed to being purely physical (i.e. MP is of little benefit to weightlifters);

- the learner has had the opportunity to first construct a schema (a long-term memory knowledge structure permitting problem-solving) for the task, before being asked to attempt MP (Driskell et al, 1994).

Recent advances in Cognitive Load Theory (Cooper, Tindall-Ford, Chandler and Sweller, 2001; Ginns, Chandler and Sweller, 2003; Sweller, 2003) have clarified how our knowledge of the mind can be used to incorporate MP effectively into educational activities. If a learner is a complete novice with respect to a task (e.g. using a novel physics problem), then she must construct a schema for solving the problem in long-term memory, by linking new elements of information (from a teacher, textbook, or some other external source) with relevant prior knowledge (held in long-term memory, LTM). Schema construction is an effortful process, taking place in working memory (WM; also known as short-term memory), which is extremely limited in capacity. If a student has barely begun to construct a schema, asking her to mentally practise the task is likely to overload working memory and impede learning. To mentally practice a task, the student would need to retrieve a set of (at this point) unrelated facts and procedures from LTM, hold them all active in WM, as well as imagine the relationships between these elements of information and how certain rules might be used to transform available information to solve a problem. At this point, getting the student to study (read through and understand) the task is more congruent with the goal of schema construction.

Let me give you an example. Worked examples are instructional mechanisms demonstrating the means by which an expert would solve a problem (Atkinson, Derry, Renkl, and Wortham, 2000). Figure 1 is a worked example from high school geometry used by Ginns et al (2003).

**Example (see Figure 1)**

You will have 3 minutes for this task, followed by a similar problem to solve. **Make sure you concentrate on this task**, because you will be given a very similar problem to solve immediately afterwards.

You will now be shown a worked example. You will have 3 minutes to:

- look at the worked example
- read the information carefully and try to understand the information and the steps
- IMAGINE the diagram and the steps needed to solve the problem, without the actual numbers.

---

**Problem - In this diagram, what is the value of Angle B?**

- **Step 1: vertically opposite angles are equal**
  - 80°
  - 60°

- **Step 2:**
  - $B = 80 + 60 = 140°$

---

**Figure 1 - Worked example (Ginns et al, 2003)**
In this experiment, Year 8 students who had prior knowledge of geometry, but not these specific geometry rules, studied or imagined (mentally practised) the worked example for 3 minutes, solved a practice question, then studied or imagined a similar worked example, followed by another practice question. Students in the MP condition solved significantly more transfer problems, and solved them more quickly, than those in the study condition. These results have been replicated with adult learners, with similarly strong results (Leamy & Sweller, in submission).

Once a student has constructed a schema for solving a problem, the time becomes ripe for MP. When such a learner retrieves a schema from LTM into WM, it can be retrieved as a unified whole, rather than as unrelated or only partially related elements of information. As such, the more knowledgeable learner is at much less risk of an overburdened WM if then asked to mentally practise a task. For such a learner, further study of a task is likely to be redundant, as they have already constructed a schema for the task. MP, on the other hand, may act to automate the schema. Automated schemas are easier to retrieve from LTM, and take up fewer mental resources in WM than non-automated or partially-automated schemas. In complex domains such as mathematics and languages, it is often crucial to automate basic skills before attempting to learn more complex notions building on simpler ones. While schema construction may happen relatively quickly, schema automation is a much slower process, often requiring considerable deliberate practice. MP may thus be an effective means of encouraging schema automation.

I encourage readers of Synergy to consider how they might guide students to use their imaginations when learning. In particular, MP of worked examples is a novel approach with considerable promise for enhancing student learning in mathematical, scientific and technical domains. More generally, educational research indicates MP can be effective in higher education and adult education domains as distinct as music (Connolly, 2002; Freymuth, 1999), chemistry (Beasley (1985), and communication skills (Morin & Latham, 2000), counselling (Baker, Johnson, Strout, Kopala & Pricken, 1986; Baker, Scofield, Munston & Clayton, 1983), clinical skills (Rakestraw, Irby & Vontver, 1983), and communication/interpersonal skills (Brown & Latham, 2000; Morin & Latham, 2000). There is, however, presently a relative lack of research indicating how MP might be applied successfully to learning in the humanities and social sciences, with considerable scope for educational researchers to explore such techniques.

