# Research audit of New Zealand universities 2000-2001:

## a summary of findings

John M. Jennings

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**AAU Series on Quality      Number 8**

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# ABBREVIATIONS

| | |
|---|---|
| Auckland | University of Auckland |
| AUT | Auckland University of Technology |
| Canterbury | University of Canterbury |
| Lincoln | Lincoln University |
| Massey | Massey University |
| Otago | University of Otago |
| Victoria | Victoria University of Wellington |
| Waikato | University of Waikato |

# Preface

## The aim of the document

The aim of this document is to present the findings as reported by audit panels[1] arising from a cycle of audits of New Zealand universities conducted during 2000 and 2001, focusing on the national theme of research-related matters. The audits were conducted against each institution's own objectives, and were designed to review the effectiveness of processes related to achieving an institution's own objectives with respect to the theme, and to offer recommendations to assist institutions enhance the quality of research-related activities. This 'institutional' aspect of audit must be kept in mind when reading this document; statements about systems and processes which refer to particular institutions as examples are not to be interpreted as meaning that other institutions do, or do not, also have such systems and processes.

## The structure of this document

The main body of this document draws together the findings of audit panels, as recorded in their audit reports, on their assessment of policies and practices of New Zealand universities in the areas of research policy and management, the research-teaching nexus, and the provision and support for postgraduate students (chapters 2-4). These sections are preceded by a 'Preview' (chapter 1) which provides an executive summary to the findings of the audit reports, and are followed by a concluding statement (chapter 5) in which the strengths of New Zealand universities are enumerated, along with the Unit's assessment of the most important improvement activities that should be undertaken by the universities.

## The role of the Unit

The New Zealand Universities Academic Audit Unit was established by the New Zealand Vice-Chancellors' Committee in 1993, and it operates under Terms of Reference that can be summarised thus:

- to review and comment on the effectiveness of systems for monitoring and enhancing academic quality and standards in New Zealand universities to ensure that they are appropriate for achieving the universities' stated aims and objectives, and that they are applied effectively, and

- to identify, devise, disseminate and commend to universities good practice, assist universities improve educational quality, advise the New Zealand Vice-Chancellors' Committee on quality assurance matters, and interact with other national and international agencies and organisations engaged in quality assurance in education.

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[1] Institutional reports are available on the website of the New Zealand Universities Academic Audit Unit, http://www.aau.ac.nz. Copies of the reports can be purchased from the Unit, P O Box 9747, Wellington, New Zealand, at $25 each.

During the period 1995-1998, the Unit conducted the first Cycle of audits of all seven universities then in operation.  At the completion of that Cycle 1 of audits, the Unit was subjected to a review by an independent panel whose report discussed, among other matters, the direction of future audits.  Following consideration of the review report, the Board of the Unit agreed to defer a second full institutional audit until three cycles of focussed 'theme' audits were completed in quick succession - during 2000 (Cycle 2) on the theme of *research*, during 2002 (Cycle 3) on the theme of *staff*, and during 2004 (Cycle 4) on the theme of *academic programmes*.  These themes were to be common to all universities, and, as well, each university would decide on an additional institutional topic in consultation with the Unit.

At the end of Cycle 1, the Unit published *An audit perspective, 1995-1998* (as 'AAU [New Zealand Universities Academic Audit unit] Series On Quality: Number 2 April 1999').  In the introduction, the then Director, Dr David Woodhouse, commented:

> *This overview  . . . presents a snapshot of aspects of the university sector in the period 1995 to 1998.  Even within this period, it is more of a video than a still, because the universities have been changing constantly: in anticipation of audit, in response to audit, in response to the changing environment, and through continuing initiatives.  Despite its historical character, this overview should be of value, as it deals with issues that frequently recur in different ways and different guises.* (p.1)

A similar comment can be made with respect to this document, which provides an 'audit perspective' at the end of Cycle 2 audits, but to the above comment should be added the additional advice that this document presents findings arising from audit of eight distinctive universities, each with its own characteristics, history, communities of interest and environment of operation.

A second review of the Unit was undertaken in late 2001 towards the end of Cycle 2 audits.  The review recommended that institutional audits be spread out over a four-to-five year cycle thus giving universities time to follow up the recommendations and incorporate them into effective improvement programmes.  This recommendation has been accepted by the universities and the Unit, and the theme audits as planned for Cycles 3 and 4 will not now proceed.  They will be replaced by institutional audits, normally at the rate of two institutions a year, normally with a broader focus and some element of review of progress on recommendations arising from previous audits.

## The theme of Cycle 2

The Education Act 1989 section 162(4)(a) states the characteristics that define universities.

> *That universities have all the following characteristics and other tertiary institutions have one or more of those characteristics:*
> *(i)     They are primarily concerned with more advanced learning, the principal aim being to develop intellectual independence;*
> *(ii)    Their research and teaching are closely interdependent and most of their teaching is done by people who are active in advancing knowledge;*
> *(iii)   They meet international standards of research and teaching;*
> *(iv)    They are a repository of knowledge and expertise;*

*(v)    They accept a role as critic and conscience of society.*

Given the primacy of research, the importance of involvement in more advanced learning and the close interdependence of research and teaching, it was appropriate that research should be chosen as the theme for the first cycle of theme audits.  The *research* theme for Cycle 2 covered three aspects:

- research policy and management,
- the research-teaching nexus,
- the provision and support for postgraduate students.

As well, each university nominated, and had approved, its own theme or themes:

| | |
|---|---|
| University of Auckland | Electronic information systems for students (including Library Information Services) |
| University of Waikato | Planning processes |
| Massey University | Distance education |
| Victoria University of Wellington | Evaluating learning and teaching |
| University of Canterbury | The Library; Information technology |
| Lincoln University | International activities and internationalisation |
| University of Otago | Internal and external communication systems |

To these seven universities was added the Auckland University of Technology which began its operations as a university on 1 January 2000.  Since this audit would be the first audit for the new university, it was agreed that the Auckland University of Technology should undergo a full institutional audit.

## The audit process

The audit process for the universities entailed self-reviews conducted by the universities themselves resulting in the production of portfolios which identify strengths with respect to the audit themes, as well as areas for improvement.  After consideration of the portfolios together with any further information, the audit panels visited the universities and conducted interviews to test and verify the material submitted by the universities.   Consideration of the materials and interviews by the panels led to the publication of public reports by the Unit in which good practice was commended and in which recommendations were made to assist the universities in their programmes of quality improvement.  Following their audits, the universities are required to provide follow-up reports in which they identify their responses to the recommendations and their actions as a consequence of the audit process.

