

**Teaching-Research Nexus  
Benchmarking Project:  
The University of Sydney and  
Monash University**

*Angela Brew  
Institute for Learning and Teaching,  
University of Sydney*

*Jennifer Weir  
Centre for Higher Education Quality,  
Monash University*

September 2004

# Contents

Executive summary.....	3
Key areas of comparison.....	9
1. Terminology, definition and policy .....	9
2. Strategic Planning .....	10
3. Planning Documents .....	12
4. Courses.....	15
5. Graduate attributes .....	18
6. Staffing profile .....	20
7. Performance management.....	21
8. Rewards.....	22
9. Recruitment, probation and promotion .....	25
10. Organizational and staff development .....	27
11. Internal and external communications .....	28
Faculty level dimensions.....	30
1. Bringing the teacher’s research findings into the classroom .....	30
2. Research, curriculum development and internationalization.....	31
3. Building students’ research and inquiry capabilities .....	33
4. Utilizing and building a community of scholars.....	34
5. Exploring the context of research .....	35
6. Teaching research methods.....	36
7. Researching teaching .....	37
8. Teaching leading to research .....	39
About the Authors.....	40
References.....	41

## Executive summary

A benchmarking partnership was established between Monash University and the University of Sydney and a Memorandum of Understanding was formalised early in 2004. The aim of the Benchmarking project was to analyse methods of implementing the teaching-research nexus, and compare performance in nominated areas. In order to accomplish this, a six stage process was developed involving:

1. establishing the partnership;
2. setting the framework (areas of comparison and matrix);
3. securing a Memorandum of Understanding between the two institutions;
4. applying the framework;
5. benchmarking, self evaluating; and
6. generating recommendations.

Comparisons between Sydney and Monash were made through a matrix developed to self-rate in terms of low, medium or high level achievement in a range of areas. On the basis of the self assessments, recommendations for each institution were then made. The report has two parts with the framework for the areas of analysis taken from a discussion paper prepared by Prof Graham Webb (Centre for Higher Education Quality, 2003). The first part examines eleven key areas of comparison at the institutional level as developed in the CHEQ 2003 discussion paper, as follows:

1. terminology, definition and policy;
2. strategic planning;
3. planning documents;
4. courses;
5. graduate attributes;
6. staffing profile;
7. performance management; and
8. rewards.

At the faculty level the project concentrated on comparing mechanisms that exist in each institution to investigate and enhance the nexus. The dimensions considered were again taken from the Centre for Higher Education discussion paper (2003) as follows:

1. bringing the teacher's research findings into the classroom;
2. research, curriculum development and internationalization;
3. building students' research and inquiry capabilities;
4. utilizing and building a community of scholars;
5. exploring the context of research;
6. teaching research methods;
7. researching teaching; and
8. teaching leading to research.

### Summary of comparisons

At the institutional level, both Monash University and the University of Sydney have coordinated discussions on the teaching-research nexus taking place and have agreed terminologies. Monash has adopted the term 'teaching-research nexus', whereas the University of Sydney refers to 'research-led teaching'. While the terms differ, the aims and objectives are similar. The University of Sydney has an institutional

definition in place, and Monash has also recently adopted an institutional statement and definition.

The teaching-research nexus is clearly identified in strategic plans in both universities, but both could benefit from a more integrated approach. The nexus is also reflected in Learning and Teaching Plans, but does not necessarily cascade into all plans.

There was some variation between the two universities with regard to processes for the teaching-research nexus in terms of course approval, monitoring and review. Nonetheless, both universities place high importance on graduate attributes and the identification of research skills. To that end systematic mapping and development of research skills progressively through the curriculum is evident in some faculties within both institutions.

Each university has a high proportion of teaching staff that are research active, but recognition of a link between teaching and research in performance management documentation could be further developed. The existence of awards systems that require demonstration of teaching-research nexus is another area where there is similarity. However, neither Sydney nor Monash have strategies in place for demonstration of the teaching-research nexus in recruitment, probation and promotion practices, and they vary in the extent to which it is mentioned in documentation. Both universities provide staff development opportunities in terms of teaching-research nexus, but again there is some variation in the extent to which it is a priority.

Both universities make reference to the nexus in external communications and could enhance this area through frequent and systematic reference to teaching-research nexus in external communication.

At the faculty level there are also many areas of similarity in the self-assessment, together with some differences. There is a slight difference in terms of practices and mechanisms to improve the extent to which teachers bring research into the classroom. While both universities demonstrate that research ideas are incorporated in student activities, Sydney has systematic faculty mechanisms to improve and evaluate practice. Both universities have faculty policy and incentives for curriculum development to be informed by internationally based disciplinary and pedagogical research, with systematic faculty encouragement and incentives in some faculties.

There are strategies to build students' research and inquiry capabilities in faculties in both universities. In a few faculties these capabilities are taught and monitored as an integral part of a systematic approach to the development of the generic attributes of graduates.

Faculties in both universities have strategies in place to encourage students and staff to participate in a variety of scholarly communities. It is not always clear, however, to what extent undergraduate and postgraduate students participate with staff in such communities. Both Sydney and Monash have strategies aimed at encouraging students and staff to engage in discussions about the nature of the disciplinary area, the nature of research and what it means to study the subject. Strategies to encourage students to participate in such discussions could be enhanced in both universities. Monash and Sydney are comparable in terms of approach to the teaching of research skills across

the undergraduate curriculum, and in some faculties this is monitored on a regular basis. In both universities research on teaching is carried out, and in both institutions some faculties have an integrated and systematic program of research on teaching, which is used to inform curriculum developments. However, the universities differ in terms of strategies to encourage and reward disciplinary research projects that result from teaching and both could encourage faculties to further develop this area.

## **Recommendations for Enhancing the Nexus**

### **Institutional dimensions**

1. Terminology, definition and policy
  - Monash University to disseminate and embed its newly endorsed statement and definition of the teaching-research nexus.
2. Strategic Planning
  - Monash University to include reference to the teaching-research nexus in all relevant policy and to integrate institutional strategic planning of teaching, research and the teaching-research nexus.
  - The University of Sydney to include reference to the influence of teaching on research in future research management plans.
3. Planning Documents
  - Monash University to continue to embed the nexus in all planning documents including faculty plans to reflect the commitment to strengthening of the nexus as identified in the Learning and Teaching Plan and research plans.
  - The University of Sydney to continue to embed research-led teaching in all planning documents to ensure that both faculty and college plans reflect commitment to encouraging research-led teaching.
  - Monash University and the University of Sydney to develop and implement a structure that links the committees or work on teaching, learning and research within the university.
4. Courses
  - Monash University to embed the nexus in unit and course approval and in guidelines for review of academic areas and courses.
  - The University of Sydney to implement policy on ensuring research on teaching is demonstrably used in designing new curricula.
5. Graduate attributes
  - Monash to continue to develop graduate attributes policy considering research as an overarching graduate attribute, and to explore ways in which faculty undergraduate and postgraduate course work, teaching and learning and education committees can map the development of research skills progressively through the curriculum.
  - The University of Sydney to continue to develop graduate attributes policy and to implement faculty strategic plans based on it.
6. Staffing profile
  - Monash to begin routinely collecting data on teaching by level in the manner described by the University of Sydney, and to monitor through course and academic reviews.
  - Monash to consider monitoring the proportion of higher degree research supervisors who are active researchers through academic and research reviews, and the register of supervisors.
  - Both universities to examine the relationship between senior staff teaching at junior levels and the extent to which this enhances the nexus.

- Both Universities to ensure a staffing profile that supports the nexus between teaching and research.
7. Performance management
    - Monash University to explore ways to recognise the nexus between teaching and research in performance management engagement profiles.
    - Monash University to consider including the teaching-research nexus in performance management training for staff and supervisors and in documentation.
    - The University of Sydney to give consideration to incorporating the relationship between teaching and research in the performance management and review process when next it is revised.
    - Both universities to consider ways in which the teaching-research nexus may be applied at different levels of appointment and different staff classifications.
  8. Rewards
    - Monash to consider inclusion of the nexus in award and grant application criteria, documentation, training and reporting.
    - The University of Sydney to continue to maintain the high level relationship between research and teaching with regard to award and grant application criteria, documentation, training and reporting.
  9. Recruitment, probation and promotion
    - Monash to give consideration to ways in which recruitment, induction and probation guidelines and practices can support the teaching-research nexus.
    - Monash to re-examine current promotion criteria and guidelines, and revise so as to reflect commitment to the teaching-research nexus.
    - The University of Sydney to give consideration to ways in which promotions recruitment and probation requirements can be amended to strengthen the relationship between research and teaching.
  10. Organizational and staff development
    - Monash to explore ways in which organisational and staff development can support the teaching-research nexus.
    - The University of Sydney to continue to sustain strategic commitment to enhancing research-led teaching.
  11. Internal and external communications
    - Both universities to ensure that internal and external publications and communications report and celebrate the teaching-research nexus.