References


Dr Paul Ginns is the Survey Officer for the Institute for Teaching and Learning. He is responsible for the design, administration and reporting of the various large scale institutional surveys. These include the Graduate Destination Survey, the Course Experience Questionnaire, and the Postgraduate Research Experience Questionnaire (for graduates of the University), and the Student Course Experience Questionnaire and Student Research Experience Questionnaire (for current undergraduate and postgraduate coursework students). He also manages the administration of the Graduate Skills Assessment Test. Paul’s research interests lie in the application of cognitive psychology to the design of instructional materials, and specifically, how mental practice can enhance learning in realistic educational settings. Some of his recent research is focused on the psychometric characteristics of the various quality assurance and improvement instruments used by the ITL. With Assoc. Prof. Jim Kitay and Assoc. Prof. Mike Prasser, Paul has been researching the factors affecting the transfer of learning back to academic workplaces. He has taught undergraduate and postgraduate courses at the University of NSW in organisational psychology, introductory educational psychology, and instructional design.

You can engage with Paul in a conversation about this article. Visit the online discussion forum at: www.itl.usyd.edu.au/synergy/forum, or email at: P.Ginns@itl.usyd.edu.au
In recent years, the Psychology 1 tutorial/demonstration program has undergone major revision. Whilst previously students had evaluated this program positively, tutoring staff had identified some weaknesses. It was felt that several tutorial/demonstrations and/or related materials needed to be updated or revised, and that the program itself needed to be more forward looking in its approach. This article describes the procedures and outcomes of these revisions, and the responses received from both first year students and teaching staff.

Objectives, Procedures, and Examples of Revision

Current senior tutors were considered the most appropriate staff members to work on these revisions due to their first-hand experience of the existing program, and their familiarity with the teaching content, materials and procedures that work well with Psychology 1 students. In a series of meetings involving them and the course co-ordinators, problematic tutorials/demonstrations were identified, and approaches to improving them were discussed. Smaller groups of tutors were contracted to implement changes for individual tutorial/demonstrations.

The aims of the revision process were to:

- update all material (several tutorial/demonstrations had remained virtually unchanged for many years);
- further stimulate the interest of the students;
- increase students’ engagement with the material by encouraging more extensive critical discussion of issues, incorporating more small group work, and further developing interactive web-based learning tasks;
- place greater emphasis on the practical relevance of the content being taught;
- improve the clarity of the Handbook notes which guide students’ learning during tutorial/demonstration classes.

Several tutorial/demonstrations were completely redesigned either to improve the clarity and mode of content delivery, or to focus the tutorial/demonstration on topics of greater importance and interest to students. For example, the Psychobiology tutorial/demonstration was rewritten to include a class discussion and web-based demonstration on how drugs work. The new tutorial/demonstration put greater emphasis on helping students to understand the fundamental processes involved in neural transmission, and it was more closely aligned with lecture content.

The development of web-based interactive programs was undertaken for several other tutorial/demonstrations. For example, a program written for the Motivation tutorial/demonstration allowed students to view footage of instinctive behaviour in animals, and “drag and drop” exercises were introduced to enhance their engagement with the material.

PowerPoint presentations were developed for many tutorial/demonstrations in order to improve the clarity of teaching. For the Motivation tutorial/demonstration, scenes from a video detailing a famous experiment on instinct/learning, were interspersed with screens of explanatory dot-points. Thus, tutors can now ensure that students have grasped the information necessary for understanding each scene (without having to stop and start a video that students have always found difficult to follow).

Feedback on the Revised Tutorial/Demonstration Program

A number of mechanisms were employed for collecting feedback on the changes to the tutorial program. Firstly, tutors were asked to provide feedback, either by email during the week in which the tutorial/demonstration was being taught (so that immediate adjustments could be made), or in their weekly meetings. Secondly, web-based message boards were available for students and teaching staff to
post comments about the tutorial/demonstration program, along with other aspects of the Psychology 1 course. Finally, students were asked to rate various aspects of the tutorial/demonstration program in formal evaluations conducted at the end of each Semester.

The response to the Psychology 1 tutorial/demonstration changes was very positive. The 2001 tutorial evaluations were excellent, and feedback from tutors (via email, message boards, and meetings) indicated that many of the changes had indeed improved substantially the teaching and learning quality of the program. They felt that the new course content was well received, and that the new class exercises promoted discussion and student involvement. A number of the changes had improved students’ understanding of material they had previously found difficult. Unfortunately, students made little use of the web-based message boards.