## Acknowledgements

Acknowledgement is made to the members of the Publications Committee of the Board of the Unit; to Robyn Harris who was Academic Audit Officer and then Acting Director of the Unit during the period of the Cycle 2 audits, and who was secretariat to all but one of the audit panels; and to the Chairs of the eight audit panels. All read the text, and many offered comments which have helped greatly to strengthen the focus and content of this document. Their advice and encouragement is greatly appreciated.

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### John M. Jennings
*Director*
*August 2002*

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# 1

# Preview

## 1.1 Introduction

This overview is designed to highlight the main findings of the audit reports and to act as an executive summary. It must be considered in the light of the fuller context provided in sections 2 to 4 of this report.

## 1.2 Research policy and management

### Research goals, strategies and policies

- Universities commit themselves to research in various statements - institutionally through their statements of objectives and institutional plans, and also at faculty, school and departmental level.

- There is considerable variation, however, in the way universities carry out planning processes, and there is a need for a closer monitoring in some universities of the implementation of plans and of the alignment of activities and outputs with institutional goals and objectives.

### Research management and strategic emphases

- The oversight for the management of research is set at high levels in all universities, with research committees at institutional as well as faculty, school and departmental level.

- Universities are aware of the need to become more strategic in their planning and management of research; some have identified strategically important research themes; all universities are aware of the need to concentrate major research effort where it can benefit from critical mass of researchers and research support; and universities recognise that individual programmes must also be sustained.

- Universities have strengthened team-based research and interdisciplinary research projects through the establishment of research centres which bring together researchers from within departments and faculties as well as researchers from outside the universities. It is desirable that there be better monitoring of the outputs and the effectiveness of research centres.

- Ongoing support and advice for staff with respect to the seeking of funds and the design of grant applications are provided by research offices which are to be found at levels appropriate to the management structures of the universities.

- Commercial enterprises are to be found in most universities, assisting staff with accessing external research funds, and with managing research contracts.

## International standards and the measure of research performance

- There is evidence that all this effort produces a substantial amount of research in the universities which is of international standard when measured against a variety of criteria. Viewed as a whole, the New Zealand university sector has made notable contributions to international scholarship in most, if not all, disciplines.

- Universities collaborate with international and national industries, research institutes and businesses and their local communities (especially in Maori, and humanities discipline areas).

- The measurement of the quantity of research remains a challenge with universities applying different criteria, restricted (in the main) to publication rates and the extent of external research funding. The measurement of the quality of research outputs is more elusive that the measure of quantity.

- There is a need for benchmarking among universities with respect to the development and implementation of acceptable research measures.

- Some universities have carried out research evaluation exercises which have facilitated the monitoring of strengths and weaknesses. At least one university will use a research evaluation exercise to help determine targeted funding for departments and staff who are underperforming or who are inactive in research.

## Treaty obligations

- Universities back their commitments to Treaty obligations with research centres and support for research into Treaty-related issues. Humanities and social sciences are the main contributors. Departments without direct interaction with Maori through research or curriculum see their responsibilities to be support for Maori students and staff colleagues.

- All universities recognise the need to be more proactive in seeking input from iwi to inform research on Treaty or Maori issues.

## Staff matters

- The difficulty of ensuring fair distribution of workload to allow adequate time for research is recognised by universities as a matter to be addressed urgently.

- Those universities and departments with lower than average percentages of staff with doctoral degrees recognise the need to be proactive in supporting staff to work towards, and achieve, higher qualifications.

- In general, universities are good at identifying well-performing staff but are less effective at addressing issues of under-performing staff.

- Ways of providing more tangible recognition of the work of technical and general staff in support of research is required in many universities.

## Ethics

- The need for ethical behaviour by those engaged in research is acknowledged although more effective monitoring of the use and effectiveness of ethical guidelines should be developed.

## 1.3  The research-teaching nexus

### University self-reviews and commitment

- Universities tend to take as self-evident the nature of the research-teaching nexus, given the legislative requirement for the teaching of degrees.

- The specifying of the research-teaching nexus as a theme in this audit cycle resulted in all universities engaging in internal debate about the nature and extent of links between research and teaching.  As a result, the strengths of links at advanced undergraduate and postgraduate level are being reinforced, and universities have been made aware of the need to develop a more consistent application of research techniques in undergraduate courses and to develop an awareness among students as to the distinctive dimension brought to university teaching through research.

### Research-teaching links

- The well-recognised links arising from the transmission of new research knowledge through teaching, and the less-recognised enrichment of the research process arising from teaching, are reinforced by teaching models which encourage students to engage in a research/critical enquiry approach to learning, and by the working together of teachers and students (especially at research supervision level) in a community of inquiry.

- Such links are strongest at postgraduate level, weakest at 100 undergraduate level.

- Universities with strong research themes showed evidence of increased levels of integration of teaching and research with stronger interdisciplinary approaches to teaching and the involvement of researchers in teaching.

- The importance of the research-teaching link must be borne in mind by universities in striking the best balance in the employment of staff in research-only and teaching-only positions.

- The important role of technical and general staff in the support of the teaching-research links is not always recognised as well as it should be.

### Staff development

- Professional development courses are drawing more attention to the research-teaching/teaching-research links, and financial support, recognition and reward for excellence in teaching are growing.

- There is a greater recognition of work undertaken in research into teaching.

### Staff and student perceptions

- Staff opinion differs as to the extent to which they believe their research is related to, or directly linked to, their teaching.

- Students interviewed were generally appreciative of the enthusiasm of research-active staff to both their research and their teaching.  Students appreciated the immediacy conveyed by research-active staff, and the opportunities for students to acquire transferable skills through involvement in research.

- Concerns were expressed that some students experience difficulties where staff time on research lessens the time available to students outside formal class time. There is also the risk of students involved in work associated with the research of staff sometimes feeling like unpaid research assistants.

### Activities to do to improve the linkages and awareness

- The self-reviews and audits provided notice of a number of ways to enhance the research teaching links and to increase the awareness of staff and students to the ongoing interaction between research and teaching.

  * The act of ***teaching within a research culture*** requires the teaching environment to be grounded within a framework of critical thought, recognising the similarity of research and learning given that both involve learning, discovery and the construction of knowledge.