## Faculty Dimensions

1. Bringing the teacher's research findings into the classroom.
  - The University of Sydney to continue to develop ways in which student learning is organised so as to engage students in research projects and to evaluate practice on an ongoing basis.
  - Monash to explore the extent to which student learning is organised so as to engage students in research projects and to consider systematic mechanisms to improve and evaluate practice.
2. Research, curriculum development and internationalisation
  - The University of Sydney to continue to spread good practice in relation to encouragement and incentives.
  - Monash to continue to encourage curriculum development that is informed by internationally based disciplinary and pedagogical research.
3. Building students' research and inquiry capabilities
  - The University of Sydney to continue to spread good practice in relation to ensuring that research and inquiry capabilities are taught as an integral part of a systematic approach to the development of generic attributes of graduates and that these are monitored on a regular basis.
  - Monash to continue to spread good practice in relation to ensuring that research and inquiry capabilities are taught as an integral part of a systematic approach to the development of generic attributes of graduates, and these are monitored on a regular basis.
4. Utilizing and building a community of scholars
  - Both universities to develop ways to ensure undergraduate and postgraduate students have the opportunity to participate with staff in a variety of scholarly communities.
5. Exploring the context of research
  - Both universities to develop strategies to encourage students and staff to engage in discussions about the nature of the disciplinary area, the nature of research and what it means to study the subject
6. Teaching research methods
  - Both universities to continue to develop systematic and integrated approaches to the teaching of research skills across the undergraduate curriculum and for faculties to monitor this on a regular basis.
7. Researching teaching
  - The University of Sydney to continue to spread good practice in faculties in relation to researching teaching.
  - Monash to continue to identify exemplars of good practice in faculties and to disseminate across the university.
8. Teaching leading to research
  - Both universities to encourage faculties to find ways of recognising and rewarding research projects that arise from aspects of teaching.

This benchmarking project has not considered the teaching-research nexus in relation to overseas campuses or centres as such a study did not fall with the agreed framework for the current study.



## Key areas of comparison

### 1. Terminology, definition and policy

- Compare Monash and Sydney terms and definition.

Low level	Medium level	High level
No identification of teaching-research nexus.	Coordinated discussions on the teaching-research nexus taking place.	Clear institutional definition.

#### *Monash University*

Monash identified the importance of the link between teaching and research as far back as 1992 and again in the 1999 Learning and Teaching Operational Plan. Monash considered the term ‘teaching-research nexus’ in *Still Learning: The Report of our Self-Review* in 2002, and the *Learning and Teaching Plan 2003-2005*.

Academic Board (6/2003, 19 November) endorsed the development of a Monash view of the teaching-research nexus and definition and recently (4/2004) agreed a statement and definition of the teaching-research nexus for Monash University, as follows.

The link between teaching and research has always been an important element of Monash University’s thinking and action. For example, in 1992, the Monash Research Review Committee Report (the “Waller Report”) observed as follows.

*Research and teaching – the discovery of knowledge and the imparting of knowledge – are the prime functions of the university. These functions are, or should be, mutually supportive. The best research environment is one in which researchers are constantly challenged to communicate ideas to students; the best teaching environment is one in which students are invited to share the excitement and problems of discovery (p 5).*

The teaching-research nexus at Monash is defined as the many ways in which teaching informs research and research informs teaching; this mutually supportive relationship operating to the benefit of both.

Ways in which the nexus operates are identified in “The Teaching-Research Nexus: A Discussion Paper”, Centre for Higher Education Quality, presented at Academic Board 6/2003 (19/11/03).

#### *University of Sydney*

In 2000, a University-wide project was established by the Pro-Vice Chancellor (Teaching and Learning) at the University of Sydney to address aspects of the Strategic Plan related to the link between teaching and research. Key project aims for 2001-2005 were to:

- Increasingly employ undergraduate teaching and learning strategies, which enhance the links between research and teaching and utilise scholarly inquiry as an organising principle in departmental organisation, and curriculum development.
- Encourage and reward the scholarship of teaching.

In May 2002, a report was prepared and a presentation made to the University's Teaching and Learning Committee outlining the vision and the results of the investigation into best practice, and progress to date. Teaching and Learning Committee endorsed the recommendations of the report, including the establishment of a Working Group to discuss how to further the initiative at Faculty, School and Departmental levels and to develop a set of indicators to monitor progress based on international best practice. A Working Group consisting of Faculty representatives nominated by the Deans was established in 2002. The cross faculty Working Group has agreed a definition of research-led teaching which has now become University policy. The Working Group has also established performance indicators in order to provide a mechanism for auditing progress towards reaching the University's strategic goals for strengthening the relationship between teaching and research, and to encourage the development of research-enhanced teaching.

Faculties have each developed strategies for the enhancement of research-led teaching. These have been discussed in the Research-led Teaching Working Group and are being implemented.

### Self-Assessment

Monash University: High level.

University of Sydney: High level.

## 2. Strategic Planning

- Compare Monash and Sydney processes for teaching-research nexus identified in strategic planning.

Low level	Medium level	High level
No systematic institutional strategic planning of teaching and/or research.	Institutional strategic planning of teaching and research conducted independently.	Integrated approach to institutional strategic planning of teaching, research and the teaching-research nexus.

### Monash University

In 1992 the Monash Research Review identified the importance of the link between teaching and research as a significant factor for consideration. Currently, Monash has separate institutional plans for learning and teaching, and for research. Though the Plans are separate, the *Monash Research & Research Training Management Plan* (MRRTMP) (2000) notes that teaching is informed by research and scholarship, that research objectives should complement teaching, and that all students should have experience of the research process (p. 39). In that sense, the MRRTMP links with the *Monash Learning and Teaching Plan 2003-2005* (LTP) which states “our research activities will both inform and enrich our curriculum and our teaching approach. This can only be achieved when there is strong linkage between the research and teaching of the university” [Available on-line at:

<http://www.adm.monash.edu.au/dvcap/ltp/LTPoverview.html> ]. While the actual link

between the LTP document and the MRRTMP is implicit as a result of the differing timeframes in their development, the link is *explicitly* expressed in the MRRTMP. There is also an implicit connection with the *Global Development Framework*. Monash's strategic plan, *Leading the Way: Monash 2020* identifies major strategies for the University as "ensuring that teaching at Monash capitalises on strong research and scholarship;" and recognises "the importance of research and scholarship informing teaching" [<http://www.monash.edu.au/monashplan/plan99/>]. Campus plans are currently being developed.

Despite institutional strategic planning of teaching and research currently being conducted independently at Monash, the plans all identify and support a connection between teaching and research. In that sense Monash could be seen to be moving towards an integrated approach to institutional strategic planning of teaching, research and the teaching-research nexus.

### *University of Sydney*

The University of Sydney's Strategic Plan includes statements demonstrating the University's commitment to strengthening the relationship between research and teaching. Aspects of the University of Sydney Strategic Plan relevant to the development of research-led teaching and scholarship of teaching are:

- to provide curricula informed by current research scholarship creative works and professional practice, and be responsive to the needs of the many communities served by the university and result in graduates well equipped to contribute successfully to the global society in which they live and work (Goal 1. 3);
- to develop and reward well qualified staff with a strong commitment to teaching informed by research and offer opportunities for teaching development (Goal 1. 6);
- to assist the transition of students into research-based programs through opportunities provided within undergraduate programs (Goal 3. 9);
- and to support the conduct of outstanding research by both students and staff (Goal 3. 11).

These goals are reflected in College and Faculty Strategic Plans and Teaching and Learning Plans.

Since the University of Sydney Research Management Plans does not include reference to the development of research-led teaching, it is considered that Sydney is at medium level.

### **Self-Assessment**

Monash University:	Upper medium level
University of Sydney:	Medium level

### **Recommendations**

- Monash University to include reference to the teaching-research nexus in all relevant policy and to integrate institutional strategic planning of teaching, research and the teaching-research nexus.
- The University of Sydney to include reference to the influence of teaching on research in future research management plans.

### 3. *Planning Documents*

- Compare Monash and Sydney identification of teaching-research nexus in planning documents including, for example, Learning and Teaching Plans, Support Services Plans, Research & Research Training Management Plans, Campus Plans, and Faculty Operational Plans.

Low level	Medium level	High level
Planning documents indicate distinct teaching and research activities with no concept of link.	Teaching-research nexus reflected in Learning and Teaching Plans.	Teaching-research nexus cascades into all relevant plans.

#### *Monash University*

Monash's institutional self-review, *Still Learning: The Report of Our Self-Review* (p. 24-25) identified the teaching-research nexus as an important area for the University. Strategies A4 and A5 of the *Monash Learning and Teaching Plan 2003-2005* specifically target the teaching-research nexus:

It is axiomatic that the twin core activities of the university, teaching and research must be the cornerstone of policy development and direction within the university. We are a university only because we are engaged in teaching and research. The nexus between teaching and research is often cited, but rarely well defined. Our research activities will both inform and enrich our curriculum and our teaching approach. This can only be achieved when there is strong linkage between the research and teaching of the university. We will define and identify the relationships between research and teaching, particularly as they inform and affect teaching (Strategies A4 and A5) [available on line at <http://www.adm.monash.edu.au/dvcap/ltp/LTPoverview.html>].

Monash research plans demonstrate a commitment to the importance of strengthening the nexus and reference to teaching is made throughout the plans. The Monash Research & Research Training Management Plan (MRRTMP, 2000) emphasizes the nexus in the following statement:

University teaching should reflect the present state of knowledge and be actively informed by current developments and research in the relevant disciplines. Through their teaching, staff should ensure that all students are exposed to the research process so that they appreciate the nature and present state of knowledge, and are excited by the spirit of inquiry. This provides a rationale for the allocation of some research funds to support scholarly activity in line with the allocation of teaching load. (p. 39).

MRRTMP identifies several strategies that relate to strengthening the teaching-research nexus, which link with various areas including, recruitment, performance management, and internationalisation:

- 1.1 Ensure individual staff engagement profiles include specific research commitments.
- 4.1 Recruit research-active staff.
- 4.4 Provide induction programs for new staff, including training in research supervision.