Further Refinement of the Revised Tutorial/ Demonstration Program
Following the successful revisions in 2001, tutors identified the need for some minor refinements to the revised program. Again, a working party comprising the course co-ordinators and interested senior tutors was convened and possible changes were discussed. Necessary changes were completed in time for the beginning of the 2002 academic year. One such change was the inclusion of a video in the Introductory tutorial/demonstration to convey necessary administrative information in a more entertaining fashion and to orient students to the School of Psychology in a visual medium. The most significant change was the replacement of the statistics tutorial/demonstration (which was transferred to the web for students to complete in their own time) with a new tutorial/demonstration on Addiction.

The guiding principle behind the Addiction tutorial/demonstration tutorial was to provide a context in which the various threads introduced during Semester 1 are interwoven. Students often find it difficult to identify the relationship between the six areas of psychology to which they are introduced in Semester 1 lectures. Thus, it was decided that the last tutorial/demonstration of Semester 1 should demonstrate how several of these areas approach a single problem. Addiction was chosen as a problem for which several of the areas have offered explanations. It was hoped that this tutorial/demonstration would enable students to integrate and revise the material covered during Semester 1. Again, these changes were well received by students and tutors alike.

Conclusion
Substantial steps have been taken to improve the experience, both academically and socially, of first year Psychology students. Naturally, improvements to any course are an ongoing process, and we aim to keep fine-tuning Psychology 1 into the future.

Gavin Faunce graduated with a PhD in Psychology from the University in December 2000. He has supervised Honours and Graduate Diploma in Science (Psychology) students since 1999. Gavin has also been actively involved in teaching and learning research, having collaborated with A/Prof Dianna Kenny in researching the effect of private coaching on academic performance in high school students. A journal article based on this research has recently been accepted for publication in Journal of Educational Research. He has varied research interests, including anxiety-related cognitive biases, eating disorders and body image, anti-fat attitudes, and health and safety psychology.

Julie Hatfield also has a PhD in Psychology from the University of Sydney. She has been responsible for coordinating the first year tutorial and lecture programs, and has designed and delivered lectures in Senior Psychology: Health Psychology and for the Graduate Diploma: Health Psychology. Julie has supervised numerous fourth year and postgraduate students in conducting research projects in the area of Health Psychology. With Gavin Faunce, she recently submitted a paper to Teaching of Psychology that discusses the need for teachers of psychology to avoid confusion surrounding the phrase “correlation does not imply causation”.

You can engage with others in a conversation about the ideas in this article. Visit the online discussion forum at: www.itl.usyd.edu.au/synergy/forum or email Julie at: j.hatfield@unsw.edu.au

Synergy 30

Julie Hatfield also has a PhD in Psychology from the University of Sydney. She has been responsible for coordinating the first year tutorial and lecture programs, and has designed and delivered lectures in Senior Psychology: Health Psychology and for the Graduate Diploma: Health Psychology. Julie has supervised numerous fourth year and postgraduate students in conducting research projects in the area of Health Psychology. With Gavin Faunce, she recently submitted a paper to Teaching of Psychology that discusses the need for teachers of psychology to avoid confusion surrounding the phrase “correlation does not imply causation”.

You can engage with others in a conversation about the ideas in this article. Visit the online discussion forum at: www.itl.usyd.edu.au/synergy/forum or email Julie at: j.hatfield@unsw.edu.au

Gavin Faunce graduated with a PhD in Psychology from the University in December 2000. He has supervised Honours and Graduate Diploma in Science (Psychology) students since 1999. Gavin has also been actively involved in teaching and learning research, having collaborated with A/Prof Dianna Kenny in researching the effect of private coaching on academic performance in high school students. A journal article based on this research has recently been accepted for publication in Journal of Educational Research. He has varied research interests, including anxiety-related cognitive biases, eating disorders and body image, anti-fat attitudes, and health and safety psychology.

You can engage with others in a conversation about the ideas in this article. Visit the online discussion forum at: www.itl.usyd.edu.au/synergy/forum or email Julie at: j.hatfield@unsw.edu.au
Current learning initiatives in the Faculty of Rural Management

During the last year or so, the Faculty of Rural Management (FRM) has been engaged in four initiatives that we would like to share: increasing the usage of WebCT in teaching, a new online postgraduate coursework degree, a comprehensive unit evaluation policy that ensures every unit taught by faculty staff is evaluated every time it is offered, and an extensive benchmarking process for three degree programs.

A number of staff development workshops have been held over the last eighteen months to assist staff to introduce new teaching methodologies using WebCT. These methodologies have been particularly helpful in reducing the sense of isolation experienced by many distance education students. Key learning strategies involve reflection and challenge through asynchronous discussion forums and engagement through collaborative learning strategies. In a number of units the distinction between on-campus and distance learners is being blurred by the combined use of WebCT by both groups providing further enrichment to the total learning experience.