  * Responsibilities to ensure procedures associated with ***course design and approval*** require the testing of the extent of research-teaching links in course content.

  * Greater student understanding of research-teaching links require the exploration of methodologies that invite a more deliberate inclusion of activities in ***course delivery and assessment*** which provide student involvement in research.

  * ***Course review*** should test the effectiveness of the application of links and offer ways to enhance them.

## 1.4 The provision and support for postgraduate students

### Management

- Universities have postgraduate committees, boards of studies and agencies who determine and administer policy with respect to research degrees.

- Doctoral studies are administered centrally. Masters theses are administered at division, faculty and departmental levels, but an increasing number of universities are considering more centralised overview of aspects of their administration.

- Where there is a strong devolution to faculty, school and departmental levels, more central oversight is required to avoid excessive variability and diversity in support and administration of postgraduate research; this is especially so where devolution affects a university's ability to ensure that minimum standards are met, and that the highest quality of supervision, infrastructure and support is provided.

### Support for postgraduate students

- Handbooks, policies and guidelines are provided for postgraduate students, as are support services, but where divisional, faculty or departmental handbooks are produced, there is sometimes variability in standard and misalignment with central handbooks.

- There needs to be a monitoring of the awareness of handbooks, policies and guidelines by staff as well as students, and of the effectiveness of the application of policies and procedures.

- Financial support for postgraduate students is limited, but universities do their best in straitened circumstances to find ways to assist as many as possible of the most able students.

- The difficulties associated with the provision of adequate support for international students, and the integration of the different cultures found in multi-campus universities are acknowledged by universities.

## Support for postgraduate study by Maori students

- Universities acknowledge their responsibilities to encourage Maori to enter postgraduate study by providing various means of support, such as funding initiatives and regional ventures.

- Universities are implementing strategies to encourage Maori undergraduate students to undertake graduate study and to engender a culture in which Maori students feel comfortable.

## Resources for postgraduate students

- Universities have institutional policies regarding resource minima but many departments have neither the resources nor the facilities to meet those minima. In many universities there appears to be little or no monitoring of the extent to which policies relating to the provision of resources are adhered to.

## Supervision

- The necessity for training academic staff in research supervision is recognised by the universities, with various strategies in place. Training in most universities is voluntary, but some universities require training and monitor research experience. Much of the responsibility lies with departments, with a consequent potential for variability in quality of training.

- Universities are recognising the desirability of appointing more than one supervisor per student to improve the quality of supervision, and to ensure the continuation of expert support. The selection of supervisors and the distribution of workload among eligible supervisors are issues raised by many of the audits.

- Codes of practice spell out the expectations of both staff and students in the research supervision relationship but the extent to which the awareness and use of these documents is monitored needs to be questioned. Some universities require a postgraduate supervision agreement between supervisors and students.

- Universities require six-monthly progress reports by Ph.D. students, and regular reporting by masters students, by which means difficulties encountered can be addressed and disputes requiring formal disputes procedures alleviated. The extent to which the progress reports are effective in doing this varies among the institutions.

## Examination

- There is general adherence to the involvement of external examiners in the examination of theses, but there is an inconsistent approach across universities to the external assessing of postgraduate coursework.

- The one area of serious debate concerns the desirability of permitting supervisors to be examiners. Where that practice still exists, universities have been asked to reconsider it.

# 2

# Research policy and management

## 2.1   Background

The Education Act 1989 Section 162(4)(a)(iii) states that one of the characteristics of universities is that:

> *They meet international standards of research and teaching.*

The New Zealand Vice-Chancellors' Committee definition[2] states that:

> *Research is intellectually controlled investigation.  It advances knowledge through the discovery and codification of new information or the development of further understanding about existing information.  It is a creative and independent activity conducted by people with expert knowledge of the theories, methods and information of the principal field of enquiry and its cognate discipline(s).*

Research is defined in a number of ways by universities.  While all universities centre their understandings of research on the creation of new knowledge and the expansion of boundaries of knowledge and understanding 'by analysis, synthesis and interpretation of ideas and information' (Victoria), they acknowledge their contributions to 'the conception and presentation of innovative expressions of creative endeavour in architecture and design, literary and musical compositions, in exhibitions and dramatic production' (Victoria).  Others note that 'research in the University establishes an environment which fosters critical inquiry and discovery in all of its activities' (Canterbury).

An open-ended approach to research, whereby universities themselves determine the nature and content of the research they undertake, is consistent with their responsibilities under the Education Act 1989.  Section 161 of the Act declares the intention of Parliament:

> *That academic freedom and the autonomy of institutions are to be preserved and enhanced.*

Academic freedom, with respect to research, means:

> *The freedom of academic staff and students, within the law, to question and test received wisdom, to put forward new ideas and to state controversial or unpopular opinions.*

All this is linked in the Act to the need for highest ethical standards, public scrutiny of research, and accountability for the proper use of resources.  Thus responsible management of the commitment to research activities is necessary, and this is a continuing exercise in universities given finite funding.  The notions of academic freedom provide an underlying motivation for

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[2]   New Zealand Vice-Chancellors' Committee, *Committee on University Academic Programmes functions and procedures 2001*, p.30, n.2.

research in universities and remain critical to the way in which universities take up their responsibilities in research.

## 2.2 RESEARCH GOALS, STRATEGIES AND POLICIES

The commitment of universities to research which is of international standard, which is for the 'advancement of knowledge, benefit of the community, and the enlightenment of teaching' (Waikato) is expressed in a number of ways. The ways in which universities set strategic directions for research, manage research activity, measure research outputs, and ensure that international standards of research are maintained are all of relevance when testing the quality - the 'fitness for purpose' - of universities in New Zealand. Vehicles for planning include the universities' Charters or Statements of Objectives, institutional Strategic Plans or Management Plans for research and postgraduate study. The degree to which these institutional statements are designed and developed by people other than senior managers varies.

In a number of universities, the high-level 'generic' institutional goals of university planning documents are supplemented by more specific goals to be found in strategic planning documents for research developed by faculties, divisions, schools and departments. Audit reports noted occasions where there was considerable variability in the planning, implementation of plans, and monitoring of research activities with respect to these plans, and where these plans did not align well with the institution's expressed strategic directions. There is a need at institutional and faculty, divisional, school and department level for better monitoring of the implementation of plans, the achievements in research, and the extent to which outputs arising from research activities are in keeping with the intentions of the university.