7. Use the Monash Research Graduate School structure to enhance the quality of the research training environment.
- 13.1 Ensure that for all future off-shore campus developments clearly defined research objectives complement the teaching component of the proposed institution and conform to Monash's existing precepts and practices.
- 13.2 Develop a strong research ethos among staff appointed to Monash's off-shore campuses.
- 13.4 Develop a strong research training culture at each off-shore campus.
- 16.1 Facilitate exchanges by active researchers wishing to undertake collaborative research with high-quality research partners.

Appendix A of the MRRTMP further notes that:

The university encourages research for its intrinsic value and because of its synergy with teaching. In addition, the university's research profile is vital to other aspects of its activities, especially its ability to attract high quality students in the local and international markets and the development of off-shore research collaborations (p. 40).

The Monash Research & Research Training Operational Manual identifies the nexus as part of the research framework and defines scholarship as “keeping abreast of, analysing and interpreting existing knowledge to improve, through teaching or by other means, the depth of human understanding”.

[<http://www.monash.edu.au/research/statements/opmanual/>]. Monash teaching staff are expected to maintain awareness of developments in their discipline.

The emphasis on strengthening the nexus is less evident in campus and faculty operational plans. At present, Monash Campus Directional Statements do not note the teaching-research nexus. However, campus plans at Monash are currently in the process of development. Most faculties do not specifically address the teaching-research nexus in their operational plans. The Faculty of Science and the Faculty of Education are exceptions. Strategy 3.1 in the Faculty of Science Draft Operational Plan 2002-2004 sought to “reinforce the importance of the nexus between research (or inquiry) and teaching – learning to all staff, especially research inactive staff”. The Operational Plan for 2004-2006 continued to build upon the aims and seeks to “understand how the teaching research nexus informs the science curriculum, and encourage and support staff to develop new approaches to teaching that are informed by their research” (p. 2). The Faculty of Education cited enhancing “mechanisms for staff researching their own practice and link to research” as action for 2005-6. Despite not specifically targeting the nexus in most operational plans, activities do take place.

*Monash 2020: Support Services Plan* does not identify the nexus. There are very few references to teaching or research as these are treated as separate areas. However, the *Monash University Library Strategic Plan 2004-2006* clearly addresses the teaching-research nexus in a number of ways. One strategy for achieving the library's mission involves “providing a range of information literacy services that educate Monash students and staff to search for, retrieve, evaluate and use relevant scholarly information”. The vision for 2004-2006 is that Library staff “will be even more highly valued as knowledge management specialists, working in partnership with the university to integrate and provide access to all of the sources of information. They will train and develop the users of these information sources so that they work within, or graduate from, Monash as skilled lifelong learners adding value to the communities

in which they live and work” (p. 8). There are several initiatives identified in the plan including the following:

- undertake further analysis of collection adequacy to support teaching and research and develop strategies to address needs identified.

The library key initiatives include not only information services, but partnership services as well.

At least two Monash teaching and learning policy documents also support the link between teaching and research. The Effective Teaching Policy states that effective teaching is “linked with the latest research and scholarship in ways that allow students to see how understandings evolve and are subject to challenge and revision”

[available on line at:

<http://www.adm.monash.edu.au/unisec/academicpolicies/policy/effective.html>]. An

aim of the Relevance of the Curriculum Policy is to ensure that “programs are informed by scholarship and research especially in the later years. [available on line at: <http://www.adm.monash.edu.au/unisec/academicpolicies/policy/relevance.html>].

At Monash, the teaching-research nexus is identified in the Learning and Teaching Plan (LTP), and the Research Plans, but there is not a cascade of plans. The LTP was launched after the 2003 Faculty plans were developed, and subsequent Faculty plans will incorporate strategies for strengthening the teaching-research nexus to a greater degree.

#### *University of Sydney*

One of the five key objectives of the University of Sydney’s Teaching and Learning Plan is to “realise the benefits of a research-intensive teaching and learning environment” [available on-line at:

<http://www.usyd.edu.au/quality/teaching/index.shtml>]. Strategies to achieve this objective are as follows:

- audit the outcomes of the research-teaching nexus and raise student and staff awareness of its advantages;
- further develop and more widely distribute inquiry-based approaches to teaching and learning; and
- consolidate existing evidence-based teaching practices.

The Sydney Research Management Plan currently makes scant reference to teaching. Yet, in the Report for 2002 reference was made to ensuring a quality research training experience for research higher degree students: “We recognise the intricate relationship between research and research training. The production of outstanding research higher degree graduates can only take place in an intellectually stimulating environment populated by supervisors and mentors who are active researchers using leading-edge infrastructure” (p. 11). This statement is missing from the 2003 report.

Teaching policies are varied in the extent to which research-led teaching is encouraged. At the University of Sydney, eleven faculties indicate that the links between research and teaching are explicitly encouraged in their Faculty Strategic Plans. Statements in these plans range from restatements of the university Strategic Plan Goal 1 points 3 and 6. Some faculties have developed these ideas into specific strategies for development. College strategic plans do not necessarily link teaching and research and two colleges make no reference to the relationship.

Neither Monash University, nor the University of Sydney has explicit policy or structures to link the committees and work pertaining to teaching, learning and research within the university. It was however, suggested as an issue for future consideration at the University of Sydney (University of Sydney, Academic Board Minutes, 13 November 2002).

### Self-Assessment

Monash University: Medium level.

University of Sydney: Medium level.

### Recommendations

- Monash University to continue to embed the nexus in all planning documents including faculty plans to reflect the commitment to strengthening of the nexus as identified in the LTP and the research plans.
- University of Sydney to continue to embed research-led teaching in all planning documents to ensure that both faculty and college plans reflect commitment to encouraging research-led teaching.
- Monash University and the University of Sydney to develop and implement means by which the committees and work on teaching, learning and research within the universities may be linked.

## 4. Courses

- Compare Monash and Sydney processes for teaching-research nexus in terms of course: approval, monitoring and review.

Low level	Medium level	High level
Approval, monitoring and review not related to teaching-research nexus.	Approval, monitoring and review documents mention the teaching-research nexus.	Approval, monitoring and review dependent on clear demonstration of teaching-research nexus.

### *Monash University*

The teaching-research nexus is not specifically identified in course approval, monitoring, or review documentation at Monash. The Monash Course Approval software template does not address the nexus as it does other areas such as graduate attributes. Areas where the link is absent in the current approval template include the following sections:

- 2.1 Reasons for Introduction of Course
- 3.4 Educational Objectives and Outcomes
- 3.5 Plan for Offering Course under the subheadings of Teaching Approach.

There is no clear articulation of link between learning, teaching and research in terms of approval at program and unit levels. Research methods may be included in units that are not specific research methods units, but this is difficult to identify from

documented sources, and subject to wide variation. Overall, research units are predominantly in the upper and postgraduate levels with very few in first year.

The University Unit Evaluation guidelines identify six key areas for review including a category of 'Content and Objectives' suggesting that consideration be given to whether the unit includes objectives identified in the Learning and Teaching Plan. This *assumes* inclusion of the teaching-research nexus, but does not specifically note the nexus. The Monash Experience Questionnaire (MEQ) is a survey of views of current undergraduate and graduate/postgraduate coursework students undertaken for the first time in 2003. The survey provides university, faculty, campus and course level data on many aspects of the experience of Monash students. Some of the items relate to the Faculty Level dimensions that follow. For example, one item refers to students' ability to conduct research (faculty level dimension 3, 6). Both universities also use Course Experience Questionnaire (CEQ) survey data to inform planning and curriculum. The CEQ measures graduate satisfaction of the higher education experience and skills developed and can provide time-series data. Comparisons with similar fields of study at other universities provide external reference. Academic reviews at Monash of Faculty and sub-faculty elements, such as schools and departments, do not explicitly mention the teaching-research nexus and neither do the guidelines for course review. However, data from these surveys informs monitoring and review at Monash and the MEQ Generic Skills Scale, and Learning Community Scale are also CEQ scales.

#### *University of Sydney*

In 1999 the University of Sydney initiated the Student Course Experience Questionnaire (SCEQ). Some of the data from this survey contributes to three of the University's ten performance indicators for teaching, as does some of the CEQ data. Like the MEQ, some of the SCEQ items relate to the Faculty Level dimension that follow. For example, one item refers to students' benefiting from being in contact with active researchers (faculty level dimension 1, 4). The SCEQ survey is currently being revised and it is quite likely that it will include additional relevant items after 2005 (personal communication, Simon Barrie, 20-09-04).

Academic Board overseas faculty reviews and the teaching research link is specifically mentioned. Implementation is monitored through the performance indicators for teaching. Faculties develop policy and templates in line with the University framework. All new courses are approved through Academic Board and therefore is the same group that is responsible for reviews. The teaching and learning objectives of the course should be related to the generic attributes which includes 'Scholarship: An attitude or stance towards knowledge'.

The Sydney policy on the Management and Evaluation of Coursework Teaching refers to the relationship between teaching and research. It indicates that the University is committed to "creating an academic climate that fosters learning, scholarship and the application of research findings to improve teaching practice" (p. 3). In setting out Academic Board's policies and procedures for reviews of faculties, the policy requires faculties in their self-evaluation report to indicate how the faculty ensures: "integration of research, including both disciplinary research and evidence about effective learning and teaching, into its undergraduate and postgraduate courses" (p. 16). Reviewers are asked to consider:



- how links between current disciplinary research and the research expertise of staff and the curriculum are managed; and
- how links between developments in the theory and practice of university teaching and learning and the curriculum are managed (p. 20).