The Master of Sustainable Management is specifically designed for the busy executive. Available by distance learning only, the backbone of the course is the use of interactive online activities presented over intensive eight-week teaching periods and supported by printed learning guides. Students first enrolled at the start of 2003 and early results show very low attrition and an active student cohort that is well pleased with the mode of delivery.

The Faculty has adopted the concept that every unit taught deserves to be evaluated each time it is offered and that the findings, and the actions taken as a result of the evaluations, should be properly communicated to the student body. A three-year cycle is now in operation with FRM undertaking its own evaluations in 2002 and 2003 with ITL’s USE instrument to be provided this year. Following the student evaluations each semester, teaching staff are asked to respond to the collated evaluation results and to indicate what changes, if any, they will subsequently introduce either as a result of the student feedback received or else due to their own reflections.

In May 2003 FRM received a TIF grant to enable a national and international benchmarking initiative for three programs: the Bachelor of Farm Management, the Bachelor of Horticultural Management and the Bachelor of Equine Business Management. This exercise, which arose from the Academic Board Review of the faculty, is nearing completion. Extensive recommendations for curriculum change across the three programs are anticipated.

Quality Assurance and Improvement at The University of Sydney

A new website now outlines the quality assurance initiatives across the University. Staff are encouraged to visit the website at: http://www.usyd.edu.au/quality in preparation for the Australian University Quality Assurance (AUQA) visit in late July this year.

2004 Vice-Chancellor’s Awards for University Teaching

Although applications for the Vice-Chancellor’s Award of Outstanding Teaching have now closed and the Excellence in Research Higher Degree Supervision will close on May 14, a new category ‘Supporting Student Learning’ was announced earlier this year. Further information is available at: http://www.itl.usyd.edu.au/awards Each year the ITL works with intending applicants of both university and national awards, so please contact us on 9351 3725 or email: itl@itl.usyd.edu.au if you are interested in applying.

Higher Education Teaching and Learning Conferences at The University of Sydney

The University of Sydney will be hosting the Higher Education Research and Development Society Australia (HERDSA) and the 9th Pacific Rim First Year in Higher Education Conference in 2005. Watch this space for further details.
**AUSTRALIA, NZ AND ASIAN REGION**

Australian Universities Quality Forum (AUQF)
Theme: Quality in a Time of Change
7-9 July 2004
Hyatt Regency, North Terrace, Adelaide, South Australia

Higher Education Research and Development Society Australasia Conference (HERDSA)
Theme: Transforming Knowledge to Wisdom: Holistic Approaches to Teaching and Learning
4-7 July 2004
Curtin University of Technology, Miri Campus, SARAWAK

8th Pacific Rim First Year in Higher Education Conference (FYHE)
Theme: Dealing with Diversity
14–16 July 2004
Monash University (Clayton Campus), Melbourne
http://www.fyhe.qut.edu.au

Australian Association for Research in Education Conference (AARE)
Theme: Doing the Public Good: Positioning Education Research
28 Nov – 2 December 2004
Melbourne, Victoria

**UK, EUROPE & THE MEDITERRANEAN**

Institute for Learning and Teaching, UK
Theme: Delivering Excellence
29 June – 1 July 2004
University of Hertfordshire, UK
http://www.ilt.ac.uk/conference.asp

International Conference on Information Communication Technologies in Education (ICICTE)
Hosted by the Research and Training Institute of the East Aegean (INEAG), Greece
1-3 July 2004
Samos Island, GREECE
http://www.ineag.gr/icicte/default.asp

Improving Student Learning Symposium (ISL)
Theme: Diversity and Inclusivity
6-8 September 2004
Birmingham, UK
http://www.brookes.ac.uk/services/ocsd/1_ocsd/isl2004/

Society for Research in Higher Education Conference (SRHE)
Theme: Whose Higher Education?: Public and Private Values and the Knowledge Economy
14-16 December 2004
University of Bristol, UK
http://www.srhe.ac.uk/

**CANADA, UNITED STATES AND SOUTH AMERICA**

Society for Teaching and Learning in Higher Education Conference (STLHE)
Theme: Experiencing the Richness of the University Mosaic: from Diversity to Individuality
16-19 July 2004
University of Ottawa, CANADA
http://www.uottawa.ca/services/tlss/stlhe2004/

5th World Conference of the International Consortium for Educational Development (ICED)
Theme: Defining a Profession: the convergence of goals of university professors and faculty developers
21-23 June 2004
Ottawa, Canada
http://www.uottawa.ca/services/tlss/iced2004/