Research policies are sometimes modified by local requirements or histories. In Waikato and Massey, for example - where one merged with a College of Education some years ago, and the other merged with a Polytechnic more recently - work is being done to develop and support a more pervasive research culture in the discipline areas covered by those former institutions. The Auckland University of Technology (AUT) - formerly the Auckland Institute of Technology - was created a university with effect 1 January 2000, and is making progress in developing a research culture and in building its research capacity. In line with its emphasis on teaching, AUT weights its research at the applied end of the research spectrum. It is developing a strategic approach to research within and across the disciplines to inform teaching and learning, and it is identifying priorities for new developments in research which leads to its making targeted appointments of staff with established research careers.

## 2.3 RESEARCH MANAGEMENT

Responsibility for the management of research in universities is at the Deputy or Assistant Vice-Chancellor level, supported by *Research Committees* which are responsible for policy development and the allocation of internal research grants. The strategic nature of these committees varies. For example, Massey's committee sets broad strategy and policy which are complemented by the colleges' strategic research plans; Canterbury's committee produces a prioritised research plan and budget linked to the University's plan but has no direct input into departmental research plans; Lincoln's Postgraduate and Research School has responsibility for strategic planning, development and implementation of policy in research and postgraduate education.

Faculties, divisions and schools in most universities have their own research committees responsible for aspects of planning and implementation related to the disciplines they contain. To ensure a levelling effect in the distribution of internal research funds, the multi-campus Massey has regional research committees in Auckland, Palmerston North and Wellington, as well as College and Department research committees.

The role of Committees will grow in importance as universities are required to become more strategic in their approach. AUT, for example, has recognised the need to select and focus on priority areas. At Canterbury, the audit report observed that the university cannot achieve equally high levels of performance in research throughout the university given the financial and resource constraints in the sector, and that the university needs to identify priority areas and establish a means of developing new research areas and developing a long term strategic vision. Communication between committees and the university community will be important, and audit reports note occasions where Research Committees could do more to improve communications about their deliberations, and where Committees could put in place better quality assurance mechanisms and become involved in better monitoring of research-related processes and activities at faculty, divisional, school and departmental levels.

Universities have central *Research Offices* which handle day-to-day activities associated with providing staff with advice on preparing proposals, tenders, and contracts. The Divisions at Lincoln are responsible for the delivery of all operational aspects of postgraduate studies. Multi-campus universities have specific operational issues to address; Massey, for example, has addressed the aspect of institutional-wide support by the appointment of a National Manager of Research Services who is based in Auckland, with a responsibility (among others) to increase the number of research contracts with external agencies.

## 2.4   STRATEGIC EMPHASES

Universities are encouraging and strengthening team-based research and interdisciplinary research projects through the establishment of research centres which may be within one department, be hosted by one department but involve researchers from a number of related disciplines, or be university-wide. Centres that collaborate with industries, businesses and Crown Research Institutes highlight the university's research capacity to external organisations. Audit enquiries revealed that in all universities, the criteria for establishing research centres were relevant and were interpreted with appropriate flexibility so as to facilitate effective outcomes.

Nomenclature for research centres varies, with some universities distinguishing the type by name - for example, in Auckland, Units sit within departments; in Auckland and Victoria, Centres sit within faculties, and Institutes lie across faculty boundaries. Centres operating within or across existing academic units are usually provided with some additional targeted funding, but some centres in some universities are required to be self-funding. In some universities, research-only staff employed by centres are involved in research supervision, but there was concern expressed that this supervision was often recognised as Equivalent Full-Time Student funding allocations to the host departments of the research students, but was not recognised in the funding allocations to the centres.

A regular system of reporting and review of centres is carried out by some universities at the time of audit, but all were aware - or were made aware by audit report recommendations - of the need for a systematic monitoring of the outputs and effectiveness of research centres through annual reports and periodic reviews.

Given the resource limitations faced by New Zealand universities, some institutions are looking at ways of identifying and profiling areas of research in which a university has acknowledged strengths, or which offer a strategic advantage to the institution. All universities are aware of the need to concentrate major research effort where it can develop critical mass of researchers and research support facilities. Universities with strong school-based appointment of academic staff and allocation of research funding, need to ensure that initiatives taken by schools do not reduce opportunities for multi-school or cross-school research.

One approach to strategic positioning is that used in Otago where Research Themes have been identified. At the time of audit, Otago had identified Major and Emerging Research Themes, but since audit, the need and practicality of the distinction have been reviewed. The themes involve large teams from across departments, schools and divisions with significant publication records and proven abilities to attract significant additional external funding. Recognition of themes has led to significant opportunities for interdisciplinary collaboration and communication, to mutual support, advice and encouragement, and environments for the mentoring of junior members of staff and postgraduate students. Audit identified the need to pay attention to maximising benefits, to address the internal and external image of themes, and to avoid the identity of themes becoming too prominent at the expense of individual scholarship and recognition.

Otago also had identified many areas of research excellence, both individuals and groups. While such recognition may increase the profile and prestige of such research, it does not automatically bring special funding, but can bring an advantage in making application for internal grants. The audit panel cautioned that the University should take care that having a large number of research areas does not devalue the currency of research excellence.

Lincoln has been highly selective in its identification of Research Themes and Research Platforms, each of which has led to further integration of disciplines and assisted in achieving a critical mass. Many have led to research centres, often in co-operation with external partner organisations. Careful monitoring is required to ensure research centres are consistent with, and will enhance, specified Research Platforms and Themes. A downside reported was the experience of staff outside these themes/platforms who feel their research is 'disenfranchised', although it was acknowledged that they had not been disadvantaged with respect to access to funding.

AUT has developed research clusters that are deemed important to the University's overall research objectives, and has established a Technology Park to support the university's links with industry. The Technology Park provides an environment where innovative high technology ideas can be developed into successful businesses, with small enterprises on site and a small number of AUT staff based at the Park. Some postgraduate students work at the Park as well. The audit report considered that a better representation of external industries and community was more generally required, and that the objectives for the Park need to be more clearly defined and better communicated to staff. Better monitoring of the effectiveness of the activities of the Park was also recommended.

Most universities have commercial enterprises which provide support and advice to staff undertaking externally-funded contract research work and other professional activities. Their work is focussed on accessing external revenue and developing links with industry and commerce. They have the ability to enhance the university's ability to develop the potential of staff research and intellectual property. They have a strong client focus, and staff in all but one university have a high opinion of the level of service. Intellectual property is inexorably linked to the research effort and there is on-going development of intellectual property policy.