In the review, students may be asked to indicate to what extent they consider they benefit from the research expertise of their teachers and to give examples of how research has enhanced their experience and understanding (p. 22). Reviewers are also asked to consider whether the design and content of the curricula encourage the development of (among other things) transferable skills (including inquiry, research and communication skills” (p. 24). They are also asked to evaluate whether the curriculum is adequately informed by recent developments in the theory and practice of university teaching and learning, by current research and scholarship, and by the research expertise of staff (p. 25).

Academic Board noted the recommendation of the research-led teaching working group that it should monitor through its Undergraduate Studies and Postgraduate Coursework Committees that research and scholarship on teaching and learning is demonstrably used in designing new curricular (Academic Board resolution 46/04). Academic Board principles for the management and evaluation of teaching activities (2001) states that self evaluation reports should include how the faculty “ensure[s] integration of research, including both disciplinary research and evidence about effective learning and teaching, into its undergraduate and postgraduate courses” [available on-line at: <http://policy.rms.usyd.edu.au/000007y.pdf> ]

### **Self-Assessment**

Monash University:	Low level.
University of Sydney:	Medium level moving to high.

### **Recommendations**

- Monash University to embed the nexus in unit and course approval materials, guidelines for academic and course review and unit evaluation.
- The University of Sydney to implement policy on ensuring research on teaching is demonstrably used in designing new curricula.

## 5. Graduate attributes

- Compare Monash and Sydney identification of research skills and the ability to undertake research in graduate attributes.

Low level	Medium level	High level
No identification of research skills as desired graduate attribute.	Statements concerning importance of research as a graduate attribute.	Systematic mapping and development of research skills progressively through the curriculum.

### *Monash University*

The importance of developing research and inquiry capabilities as key outcomes of the Monash experience is recognised in *Leading the Way* as follows: “Monash will develop graduates’ independence and life-long learning skills of written and oral communication, capacity for inquiry and research, critical thought and analysis, problem solving, teamwork, numeracy and effective use of information technology” [Leading the Way: Monash 2020 available on-line at: <http://www.monash.edu.au/monashplan/plan99/> Accessed 27/11/03].

Monash graduate attributes are outlined in *Leading the Way: Monash 2020*.

Monash will develop graduates’ independence and life-long learning skills of written and oral communication, capacity for inquiry and research, critical thought and analysis, problem solving, teamwork, numeracy and effective use of information technology.

Information literacy was also included in the 1999 *Learning and Teaching Plan* [see <http://www.adm.monash.edu.au/unisec/academicpolicies/policy/gradattributes.html> ]. A Graduate Attributes Working Party of Education Committee is presently working to refine graduate attributes (Learning and Teaching Plan 2003-2005):

All Monash educational programs are guided by, and structured to satisfy, a set of learning objectives that will be in part specific to the particular discipline or discipline areas that are the underpinning of each particular educational program. Monash has defined a set of Monash Graduate Attributes, which encompass more generic aspects of knowledge, skills and attitudes. We will update and expand the Monash Graduate Attributes, and we will identify ways to improve the achievement of those Graduate Attributes (Strategy A3).

Monash is aiming towards mapping and development of research skills progressively through the curriculum, but has not achieved that goal as yet. However, steady progress is being made. In 2002 a pilot project was undertaken by the Centre for Higher Education Quality (Helen Edwards and Linda King) in collaboration with three faculties (Engineering, Information Technology, and Science) which examined ways that graduate attribute are taught and assessed in a number of curricula, and sought to identify good practice. The pilot project ... attempt[ed] to develop a methodology that could be applied across the university” [available on-line at:

<http://www.adm.monash.edu.au/cheq/academic/Graduate%20Attributes%20Report%20to%20Education%20C'ttee.pdf> ].

The recommendations from the project were presented to education committee in 2002. Edwards and King concluded that where teaching and assessing of graduate attributes is addressed, it is embedded in subject material, but is not developed across curriculum or across courses. However, the project did identify many areas of good practice especially in new core subjects.

### *University of Sydney*

The University of Sydney, like Monash, is in the process of developing new graduate attributes. There are three overarching graduate attributes—Scholarship, Lifelong Learning, and Global Citizenship. Students' experience of research is a key item in all areas thus reflecting the commitment to research-led teaching.

Each of these overarching attributes can be understood as a combination of five overlapping clusters of skills and abilities.

**Research and Inquiry:** Graduates of the University will be able to create new knowledge and understanding through the process of research and inquiry.

**Information Literacy:** Graduates of the University will be able to use information effectively in a range of contexts.

**Personal and Intellectual Autonomy:** Graduates of the University will be able to work independently and sustainably, in a way that is informed by openness, curiosity and a desire to meet new challenges.

**Ethical, Social and Professional Understanding:** Graduates of the University will hold personal values and beliefs consistent with their role as responsible members of local, national, international and professional communities.

**Communication:** Graduates of the University will recognise and value communication as a tool for negotiating and creating new understanding, interacting with others, and furthering their own learning.

The particular abilities and skills that comprise each of these five clusters of abilities might be different in different disciplines. That is, these attribute clusters can be interpreted differently in different disciplines or domains

[Available on-line at: <http://www.itl.usyd.edu.au/GraduateAttributes> ].

A cross faculty Working Group is developing Faculty strategic plans for generic attributes which make the University's proposed policy specific at that level. In some faculties there has been systematic mapping and development of research skills progressively through the curriculum.

### **Self-Assessment**

Monash University: Medium level with high level in some areas/faculties.

University of Sydney: Medium level with high level in some areas/faculties.

### **Recommendations**

- Monash to continue to develop graduate attributes policy considering research as an overarching graduate attribute, and to explore ways in which the development of research skills are mapped progressively through the curriculum.
- The University of Sydney to continue to develop graduate attributes policy and to implement faculty strategic plans based on it.

## 6. Staffing profile

- Compare Monash and Sydney performance of staff in terms of teaching and research.

Low level	Medium level	High level
High proportion of teaching staff is not research active.	High proportion of teaching staff is research active.	High proportion of teaching staff are research active and the proportion of senior staff teaching at 1 <sup>st</sup> and 2 <sup>nd</sup> year levels is at least commensurate with numbers of senior staff in the total teaching staff profile.

Monash is in the process of reviewing research and developing research information systems. For example, currently the University does not routinely collect data on teaching by level in the manner described by the University of Sydney. In terms of research activity, 61.38% of staff (by teaching and research staff) have doctoral qualifications (by research or coursework), and 64.4% of staff published in at least one category in 2002. Statistics for the proportion of higher degree research supervisors who are active researchers is currently unavailable.

### *The University of Sydney*

At the University of Sydney 56% of teaching staff (excluding casual staff) have a PhD or Doctorate (Source: Statistics office) and 72% have published in 2002 (Source: Research & Research Training Management Report 2003). Statistics for the proportion of higher degree research supervisors who are active researchers is currently unavailable. While 50% of teaching staff are at Senior lecturer level C and above, 67% of senior staff teach at the senior levels.

### **Self-Assessment**

Monash University:                      Medium level.  
 University of Sydney:                  Medium level.

### **Recommendations:**

- Monash to begin routinely collecting data on teaching by level in the manner described by the University of Sydney, and to monitor through course and academic reviews.
- Monash to consider monitoring the proportion of higher degree research supervisors who are active researchers through academic and research reviews, and the register of supervisors.
- Both universities to examine the relationship between senior staff teaching at junior levels and the extent to which this enhances the nexus.
- Both Universities to ensure a staffing profile that supports the nexus between teaching and research.

## 7. Performance management

- Compare Monash and Sydney strategies for inclusion of teaching-research nexus in performance management.

Low level	Medium level	High level
No recognition of link between teaching and research in performance management documentation.	Performance management documentation acknowledges teaching-research nexus.	Performance management practice recognizes and takes account of teaching-research nexus.

### *Monash University*

*Leading the Way: Monash 2020* highlights the nexus indicating that the “engagement profiles for individual staff will reflect their particular roles within the greater Monash, based on consistent expectations within the University for research excellence; recognition of the importance of research and scholarship informing teaching; and commitment to parity of esteem for research and teaching excellence” [<http://www.monash.edu.au/monashplan/plan99/>]. Under the section ‘Goals for Teaching and Supervision Quality, Initiatives and Development’ there are a number of examples of goals for staff to relate to. While there is opportunity for staff to report on how they might link teaching and research, the current performance management documentation does not highlight the nexus as an area for reporting. Performance management was also noted in the MRRTMP (strategy 1.1).

### *University of Sydney*

The University of Sydney’s *Performance Management and Development Staff Handbook* does not acknowledge research-led teaching except where it describes the work of the Institute of Teaching and Learning [<http://www.usyd.edu.au/su/stafdev/pmd/manual/forms/handbook.pdf>].

While there is the potential for the teaching-research nexus to be incorporated into the Monash performance management engagement profiles, documentation for academic staff does not specifically include the nexus **in either university**. This is despite the fact that Monash’s planning document *Leading the Way: Monash 2020* specifically highlights the nexus.

### **Self-Assessment**

Monash University:           Low level.  
University of Sydney:       Low level.

## Recommendations

- Monash University to explore ways to recognise the nexus between teaching and research in performance management engagement profiles.
- Monash University to consider including the teaching-research nexus in performance management training for staff and supervisors and in documentation.
- In the University of Sydney consideration be given to incorporate the relationship between teaching and research in the performance management and review process when next it is revised.
- Both universities to consider ways in which the teaching-research nexus may be applied at different levels of appointment and different staff classifications.

## 8. Rewards

- Compare Monash and Sydney recognition and rewarding of teaching-research nexus (eg University Awards).

Low level	Medium level	High level
No teaching and research awards.	Separate teaching awards and research grants.	Awards and grants require demonstration of teaching-research nexus.