## 2.5 INTERNATIONAL STANDARDS AND THE MEASURE OF RESEARCH PERFORMANCE

New Zealand universities are required by legislation to meet international standards of research, and the evidence of the international quality and international standing of the research outputs of New Zealand universities is found in the number of publications in internationally referred books, monographs and journals. Evidence for the application of research is found in the number of international patents. Evidence for the international standing of academic and technical staff is found in the number of academic staff who are keynote speakers and invited speakers at international conferences, as well as the number of staff who are awarded fellowships by international professional societies and organisations, prizes, medals and honorary doctorates. The evidence of the international standard of postgraduate research is found in the number of theses accepted for publication by international publishing houses. All universities can lay claim to outputs, individuals and teams who have achieved international recognition. Viewed as a whole, the New Zealand university sector has made notable contributions to international scholarship in all disciplines, particularly in those in which they are undertaking substantial research programmes.

All universities have networks of international collaborations of various kinds, involving joint research ventures, formal international agreements, and staff and student exchanges. Collaborations are not limited to universities, but include research institutes, industry and business. Auckland's membership of Universitas 21 and the Association of Pacific Rim Universities provides access to forums for the exchange of international good practice in research management, as well as facilitating collaboration on projects and benchmarking a range of activities and processes, including research performance and management. Waikato has developed focussed benchmarking links with an Australian university and a United Kingdom university with the intention of developing benchmarking projects.

The measurement of performance in research - quality in particular - remains a challenge. The main indicator used by most universities is publications, although the meaning of 'publication' varies among the universities. Universities are inconsistent as to the extent to which they require research outputs to be international/national, refereed/unrefereed, published documents or unpublished research papers, publications for more general readerships, completed masters and doctoral theses, and the extent to which research outputs provide for due recognition of creative works, performances, theatre productions and culturally relevant events.

The audits raised the need for benchmarking among universities with respect to the development and implementation of acceptable research measures. All universities have undertaken exercises to seek more relevant and useful measures. Auckland, for example, is refining its key

performance indicators for research quality and output. Waikato conducts an annual Research Assessment Exercise - based on the number of staff publications, presentations and performances, on the number of completed masters and doctoral theses per academic department, and on the research outputs weighted according to criteria developed by the Research Committee - to identify areas of strength and weakness in research outputs. Its aim is to monitor consistency and improvement in performance, and an intention is to link reporting from the Research Assessment Exercise more directly to the agreed research objectives of departments and schools.

Victoria has developed a set of research categories covering all aspects of activity described as research, and has carried out a Research Evaluation Exercise which has been useful in embedding agreed directions for research. Massey has developed a Research Outputs Database which centrally records outputs, and provides definitions of outputs staff in creative and performing arts disciplines. The database contributes to a more proactive approach to identifying and offering targeted assistance to staff who are inactive in research.

Canterbury has discussed the development of a Research Assessment Measure with the university community, which generated disquiet especially if a measure were to be used as an instrument for part-funding of departments. A primary issue for debate was the need for more attention to measures of research quality, not just research quantity.

Another primary measure of research output is the success in attracting external research grants. The ability of universities to fund staff research from government subsidy is becoming more and more limited, and the search for outside funding to supplement the distribution of internal contestable funding has been a feature of recent years. Auckland, for example, has a Director of External Research Programmes dedicated to securing more external research funding. Grants across all universities from outside sources range from $4 million to $60 million, depending on the profile and size of the university, the presence or otherwise of specialist schools, and the extent of applied research that might be welcomed by industry and business. Funding from Marsden grants and from the Foundation for Research, Science and Technology grants include blue skies research.

The 'value' of external grants as a measure of output quality relates to the ability of the universities to attract funding on the basis of a rigorous assessment of the quality and relevance of their research. The 'danger' of relying on external grants as a measure of output quality relates to the fact that there are many university disciplines - more particularly in the humanities - which are hard-pressed to be able to attract external grants from funding agencies who require the research and its application to have direct benefits to business, and to enhance the New Zealand economy directly. The extent to which universities are able to attract external grants is influenced by their discipline profile.

## 2.6   TREATY OBLIGATIONS

One of the distinctive characteristics of New Zealand universities is their responsibility under the Treaty of Waitangi. The way this is handled varies among the universities.

Auckland, for example, has an objective 'to meet the responsibility the University has to perform research that advances Auckland, the region, the nation and the South Pacific and which is of relevance to Maori and Pacific peoples', and has a very successful Runanga which is pivotal in

both research and student support.  The University's James Henare Maori Research Centre, and the International Research Institute for Maori and Indigenous Education both contribute to research of interest and benefit to Maori as well as to the development and promotion of kaupapa.

Waikato has strong research groups in the social sciences, education and law which are involved in projects directly related to the needs of Maori.  Massey has significant research outputs in the Colleges of Education, Humanities and Social Sciences, and the university recognises that greater attention needs to be given to identifying research outputs appropriate to Maori.  The Assistant Vice-Chancellor (Maori) at Victoria is in charge of a review of policies and procedures throughout the University.  The University's Treaty of Waitangi Research Unit conducts research on Treaty matters, involving interdisciplinary work (including history, law, sociology, resource management and tikanga Maori), and drawing on specialist researchers and libraries and archives in the Wellington region.  The Unit also offers consultancy and training and provides mentoring assistance to new researchers.

At the time of audit, Canterbury was finalising a memorandum of understanding with Ngai Tahu, in the expectation that the setting up of a Ngai Tahu Research Centre would follow soon after.  The Centre would allow for the particular features of research needs of local iwi to be defined and acted upon more readily.  Canterbury also has the Macmillan Brown Library and Centre for Pacific Studies which have improved support for research into Maori topics.  Lincoln has no clearly expressed objective with respect to the Treaty, but it has links with iwi and hapu of Ngai Tahu, and the Director and staff of the Centre for Maori and Indigenous Planning and Development are addressing the needs for Treaty-related issues across the university.  Otago has a memorandum of understanding with Ngai Tahu, as well as workshops on the Treaty for staff.  Some departments are proactive with respect to Maori postgraduate recruitment.

Staff in departments outside those disciplines which have direct interest with Maori society, culture and needs - especially through specific research projects - can feel the Treaty has little or no direct relevance to their research activities.  There is a tendency in such environments to limit the responsibility to the Treaty to aspects of support for Maori academic colleagues and Maori postgraduate students.

## 2.7  Staff matters

### 2.7.1  Workload

With government policies designed to facilitate access to tertiary education have come increased student enrolments and larger classes; the competitive environment of recent years has led to more courses to match student needs and the setting up of additional campuses by some universities to attract more students; the increasing accountability required of universities has led to more administrative tasks.  As a consequence, there are new pressures which impact on the distribution of academic staff time among the activities expected of them - research, teaching and learning, assessment, research supervision, administration and community service.  Universities are aware of this, and some have been considering ways of addressing staff workload.  For Maori staff, there are the additional demands of iwi, hapu, marae and tribal land claims research, as well as playing a significant role in taking care of universities' Treaty obligations.

Audit reports reveal the variability in some places with respect to workload management and workload allocation, with specific problems facing relatively small discipline groups. It is acknowledged that it is not easy to develop workload models that quantify all of an academic staff member's work-related activities, but it is clear that workload management and allocation require attention, and ways must be found to ensure staff have the best conditions in which to carry out all duties expected of them.

## 2.7.2    Staff development

Universities that have absorbed polytechnics (such as Massey) or colleges of education (such as Waikato) recognise the need to support staff development in areas where research had not been a primary concern. Waikato, for example, recognises the relatively low percentage of staff holding doctoral degrees in the Schools of Education, Law and Maori and Pacific Development. Individually, schools are tackling this issue, with their own combinations of funding support, time and leave allocations. AUT is encouraging staff to study towards higher qualifications, the establishment of research centres, the development of postgraduate programmes, and faculty/departmental/school research seminars and workshops as it works to develop the research culture for the whole institution.

Some audit reports raised the general issue of assistance given to new academic staff in establishing their research careers, and commended such assistance as it would facilitate universities in achieving research objectives. Universities are generally good at identifying well-performing staff, but appear to be less effective - or ineffective - at implementing measures to address issues related to staff who are under-performing. The Otago audit report commended the university's Targeted Research Development Programme, especially for staff working towards a postgraduate research qualification and those not active in research, and raised the possibility of extending the programme to assist under-performing staff.

## 2.7.3    Technical and general staff

Much of the credit for successful outcomes in research in many disciplines must go to the work behind the scenes by technical and general staff. Technical staff in some disciplines are very highly qualified, and some audit panels heard of concerns that the specialist skills of technical and general staff may not be as valued as some would wish. One audit report suggested that consideration be given to ways technical staff, and general staff with specialist skills, can be given access to funding for attendance and participation at conferences. In some other universities, such provisions are in place.

## 2.8   Ethics

Ethical behaviour in research is of importance to universities, and ethics committees – notably for human ethics and animal ethics - are in place to promote, review and monitor research practice and to evaluate and approve projects involving human or animal subjects. Committees can be at institutional, faculty, school or departmental level where the nature of certain disciplines generates a large number of projects requiring approval, and most committees include lay people and hence community involvement in decision making. Audit reports found guidelines to be relevant and useful, and noted that some were in the process of review. In some

cases, audit reports recommended better monitoring, particularly where there was evidence of poor adherence to guidelines.  Some recommended that the distinction between guidelines and policies be clarified, or that guidelines be mandated into requirements.

# 3

# The research-teaching nexus

## 3.1  Background

The Education Act 1989 section 162(4)(a)(ii) states one of the characteristics of universities is that:

> *Their research and teaching are closely interdependent and most of their teaching is done by people who are active in advancing knowledge:*

Section 254(3) of that same Act describes a degree as:

> *. . . a course of advanced learning that -*
> *(a)  Is taught mainly by people engaged in research; and*
> *(b)  Emphasises general principles and basic knowledge as the basis for self-directed work and learning.*

Given the characteristics of a university, the fact that both research and teaching are integral to its primary function, and the fact that the majority of qualifications awarded by universities are degrees, it was appropriate that Cycle 2 audits conducted by the New Zealand Universities Academic Audit Unit should have as one of its themes the 'research-teaching nexus'.  The self-reviews carried out by universities in preparation for audit exposed a general lack of formal mechanisms to test and measure the nexus, which is not surprising since universities regarded the nexus as 'self-evident', which of course it should be if the universities are to be true to the legislative requirements.  Universities took up the challenge offered by audit to investigate the nature of the nexus.

The word 'nexus' is both singular and plural, and the findings of universities emphasised the plural by identifying multifarious links between research and teaching.  Their findings demonstrated the richness and complexity of the two-way links and influences between research and teaching - the influence and impact of research on teaching (more readily recognised), and of teaching on research (less readily acknowledged).

## 3.2  University self-reviews

In preparation for audit, universities engaged in discussions involving audit committees and working parties as well as staff symposia sponsored by senior management.  Course materials were searched, departments were canvassed, and case studies of interactions were invited.  At the times of audit visits, interviews with staff and students provided many examples of good practice in which interaction between staff and students had involved students in research methodology at many levels other than at research degree level - more often in higher undergraduate and in honours-level course work.  It became apparent that there was a need for universities to develop a more consistent application of research techniques in undergraduate courses, and to make a greater effort to develop an awareness among students as to the distinctive dimension brought to university teaching through the active involvement in research by teaching staff.

## 3.3   University commitments

Universities commit to research-teaching links in various documents - including (but not limited to) institutional statements of objectives, strategic plans and statements of intent (Canterbury, Lincoln, Massey), strategic plans (Massey), research management plans and learning and teaching plans (Otago), all strengthened through statements in faculty/school/departmental plans. More is needed to back up such commitment, ensuring the implementation of plans and strategies, and monitoring the effectiveness of research-teaching links.  Most universities see the need for the development of performance indicators and measures in respect of the research-teaching links, and Auckland, for one, already has, and is developing, indicators to assess the effectiveness of the nexus.

## 3.4   Research-teaching links

The links between research and teaching were summarised by Canterbury as being of three types:

**transmission** links    -    teaching as a means of transmitting new research knowledge (research-teaching)

        -    involvement in teaching that informs and enriches the research process (teaching-research)

**process** links    -    teaching models which encourage students to engage in a research/critical enquiry approach to learning.

**research culture**    -    teachers and students work together in a community of inquiry, in which learning provides the vital link between research and teaching.

As is to be expected, the strongest links are found at postgraduate course level, and notably in the area of research degrees involving supervision and research mentoring relationships for those involved in the researching and writing of dissertations and theses (*research culture*).