### *Monash University*

Monash has an award for excellence in teaching and a separate award for research supervision. The criteria for the 2003 Vice-Chancellor's Awards for Distinguished Teaching do include Scholarship in teaching.

Evidence should be presented to demonstrate that the nominee defines teaching as a scholarly activity in its own right, engages in research or rigorous inquiry into teaching, develops his or her personal expertise as a teacher, maintains command of his or her subject field as a base preparation for teaching, writes and publishes on the teaching of the subject field or on teaching more generally.

Examples might include researching issues that are of particular current relevance to studying and teaching at Monash, presenting seminars and workshops to colleagues on research and reflection on educational issues, participating in educationally focussed conferences, developing networks of colleagues on areas relevant to education [available on-line at:

<http://www.celts.monash.edu.au/hedu/distinguished-teaching-award-2003.html#Criteria>

Accessed 5/12/03].

While this captures an element of the teaching-research nexus, it falls short of a comprehensive representation. Rather, it focuses more specifically on research in teaching and learning.

The teaching-research nexus is evident in two of the criteria for the 2003 Monash Vice-Chancellor's Award for Postgraduate Supervision. The nominee is required to demonstrate 'Enthusiasm for, commitment to, knowledge and understanding of the research student's learning processes in the conduct of thesis research'. The second

criterion requires a current research student of the nominee to comment on the ‘Supervisor as a mentor’. The guidelines suggest that it could be demonstrated by ‘assisting the student to establish and use networks with other students and academics in the field of study; and provision of conference and publication support for the student’ [<http://www.celts.monash.edu.au/hedu/postgrad-supervision-award-2003.html>]

The 2003 Vice-Chancellor's Award for Excellence in Team-based Educational Development does not include the teaching-research nexus and does not include a research component. [Available on-line at: <http://www.celts.monash.edu.au/hedu/team-based-educational-development-award-2003.html#Criteria>  
Accessed 8/12/03]

Some individual faculties also have teaching awards. The Faculty of Arts, for example, awards annual Teaching Initiative Grants and the criteria for the award are linked to the faculty’s strategic direction. The Faculty of Business and Economics (BusEco) has Excellence in Teaching Awards which can be for individuals or teams who use a team-teaching approach. The criteria are linked to the national Australian Awards for University teaching (AAUT), which includes the criterion ‘participation in professional activities and research related to teaching’. BusEco applicants need only address one of their 11 possible areas.

Monash’s research funding schemes such as the Monash Research Fund (MRF) 2004 and the Monash University Fellowship Scheme do not require a demonstration of how the research will link with or benefit teaching apart from research training. Annual Progress & Final Reports for the Fellowship categorise teaching as ‘other activities’. Faculties administer selection and administrative procedures for the Monash Small Grant Scheme and Monash Research Fund (MRF) Travel Grants.

Although the awards at Monash are separate, the scholarship of teaching is included in the criteria for the Vice chancellor’s award for distinguished teaching and does include the nexus in that context. Overall however, awards and grants do not encourage or require demonstration of the teaching-research nexus.

#### *University of Sydney*

The University of Sydney also has separate awards; one for excellence in teaching and another for supervision as well as a number of awards at faculty level. The criteria for Vice-Chancellor’s awards for outstanding teaching at the University of Sydney reflect the commitment to research-led teaching and include:

- Command of the subject matter, including the incorporation in teaching of recent developments in the field of study and appropriate links between research and teaching, (Criterion 2); and
- Participation in professional activities and research related to teaching (Criterion 10) [Available on-line at: <http://www.itl.usyd.edu.au/awards/outstanding.htm> ].

The Research-led Teaching Working Group is currently examining the criteria of faculty-based awards to examine the extent to which they articulate with the university awards. The Excellence in Research Higher Degree Supervision award at

the University of Sydney recognises and rewards excellence in postgraduate supervision. Academic staff must have supervised a minimum of three postgraduate students to completion, and demonstrate having “reached a level of sustained excellence”. The selection committee includes the Dean of Graduate Studies, the Pro-Vice-Chancellor (Teaching and Learning), the Chair of Academic Board, and a member of the Institute for Teaching and Learning [Available on-line at: <http://www.nettl.usyd.edu.au/awards/excellence.htm>].

The criteria for the awards include:

- Ability to integrate students into the research community, including, where appropriate, encouraging publication and developing professional links with other postgraduate research students (Essential Criterion 2); and
- Scholarship in research training and supervision, including impact of research activities on supervision, research and contributions to the literature on effective supervision, and leadership in developing the skills of other supervisors (Desirable Criterion 3) [Available on-line at: <http://www.itl.usyd.edu.au/awards/excellence.htm>.]

The University of Sydney initiated a scheme of performance based funding for teaching, and the Scholarship Index is one component of that. The aim is to provide rewards to those departments whose staff are committed to the scholarship of teaching, which is one aspect of the teaching-research nexus. Points are awarded in terms of the following indicators:

- Qualification in university teaching (10 points)
  - National teaching award AUTC/CUTSD (winner) (10 points)
  - National teaching award (finalist only) (5 points)
  - University teaching award (including awards for Excellence in Research Higher Degree Supervision) (5 points)
  - Faculty teaching award (2 points)
  - Publication on university teaching – book (10 points)
  - Publication on university teaching – refereed chapter (2 points)
  - Publication on university teaching – refereed article (2 points)
  - Presented conference paper or poster on university teaching (1 point)
- <http://www.usyd.edu.au/quality/teaching/si.shtml> .

### **Self-Assessment**

Monash University: Medium to high level.

University of Sydney: High level.

### **Recommendations**

- Monash to consider inclusion of the nexus in award and grant application criteria, documentation and training, and report processes.
- The University of Sydney to continue to maintain high level relationship between research and teaching.



## 9. **Recruitment, probation and promotion**

- Compare Monash and Sydney strategies for inclusion of teaching-research nexus in recruitment documentation and probationary reports and promotion documentation.

Low level	Medium level	High level
Teaching-research nexus not mentioned in recruitment, probation and promotion documentation.	Teaching-research nexus mentioned in recruitment probation and promotion documentation.	Teaching-research nexus demonstrated in recruitment, probation and promotion practice.

### *Monash University*

There does not appear to be any requirement for embedding the teaching-research nexus in advertising, position descriptions or documents forwarded to potential candidates. “Advertisements should provide a brief statement about the position and may include the essential skills required to perform the role” Available on-line at: <http://www.adm.monash.edu.au/sss/handbook/1-6.html#1.6.1> ]. The links between teaching and research may be discussed at interview, but this is not a requirement. The Monash Staff Development Unit, however, has a Staff Selection item bank of questions that includes the following: “Can you give any examples of where your research has had a direct impact upon your teaching?”

[http://www.adm.monash.edu.au/sss/sdu/staff\\_selection\\_induction/item\\_bank.html#Teaching%20Academic%20Staff](http://www.adm.monash.edu.au/sss/sdu/staff_selection_induction/item_bank.html#Teaching%20Academic%20Staff).

The academic Probation Review uses the same criteria as in Performance Management Reviews where teaching and research are categorized separately. All newly appointed staff are required to undertake the Graduate Certificate in Higher Education (GCHE) which does link teaching and research to some extent through the negotiated project.

Monash identifies four areas of activity as the responsibility of academic staff. These four areas also form the key areas for promotion.

- teaching;
- research/scholarship and creative activities;
- leadership and management (hereafter referred to as leadership); and
- professional and community service.

The teaching-research nexus is not mentioned in the separate teaching or research summary sheets for promotion. However candidates are advised that their application must “demonstrate an active research program connected to teaching and supervision”

[Available on-line at:

[http://www.adm.monash.edu.au/sss/pc/academic\\_promotion/2004/guidelines/3-preparing.htm](http://www.adm.monash.edu.au/sss/pc/academic_promotion/2004/guidelines/3-preparing.htm)].

Monash does not specifically identify the teaching-research nexus as a key area of activity, but it seems that the nexus is required to be demonstrated in practice for promotion.

#### *University of Sydney*

Policies for appointment, probation and tenure, at the University of Sydney treat teaching and research separately. While the policy on probation and tenure does not make any specific assumptions about the nature of the position, teaching and research are treated as separate “categories of activity”. The University’s promotions policies, teaching and research both feature with research-led teaching very clearly identified in the guidelines for promotion. The university identifies five key areas of teaching as follows:

- performance;
- research-led teaching;
- student focussed teaching;
- scholarship in teaching; and
- leadership in teaching [Available on-line at:  
<http://www.usyd.edu.au/su/personnel/policy/prog-dev/acad/2000/s2-2.htmlp16> ].

Examples for each category are included.

There are four key dimensions of research/scholarship/creative/professional work as follows:

- program of research, scholarly, creative and/or professional work;
- recognition received for research, scholarly, creative and/or professional work;
- dissemination of research, scholarly, creative and/or professional work; and
- research leadership.

#### **Self-Assessment**

Monash University: Low level.

University of Sydney: Low to medium level.

#### **Recommendations:**

- Monash to give consideration to ways in which recruitment, induction and probation guidelines and practices can support the teaching-research nexus.
- Monash to re-examine current promotion criteria and guidelines, and revise so as to reflect commitment to the teaching-research nexus.
- The University of Sydney to give consideration to ways in which promotions recruitment and probation requirements can be amended to strengthen the relationship between research and teaching.

## 10. Organizational and staff development

- Compare Monash and Sydney staff development opportunities in terms of teaching-research nexus.

Low level	Medium level	High level
No staff development available on teaching-research nexus.	One-off, ad hoc seminars on teaching-research nexus.	Teaching-research nexus a strategic priority in staff development.

### *Monash University*

Monash has not to date offered any centrally organized staff development specifically aimed at strengthening the teaching-research nexus. However, the Graduate Certificate in Higher Education offered by the Higher Education Development Unit (HEDU) does include a Negotiated Project (HED5004) where participants undertake an action research project related to their teaching, the aim being to enhance the student learning experience through research. Participants locate their project within the relevant literature, and report their findings. The unit also incorporates activities for participants to engage in scholarly exchange.

The Monash University Research and Research Training Management Plan (2000) target 10.1 aimed to collaborate with the Higher Education Development Unit to develop a training program for supervisors. The Research Supervision Training Program was implemented in early 2002. The 2000 target has been achieved and as part of the Graduate Certificate in Higher Education, the Higher Education Development Unit will offer a unit on postgraduate supervision for the first time in 2004.

The fact that the GCHE is a requirement for new staff and includes HED 5004 are strengths for Monash. However, systematic consideration of the teaching-research nexus in terms of priorities for staff development could be strengthened.

### *University of Sydney*

The University of Sydney has a Research-led Teaching Working Group established by the Institute for Teaching and Learning and endorsed by the Academic Board's Teaching and Learning Committee. It consists of senior representatives of all Faculties nominated by the deans to progress the initiative. The Working Group meets four times a year and is responsible for implementing strategies discussed at the faculty level. The Working Group has considered a number of strategies and shared good practice across faculties on a regular basis.

The Graduate Certificate in Higher Education at the University of Sydney has two units specifically related to research-led teaching. 1) EDPR 5011 Scholarship of university teaching and learning; and 2) EDPR 5003 - Research enhanced teaching and learning. The aim of these units is to develop the skills of researching teaching and how participant's disciplinary research relates to their teaching.

The University of Sydney has an online research higher degree supervision development program (available at: <http://www.itl.usyd.edu.au/postgrad/>). There are currently 260 supervisors registered on the program. The program is related to the criteria for good practice in supervision, which form the basis for the VC's awards for research higher degree supervision, and includes an independent study program designed to develop supervisors' awareness of and understanding about supervision pedagogy and scholarship. Completion of the program represents a unit in the Masters in Education (Higher Education) program.

Part of the Sydney strategic priority is that the Institute for Teaching and Learning offer presentations and seminars on the teaching-research nexus/research-led teaching. Presentations took place in 6 of the 17 faculties in 2003.

### Self-Assessment

Monash University: Medium to high level.  
 University of Sydney: High level.

### Recommendations:

- Monash to develop a more systematic approach to organisational and staff development in support of the teaching-research nexus.
- The University of Sydney to continue to sustain high level strategic commitment to enhancing research-led teaching.

## 11. Internal and external communications

- Compare Monash and Sydney reference to teaching-research nexus in internal and external communications.

Low level	Medium level	High level
Not mentioned in internal and external communications.	Ad hoc, occasional reference to teaching-research nexus in internal and external communications.	Frequent and systematic reference to teaching-research nexus in internal and external communications.

### Monash University

Importance of the teaching-research nexus was identified in *Still Learning* and is a key area of the *Learning and Teaching Plan 2003-2005*. The nexus is noted frequently in internal university committee documents and the Discussion Paper on the Teaching Research Nexus (CHEQ, 2003) was discussed at Academic Board, Education Committee, Committee of Associate Deans Research and Faculty Education Committees.

The nexus is also noted in the *Monash University* corporate brochure (p. 2) where it says that 'the university's strong commitment to research-based education benefits all its students' and that "the strong nexus between teaching and research is the cornerstone of policy development." The nexus, however, is not *demonstrated* in the corporate brochure and the statements are not evidence based. Teaching and research

appear to be dealt with as separate activities. The nexus is not featured on the Teaching at Monash or Research at Monash main web pages. Similarly, the teaching-research nexus is not mentioned on the Monash South Africa web page. The Malaysia campus web page on the other hand notes the following: “Registered as Monash University staff, they are required to be active in research as a means of ensuring the relevance of their teaching” [<http://www.monash.edu.my/studying/main.htm>]. There is the occasional reference to the nexus, for example, in interviews and features with teaching and research staff, but no sustained attempt to identify and communicate the nexus. See for example *Monash Magazine*

<http://www.monash.edu.au/pubs/monmag/issue13-2004/research/music.html>.

<http://www.monash.edu.au/pubs/monmag/issue12-2003/research/global.html>

<http://www.monash.edu.au/pubs/monmag/issue10-2002/miracle.html>

and *Monash News*

<http://www.monash.edu.au/pubs/monash-news/september-2004/humour.html>.

### *University of Sydney*

The University of Sydney has a website for Research-led Teaching and the Scholarship of Teaching available at <http://www.itl.usyd.edu.au/RLT/> .

The Institute for Teaching and Learning at the University of Sydney has also linked with the marketing department to examine the perceptions of incoming students to determine the extent to which the research record of the University influenced their decision to study at Sydney.

The University has a number of high school liaison programs which promulgate its research activities amongst high school students.

### **Self-Assessment**

Monash University:                      Low to Medium level.

University of Sydney:                      Medium level.

### **Recommendations**

- Both universities to ensure that internal and external publications and communications report and celebrate the teaching-research nexus.

## Faculty level dimensions

At the faculty level this project has concentrated on comparing the mechanisms that exists in each institution to investigate and enhance the nexus. The dimensions considered are those developed in the CHEQ (2003) Discussion Paper.

### 1. ***Bringing the teacher's research findings into the classroom***

- Compare Sydney and Monash practices and mechanisms to improve the extent to which teachers bring research into the classroom.

Low level	Medium level	High level
Individuals incorporate research ideas into lectures and there are no faculty mechanisms to improve or evaluate practice.	Research ideas are incorporated in student activities/assessment and/or there are ad hoc faculty mechanisms to improve or evaluate practice.	Student learning is organised so as to engage students in research projects and/or there are systematic faculty mechanisms to improve and evaluate practice.

#### *University of Sydney*

In the faculty audit of performance indicators for research-led teaching, the extent to which research ideas were incorporated into teaching was investigated. The Academic Board reviews of faculties also examined this. A list of such activities and the faculties where this occurred was compiled. Strategies ranged from: engaging in inquiry/research based or problem-based learning/research-based learning exercises/projects including fieldwork and professional placements, case-based curricula, evidence-based practice (Faculties of Architecture, Science, Pharmacy, Education and Social Work, Law, Agriculture, Veterinary Science, and Pharmacy (in the third year), Nursing (2B & 3B), and Medicine), and in researching and writing program notes (Conservatorium). There is an advanced Engineering program for high achieving students to engage students in interdisciplinary teamwork focused on inquiry and a 1<sup>st</sup> year program designed to lead students to being a professional scientist includes presentations by Honours Students in the Faculty of Science. In addition, Academic Board reviews of faculties noted that students undertake research for assignments, tutorials and workshops (mentioned in the reports of Dentistry, Pharmacy, Medicine, Veterinary Science, Law, and Agriculture (some industry funded)).

Subsequent Faculty strategies to develop research-led teaching have now been devised. They include, for example, an audit of unit of study outlines to show the degree to which research and inquiry in learning goals is being pursued (Economics and Business).

### *Monash University*

Professor Phyllis Tharenou (formerly of the Department of Management) interviewed several Monash staff to illustrate ways in which teaching staff brought research into the classroom and these were documented as an attachment to the CHEQ (2003) Discussion Paper. Examples of strategies include involving undergraduate students in a research project that is reported as a conference paper and presented in class ‘as at a professional conference’ (Faculty of Science). Students learn from projects undertaken by lecturers that are based on problems identified by industry (Business and Economics). Honours students in the School of Biological Sciences undertake research projects related to research areas of the academic staff.

There is also a Faculty of Science program that introduces students (from second year) to special projects. This initiative will be expanded across the faculty and students will engage in research to a greater extent in their learning experiences. In 2003, the Faculty of Arts held a forum around the teaching-research nexus theme and more specifically what it means in the Arts faculty.

### **Self-Assessment**

University of Sydney: High level.  
Monash University: Medium level.

### **Recommendations**

- The University of Sydney to continue to develop ways in which student learning is organised so as to engage students in research projects and to evaluate practice on an ongoing basis.
- Monash to explore the extent to which student learning is organised so as to engage students in research projects and to consider systematic mechanisms to improve and evaluate practice.

## **2. Research, curriculum development and internationalization**

- Compare Sydney and Monash faculty policy and incentives for curriculum development to be informed by internationally based disciplinary and pedagogical research.

<b>Low level</b>	<b>Medium level</b>	<b>High level</b>
Curriculum development may be informed by internationally based disciplinary and/or pedagogical research but there are no faculty mechanisms to encourage this.	Faculty policies provide encouragement for curriculum development to be informed by internationally based disciplinary and pedagogical research, but there are no strategies and incentives to facilitate this.	Systematic faculty encouragement and incentives for curriculum development to be informed by internationally based disciplinary and pedagogical research.

### *University of Sydney*

Academic Board Reviews of Faculties demonstrate that a number of faculty teaching and learning policies and processes are research/evidence based and/or the scholarly literature on teaching and learning is used in curriculum design and in faculty teaching and learning policy development (Science, Veterinary Science, Medicine, Education, Dentistry, and Health Sciences). The Faculties of Medicine, Pharmacy, Science and the Conservatorium also commission or carry out pedagogical research, which is integrated into teaching. These strategies are underpinned by the Scholarship of Teaching Index and the Graduate Certificate in Educational Studies (Higher Education), which has been made compulsory for all new staff in some faculties.