At undergraduate level, links were apparent more frequently at higher levels of undergraduate study, arising from the involvement of students in research projects in a growing number of discipline areas (*process links*).  Research methods courses at higher undergraduate level in a number of discipline areas contribute to the development of students' research skills.

Links were weakest in undergraduate courses at 100 level, but the recognition by staff of the requirement for teaching to be informed by research and scholarship involve *transmission links* that are not as well understood or perceived by students.  The transmission of new knowledge is made more apparent through the involvement of staff in teaching in their specialist research areas using illustrations from their research work.

Otago, for example, has identified major research themes, and the audit panel found that this had had a significant and positive influence on the integration of teaching and research. Collaborative links created to develop the working out of the themes had led to an increased

interdisciplinary approach in teaching, with guest lecturers in each others courses, new ideas in jointly-taught courses, and research projects integrated into lectures or practical laboratory sessions.

Some universities employ research-only staff and teaching-only staff, and several audit reports commented on the need to monitor the balance and the effect this might have on research-teaching links - and on the universities' ability to fulfil the legislative requirement that courses in degree programmes must be taught mainly by people engaged in research - if research-only staff do no teaching, and if teaching-only staff do no research. In many cases, contract teaching-only positions are those taken up by postgraduate students, by which means the research students gain experience in teaching, although students being taught often see a trainee researcher as trainee teacher.

AUT has always had a strong commitment to teaching and learning, with less emphasis on research, but AUT has required a culture of critical reflection and continuing professional development among teaching staff.  With the achievement of university status in 2000, there is considerable effort being placed into the development of a research culture, and there is an expectation that staff teaching in degree programmes must be involved in research.

Audit reports suggest that there is insufficient recognition of the role of technical staff and general staff in the support of the teaching-research links.  For example, technical staff are often involved in the teaching of research techniques in undergraduate laboratory courses.

## 3.5  Staff development

Most staff development work in this area is carried out by the university units that support staff with professional services, seminars and workshops in all areas of teaching practice.  These units carry various names - such as the Centre for Professional Development (AUT and Auckland), Teaching and Learning Development Unit (Victoria), Educational Research and Advisory Unit (Canterbury), Training and Development Unit (Massey) University Teaching Development Centre (Victoria), and Higher Education Development Centre (Otago).  Courses on teaching practice draw attention to the links between research and teaching, and the 'scholar-teacher' concept - as has been used at Massey - is encouraging research into teaching practice and the development of the reflective practitioner.

Traditionally, universities in New Zealand have given little if any recognition and reward for excellence in teaching, but this is now changing, assisted in part by the discussions evolving out of Ernest Boyer's four scholarships - of research or discovery, of integration, of application, and of teaching.[3]  Evidence provided during audits demonstrated a recognition by universities of the importance of research into teaching, such recognition being supported by modest teaching awards and funding for the development of innovative approaches to teaching and learning and the integration of computer-based technologies into teaching.  Research into teaching might well lead to a closer attention to the links between discipline and the links to the teaching in disciplines.

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[3]  Ernst Boyer, *Scholarship reconsidered: priorities of the professoriate*, Princeton, New Jersey, Princeton University Press,  1990.

## 3.6    STAFF AND STUDENT PERCEPTIONS

Research has been undertaken at Canterbury into academic perceptions of the teaching-research links. It identified a wide variety of staff opinion on the links, ranging from the view that the two are mutually incompatible, to the two being considered inextricably linked. While interviews with staff conducted by audit panels found some staff considered there to be no relationship between their research and their undergraduate teaching, the majority of staff consider there to be an intimate relationship between the two, and that the relationship is implicit in their role as academics.

Interviews with students revealed that students' awareness of the teaching staff members' involvement in research, and the linkages between their research and their teaching, varied - from strong awareness to no awareness. The requirement that academics be involved in research and teaching has positives and negatives:

### 3.6.1    POSITIVES

- Students value the links made between research and scholarship by teachers. They report that the enthusiasm of those staff active in research, and their enthusiasm for their areas of research, made staff highly motivated teachers.

- Students appreciate the immediacy conveyed through their contact with staff who are active in research, and the currency of the ideas of staff as a result of their research.

- Students acquire transferable skills through research methods and problem-solving courses.

- Students value involvement in research. At undergraduate level, such involvement has often helped students decide to undertake postgraduate work.

### 3.6.2    NEGATIVES

- Students have experienced the difficulties arising from situations where the time devoted by staff to their own research lessens their time available to students outside formal class time.

- Students involved in work associated with the research of staff have sometimes felt as though they were being used as unpaid research assistants.

## 3.7    ACTIVITIES TO IMPROVE THE LINKAGES AND AWARENESS

The Universities in their self-reviews, and the audit reports in their commentaries and recommendations, indicated a willingness by the university sector to continue the debate and to seek ways of enhancing the research-teaching links and of increasing the awareness of staff and students to the ongoing interaction between research and teaching. The following listing brings together the ideas expressed by universities and audit reports, some of which are based on activities already in place in some universities.

### 3.7.1    Teaching within a research culture

- Enhance the influence of a research culture upon teaching and learning such that the teaching environment is developed within a framework of critical thought.

- Ensure research is incorporated into the learning experience.

- Develop effective ways of demonstrating to staff that research and teaching are afforded equal importance.  Ways of doing this include:
    * having awards for the development of the links between research and teaching,
    * having a requirement in position descriptions to demonstrate the ways in which research and teaching are interrelated,
    * having staff develop portfolios of examples of research-teaching and teaching-research links,
    * having staff indicate and illustrate the way conference and study leave will improve/has improved teaching;
    * having staff appraisals and promotion criteria include evidence of efforts to enhance research-teaching links,

- Develop a better awareness of the ways teaching can inform research, and require evidence of links to teaching in research proposals.

- Recognise the similarity of research and learning, as both involve learning, discovery and the construction of knowledge, and encourage staff to become involved in scholarship of teaching.

- Ensure departmental reviews include explanation of quality assurance processes to ensure research-teaching links.

- Raise student awareness of research in universities, of the research culture in which teaching takes place and of the research-teaching links and teaching-research links.

### 3.7.2    Course design and approval

- In considering new course proposals, ensure there is evidence of research-teaching links, such as :
    * the incorporation of relevant and current research into course content,
    * linkages of research results to curriculum materials and community needs,
    * the provision of relevant and current research references in course outlines.

- Encourage the participation of external researchers in curriculum design.