### *Monash University*

Curriculum development is expected to be informed by internationally based disciplinary and/or pedagogical research, as internationalisation is one of Monash's three defining themes. Category three of the terms of reference in The Guidelines for Course Review suggest taking account of the "processes for ensuring Monash defining themes ... are included in units and sequences offered" [available on-line at: <http://www.adm.monash.edu.au/cheq/documents/Guidelines%20for%20Course%20Review.pdf>]. However, the link with the University plans and the commitment to the nexus, faculty plans and the university reward system is less clear. Like Sydney, some faculties (eg Medicine, Nursing and Health Sciences, and Information Technology) undertake pedagogical research, which is integrated into teaching.

The Faculty of Business and Economics has recently merged the Technology and Flexible Delivery Committee and the Faculty Library Committee to form a new group – the Scholarly Resources Committee. The Committee includes representative of Information Technology Services (ITS), Centre for Learning and Teaching Support (CeLTS), the Library, each of the academic departments and the Faculty Technology Services Group. The basis for the change was the recognition that teaching and research activities of the Faculty needed to be more closely integrated (personal communication, Prof. Joy, 17/9/04).

### **Self-Assessment**

University of Sydney:	Medium with high level in some faculties.
Monash University:	Medium with high level in some faculties

### **Recommendations**

- The University of Sydney to continue to spread good practice in relation to encouragement and incentives.
- Monash to continue to encourage curriculum development that is informed by internationally based disciplinary and pedagogical research.



### 3. ***Building students' research and inquiry capabilities***

- Compare Sydney and Monash faculty policies and strategies to build students research and inquiry capabilities.

<b>Low level</b>	<b>Medium level</b>	<b>High level</b>
There are no faculty policies or strategies to ensure that research and inquiry capabilities are taught.	There are strategies to build students' research and inquiry capabilities but they are not taught as an integral part of a systematic approach to the development of generic attributes of graduates and not monitored on a regular basis.	There are faculty policies and strategies to ensure that research and inquiry capabilities are taught as an integral part of a systematic approach to the development of generic attributes of graduates and these are monitored on a regular basis.

#### *University of Sydney*

The new Graduate Attributes framework is being implemented via the Graduate Attributes Working Group. This framework is based on the three overarching graduate attributes mentioned above: Scholarship, Lifelong Learning, and Global Citizenship, which are designed to reflect the research intensive nature of the University, its scholarly values in relation to research-led teaching, and the place of its graduates in a global society.

Project teams from a range of faculties are working to develop faculty policies consistent with these and to embed graduate attributes in curricula. Details of faculty policies, statements of intent, projects and a range of case studies from different faculties of the University are available at:  
<http://www.itl.usyd.edu.au/GraduateAttributes/>.

#### *Monash University*

Monash is aiming towards the development of research skills progressively throughout the curriculum, and a new set of graduate attributes is being created. There is a Graduate Attributes Working Party of Education Committee. Some faculties are working on ways to develop their graduate research capabilities. The Graduate Pathways Project for example is concerned with developing students' research skills from their first year (Faculty of Arts). Outcomes of the Faculty of Arts teaching-research nexus forum initiative included:

- the establishment of a large number of research methodology units at the second year level as well as reconfiguring curriculum to develop a wider range of research skills in the first year of study; and
- all honours programs now have a 50% (24 point) thesis component to ensure consistency.

Category three of the terms of reference in the Guidelines for Course Review outline taking account of the “processes and procedure for ensuring that students acquire

Monash graduate attributes during their course” [available on-line at: <http://www.adm.monash.edu.au/cheq/documents/Guidelines%20for%20Course%20Review.pdf>]. However, there does not appear to be across the board faculty policies and strategies to ensure that research and inquiry capabilities are taught as an integral part of a systematic approach to the development of generic attributes of graduates, and monitored on a regular basis.

### Self-Assessment

University of Sydney: Medium with high level in a few faculties.  
 Monash University: Medium with high level in a few faculties.

### Recommendations

- The University of Sydney to continue to spread good practice in relation to ensuring that research and inquiry capabilities are taught as an integral part of a systematic approach to the development of generic attributes of graduates and that these are monitored on a regular basis.
- Monash to continue to spread good practice in relation to ensuring that research and inquiry capabilities are taught as an integral part of a systematic approach to the development of generic attributes of graduates, and these are monitored on a regular basis.

## 4. Utilizing and building a community of scholars

- Compare Sydney and Monash strategies to encourage students and staff to participate in a variety of scholarly communities.

Low level	Medium level	High level
There are no faculty strategies to encourage students and staff to participate in scholarly communities.	There are faculty strategies to encourage students and staff to participate in a variety of scholarly communities.	There are faculty strategies to ensure undergraduate and postgraduate students participate with staff in a variety of scholarly communities.

### University of Sydney

Academic Board Reviews of Faculties demonstrate a range of strategies in use across the University designed to encourage the development of scholarly communities. These include: a Faculty Research Day (Dentistry) and the existence of Student conferences/seminars (which may or may not be integrated with staff research seminars and events), students attending and being supported to attend conferences in the Faculties of Law, Veterinary Science, Education, Conservatorium, Pharmacy, Agriculture, Rural Management, Medicine, Architecture, Sydney College of the Arts and Nursing. However, evidence suggests that many undergraduate students still do not have opportunities to participate in such events.

### Monash University

Monash examples of scholarly communities include the forum on the teaching-research nexus in the Faculty of Arts, the undergraduate Palaeontology course that

links with museum exhibitions and a student conference, initiatives in exhibitions in the Drawing Program and Higher Degree Research Subjects in the Department of Fine Arts, the Global Terrorism Research Unit which is multidisciplinary and links with the community, and the Education Faculty, which began an initiative to develop interdisciplinary research clusters aimed at strengthening the nexus (noted by Professor Phyllis Tharenou). A number of faculties have also attended seminars to consider ‘The Teaching Research Nexus; A discussion Paper’. While Monash has examples of initiatives designed to encourage the development of scholarly communities it is likely that, as with the University of Sydney, not all undergraduate students may have opportunities to participate in such events.

### Self-Assessment

University of Sydney: Medium level.

Monash University: Medium level.

### Recommendations

- Both universities to develop ways to ensure undergraduate and postgraduate students have the opportunity to participate with staff in a variety of scholarly communities.

## 5. Exploring the context of research

- Compare the extent to which Sydney and Monash strategies encourage students and staff to engage in discussions about the nature of the disciplinary area, the nature of research and what it means to study the subject.

Low level	Medium level	High level
Students and staff engage in discussions about the nature of the disciplinary area, the nature of research and what it means to study the subject on an ad hoc and infrequent basis.	Staff engage in discussions about the nature of the disciplinary area, the nature of research and what it means to study the subject, but there are no strategies to encourage students to participate in such discussions.	There are strategies to encourage students and staff to engage in discussions about the nature of the disciplinary area, the nature of research and what it means to study the subject.

### *University of Sydney*

Generally, this was not an aspect commented upon in Academic Board Reviews. What evidence there is suggests that students in some faculties consider that insufficient opportunities are provided for this. Anecdotal evidence suggests that staff engage in discussions about the nature of the disciplinary area, the nature of research and what it means to study the subject, in some faculties but that the relevance of this is different in different areas and as far as it has been possible to tell there are no strategies to encourage students to participate in such discussions.

### *Monash University*

Professor Phyllis Tharenou’s interviews with representatives from various faculties suggests that staff engage in discussions about the nature of the disciplinary area, the nature of research and what it means to study the subject. How this is conducted, and the extent, will vary in different areas. It is not possible to determine to what extent students participate in the discussions across the faculties.

### **Self-Assessment**

University of Sydney: Medium level.

Monash University: Medium level.

### **Recommendations**

- Both universities to develop strategies to encourage students and staff to engage in discussions about the nature of the disciplinary area, the nature of research and what it means to study the subject.

## **6. Teaching research methods**

- Compare the extent to which faculties at Sydney and Monash implement a systematic and integrated approach to the teaching of research skills across the undergraduate curriculum and how faculties monitor this.

<b>Low level</b>	<b>Medium level</b>	<b>High level</b>
Research skills are taught across the undergraduate curriculum on an ad hoc basis.	Research skills are taught across the undergraduate curriculum and there is a spasmodic attempt to integrate, but faculties do not monitor this.	There is a systematic and integrated approach to the teaching of research skills across the undergraduate curriculum and faculties monitor this on a regular basis.

### *University of Sydney*

This issue is now being addressed through the Graduate Attributes project. The new Graduate Attributes framework includes Research and Inquiry (“Graduates of the University will be able to create new knowledge and understanding through the process of research and inquiry”) and Information Literacy (“Graduates of the University will be able to use information effectively in a range of contexts”) as two of the five overlapping clusters of skills and abilities to be developed across the three overarching graduate attribute. Details of Faculty statements projects and a range of case studies from different faculties of the University are available at:

<http://www.itl.usyd.edu.au/GraduateAttributes/>.

### *Monash University*

Monash is aiming towards the development of research skills progressively throughout the curriculum and the Guidelines for Course Review suggest taking account of the “processes and procedure for ensuring that students acquire Monash graduate attributes during their course” [available on-line at:

<http://www.adm.monash.edu.au/cheq/documents/Guidelines%20for%20Course%20R>

[view.pdf](#)]. There are numerous research units offered in various faculties. Those listed in the 2004 Monash handbook (not including research projects, essays, dissertations and seminars) indicate that the research units are predominantly in the upper-level and postgraduate levels with very few in the first year. In that sense it is not yet fully integrated, nor monitored on a regular basis.

### Self-Assessment

University of Sydney: Medium level with some faculties at the high level.

Monash University: Medium level with some faculties at the high level.

### Recommendations

- Both universities to continue to develop systematic and integrated approaches to the teaching of research skills across the undergraduate curriculum and for faculties to monitor this on a regular basis.

## 7. *Researching teaching*

- Compare the existence of strategies to encourage research on teaching and to use this in curriculum development at Sydney and Monash.

Low level	Medium level	High level
Research on teaching is not valued and/or does not take place.	Research on teaching is carried out, but there are no or ad hoc faculty strategies to encourage this and it is only used spasmodically in curriculum developments.	There is an integrated and systematic program of research on teaching in faculties which is used to inform curriculum developments.

### *University of Sydney*

The University's Scholarship Index and performance based funding for teaching system has been influential in focusing attention on research on teaching. Academic Board Reviews of Faculties demonstrate that research into teaching is encouraged and carried out (and may be viewed as an important alternative to disciplinary research) and/or that individuals/groups in the faculty engage in pedagogical research and/or have received grants to do so in Science, Veterinary Science, Sydney College of the Arts, Education, Health Sciences, Nursing, Dentistry, Rural Management, Economics & Business, and Pharmacy. In the faculties of Science, Agriculture, Medicine, Health Sciences, Law, Pharmacy, Architecture, Arts, Sydney College of the Arts and Rural Management, staff publish in disciplinary journals, are invited to speak on teaching or there is encouragement (sometimes in the form of funding) to attend/present papers at teaching and learning conferences. In Medicine, Arts, Science, and Rural Management there is a staff seminar series on teaching and learning issues and in Engineering, Education, Dentistry and Health Sciences, staff receive encouragement to research their own practice.

The Graduate Certificate in Educational Studies (Higher Education) includes a unit of study focused on the *Scholarship of University Teaching and Learning*. This was established to

teach academics the skills of research related to teaching and learning. To date, some 70 academics have benefited from this unit.

### *Monash University*

Monash developed the Unit Innovation Grants Scheme and 50 projects were funded across the ten faculties in 2003

[available on-line at:

<http://www.adm.monash.edu.au/dvcap/UIGS/UIGS%202003.html>]. The Guidelines state that “projects funded under the scheme must contribute to the **strategic directions** of the university and/or the faculty” in accordance with *Leading the Way* and the LTP. .

Monash University’s Graduate Certificate in Higher Education offered through the Centre for Learning and Teaching Support (CeLTS) has influenced research into teaching through the negotiated project component where participants research an aspect of their own teaching. Some report their research at national conferences. The Faculty of Medicine, Nursing and Health Sciences has a Centre for Medical and Health Sciences Education (CMHSE). This centre “assists in the enhancement of curricula and manages a health professions education research and development program of international status” [available on-line at: <http://www.med.monash.edu.au/cmhse/>]. CMHSE also offers a Graduate Certificate in Health Professional Education, and a seminar series. CMHSE staff publish in a range of leading journals relevant to health sciences education. The Faculty of Law offers a Graduate Certificate in Law Teaching (GCLT) through their Educational Development & Flexible Learning Unit (EDFLU). The GCLT also includes a negotiated project. Other innovations include a ‘teaching best practice’ database [available on-line at: <http://www.law.monash.edu.au/fl/teaching-best-practice-database.html> ] The Faculty of Information Technology established the Facilitated Learning for Information Technology Education (FLITE) program. One of the three objectives of the centre is to “provide support for Faculty of Information Technology Staff in the development of a wide range of flexible learning programs” [available on-line at: [http://www-flite.infotech.monash.edu.au/html/information\\_centre\\_aims.htm](http://www-flite.infotech.monash.edu.au/html/information_centre_aims.htm) ]. The centre holds symposia and seminars. Staff in other faculties also engage in pedagogical research to inform curriculum development and published their work in academic journals. However, there is not an integrated and systematic program of research on teaching in all faculties that is used to inform curriculum developments.

### **Self-Assessment**

University of Sydney:	Medium level with some faculties at high level.
Monash University:	Medium level with some faculties at high level.

### **Recommendations**

- The University of Sydney to continue to spread good practice in faculties in relation to researching teaching.
- Monash to continue to identify exemplars of good practice in faculties and to disseminate across the university.

## 8. *Teaching leading to research*

- Compare Sydney and Monash strategies to encourage and reward disciplinary research projects that result from teaching.

Low level	Medium level	High level
There is no formal recognition in faculties that teaching generates or influences research.	There is formal recognition in faculties that teaching generates or influences research, but no strategies to encourage and reward this.	There are faculty strategies to encourage and reward disciplinary research projects that result from teaching, including critical questioning by students.

### *University of Sydney*

This aspect has been a subject neither of the Academic Board Reviews of Faculties nor of the performance indicators for research-led teaching. Indeed, in order to focus attention on the key priorities for the development of research-led teaching, the proposed project aim to “Enhance research activity in the university through the development of the relationship between teaching and research” contained in the original project plan (Brew 2000) has not yet been pursued. This remains an issue for development in the future. There is work to be done in encouraging the research committees and bodies across the University and in faculties to examine this issue and to provide incentives and encouragement.

### *Monash University*

This has not been a focus of review or reward at Monash either, and remains an area for development. A number of faculties recognise that teaching generates or influences research. However, strategies to encourage and reward this, including critical questioning by students, remains an area for further investigation.

### **Self-Assessment**

University of Sydney:           Low level.  
 Monash University:           Medium level.

### **Recommendations**

- Both universities to encourage faculties to find ways of recognising and rewarding research projects that arise from aspects of teaching.

## About the Authors

Dr Angela Brew is Associate Professor in the Institute for Teaching and Learning at the University of Sydney. She has worked and published in the area of academic development for over 25 years and has researched in the area of teaching and learning in higher education and related fields in the United Kingdom and in Australia. Recent publications include: *The Nature of Research: Inquiry in Academic Contexts* published by RoutledgeFalmer in 2001. She is responsible for the University of Sydney Project to develop research-led teaching. From 1999-2003 she was President of the Higher Education Research and Development Society of Australasia (HERDSA). She is co-editor of the International Journal for Academic Development.

Dr Jennifer Weir is Quality Advisor (academic programs) in the Centre for Higher Education Quality at Monash University. She has worked in areas of academic development and quality assurance for 10 years including experience at the University of Natal in South Africa. She also remains active in her discipline area of African history.



## References

- Brew, A. (2000). *Research-led teaching at the University of Sydney: Draft Plan for Development and Strategy for Implementation*. The University of Sydney, Institute for Teaching and Learning.
- Centre for Higher Education Quality (2003). *The Teaching-Research Nexus: A Discussion Paper*. Centre for Higher Education Quality, Monash University, 14 May.
- Monash University, *Effective Teaching Policy* [available on line at: <http://www.adm.monash.edu.au/unisec/academicpolicies/policy/effective.html> Accessed 14 May, 2004].
- Monash University, *Guidelines on Academic Promotion 2004* [available on line at: [http://www.adm.monash.edu.au/sss/pc/academic\\_promotion/2004/guidelines/3-preparing.htm](http://www.adm.monash.edu.au/sss/pc/academic_promotion/2004/guidelines/3-preparing.htm) ].
- Monash University (1999). *Leading the Way: Monash 2020* [available on line at: <http://www.monash.edu.au/monashplan/plan99/> Accessed 14, May 2004].
- Monash University (2003). *Learning and Teaching Plan 2003-2005* [available on line at: <http://www.adm.monash.edu.au/dvcap/ltp/index.html> Accessed 14 May, 2004].
- Monash University (2000). *Monash Research & Research Training Management Plan* [available on line at: <http://www.monash.edu.au/research/statements/monashplan/> Accessed 14 May, 2004].
- Monash University (2000). *Monash Research & Research Training Operational Manual* [available on line at: <http://www.monash.edu.au/research/statements/opmanual/> Accessed 14 May, 2004].
- Monash University, *Relevance of the Curriculum Policy* [available on line at: <http://www.adm.monash.edu.au/unisec/academicpolicies/policy/relevance.html> Accessed 14 May, 2004].
- Monash University (2002). *Still Learning: The Report of Our Self-Review* [available on line at: <http://www.adm.monash.edu.au/unisec/res/Still%20Learning.pdf> Accessed 14 May, 2004].
- Tharenou, Phyllis. 'Vignettes Illustrating the Teaching-research Nexus at Individual Subject Level, School/Department Level, and University Level', Department of Management, Monash University.

University of Sydney. Graduate Attribute project [available on line at:

<http://www.itl.usyd.edu.au/GraduateAttributes> Accessed 20 September 2004].

University of Sydney. *Performance Management and Development Staff Handbook* [<http://www.usyd.edu.au/su/stafdev/pmd/manual/forms/handbook.pdf> Accessed 14 May, 2004].

University of Sydney. Scholarship Index [available on line at: <http://www.usyd.edu.au/quality/teaching/si.shtml> Accessed 14 May, 2004].

University of Sydney (2003). *Teaching and Learning Plan 2004-2006* [available on line at: <http://www.usyd.edu.au/quality/teaching/index.shtml> Accessed 14 May, 2004].

University of Sydney. Vice-Chancellor's Awards for Outstanding Teaching 2004 [available on line at: <http://www.itl.usyd.edu.au/awards/outstanding.htm> Accessed 14 May, 2004].

University of Sydney. Vice-Chancellor's Awards for Excellence in Research Higher Degree Supervision 2004 [available on line at: <http://www.itl.usyd.edu.au/awards/excellence.htm>. Accessed 14 May, 2004].