- Develop courses on research methodology at all appropriate levels of the curriculum.

- Develop coursework that emphasises research methodologies.

### 3.7.3 Course delivery and assessment

- Improve the information on links between research and teaching in course outlines.

- Develop ways in which the research-teaching links can be developed and made explicit by using appropriate delivery methods.

- Ensure correspondence between staff research and teaching, and facilitate staff teaching in areas where staff have research interests and expertise.

- Ensure teaching staff are engaged in research, and involve research-active senior staff in 100-level teaching.

- Use assessment activities that require critical thinking, and set topics for projects that develop research skills.

- Provide opportunities for undergraduate student involvement in research projects and settings.

- Develop field studies and teaching where possible, especially in undergraduate courses where appropriate.

- At postgraduate level in particular, involve students as members of research teams, encourage team teaching of researchers and students, require student presentations at staff/postgraduate student research seminars.

### 3.7.4 Course review

- Ensure departmental reviews, programme reviews and course reviews specifically evaluate the extent to which teaching and research are linked, and the effectiveness of these links.

- Investigate student perceptions of the research-teaching relationship and of how the teaching-research link enhances learning, maybe by including questions relating to research-teaching link in student evaluations.

# 4

# The provision and support for postgraduate students

## 4.1   Background

Postgraduate education is an important aspect of the research environment of universities. Postgraduate research adds to the creation of knowledge through theses, dissertations and research reports, all of which are rightly counted as part of the universities' research outputs. Postgraduate degree programmes provide the primary learning and training environments for the next generation of researchers, and research students are counted as part of the universities' research communities.  Graduates with research degrees apply their specialist knowledge base and their research-based skills to the good of their communities.  It is important, therefore, that the learning and training experience of research students is of high quality.  Audit reports from Cycle 1 (1995-1998) commented on concerns over the quality of postgraduate support and supervision; the audit reports from this cycle (Cycle 2) also identify areas for further improvement, but they also report on a general improvement in this area.

## 4.2   Management

The management and administration of postgraduate study in universities is delegated in a variety of ways.  Doctoral studies are usually administered centrally, normally through a postgraduate studies committee, sometimes by a special committee (such as the Doctoral Research Committee at Massey, the Doctoral Studies Board at AUT) or a designated person (Ph.D. Co-ordinator at Victoria, Dean of Postgraduate Studies at Canterbury).  These individuals and agencies deal with routine administrative matters, implementation of policy and quality assurance processes such as the oversight of enrolment and examination processes and regular six-monthly reports of student progress.

As an example of strengthening the central oversight, Otago has appointed a Director, PhD Academic Liaison, who has received overwhelming support for the positive impact on central administrative services.  The Director runs induction workshops which are reported to be informative and worthwhile.  The audit report suggested consideration could be given to expanding the Director's work to include masters thesis students, and the running of seminars for students seriously considering doctoral work.  As an example of strengthening the faculty oversight, Auckland and Victoria have Associate Deans (Research) who have the potential to co-ordinate and monitor supervision activities. Victoria also has a PhD Co-ordinator appointed to oversee the examination processes.  The audit report suggested consideration should be given to a stronger working relationship between Associate Deans and the Ph.D. Co-ordinator.

Masters matters might be administered by the central postgraduate studies committee, or by graduate committees or graduate offices administered within faculties, schools and departments rather than centrally. Evidence examined by audit panels suggested that in universities where there is strong devolution to faculties, schools or departments, there is a variability and diversity

in support and administrative processes. This variability affects the universities' abilities to ensure minimum criteria are being met across the institution with respect to the universities' objectives relating to recruitment, quality of supervision, infrastructure and support. Universities are aware of these problems, and several were reviewing their processes at the time of audit.

## 4.3   SUPPORT FOR POSTGRADUATE STUDENTS

All universities publish handbooks which include regulations, policies and guidelines with respect to postgraduate study and research supervision. Most are produced as university documents, but where divisional, faculty or departmental handbooks are produced, there is sometimes a variability of standard and misalignment with central handbooks. The degree of knowledge about the existence of handbooks and the use made of them vary. Efforts are being made to improve awareness by staff and postgraduate students of regulations and policies that affect their professional relationship. Audit reports suggested a clearer distinction be made in some handbooks as to what is regulatory (and therefore mandatory) and as to what are recommended guidelines only. Monitoring should be done to ensure a more consistent application of policies and procedures across the universities, to ensure appropriate information is accessed by students when most timely to them.

Universities recognise the need to provide adequate support for postgraduate students and recognise also that the best place for that advice might be at faculty, school and departmental level. Where, as with management, support is divided between the institution and faculties, schools and departments, more work is needed to ensure effective links between the offices and centres involved. Induction of postgraduate students varies, with responsibility normally being given to departments and the chief supervisors, although some universities (Waikato, for example) have formal induction meetings conducted at school level. Audits suggested that universities need to be more sensitive to the distinctive needs of doctoral students and to ensure they are provided with relevant and timely advice.

Further support is provided by student services. Auckland, for example, has a Student Learning Centre which provides a range of specific training courses and workshops targeted at postgraduate students' needs. It also assists students for whom English is a second language. Waikato has a Student Advocacy Service; Victoria has a Student Learning Support Service which offers a programme for postgraduate students. Lincoln has established a Postgraduate Representative Group which provides students with a forum to discuss matters of common interest and to work with the university to ensure issues of particular concern to students are satisfactorily addressed. Universities also acknowledge the need to improve the provision of appropriate resources in support of international students, including induction into New Zealand academic study methods, and the difficulty for a growing number of students for whom English is a second language.

The success of Postgraduate Students' Associations varies, and where they are active (as in Waikato) there is a need to raise their profile among the postgraduate students themselves. Faculty and school initiatives are sometimes successful, but the lack of institution-wide societies in all universities led audit reports to recommend that universities seek ways to foster a sense of community among postgraduate students across departments and disciplines, and to facilitate informal interaction among postgraduate students, other students and staff across the university.

Funding support for postgraduate students is limited. Scholarships are supplemented from departmental operating grants where funds are available, and by employment as teaching and research assistants funded by academic staff research grants. Postgraduate and Scholarships Officers - who administer scholarships and prizes – give effective advice on funding opportunities. Otago's Research Committee provides funding for up to three months for students who have submitted their theses and are awaiting completion of the examination process, so as to support them as they write papers related to their thesis research.

Multi-campus universities such as Massey and Otago, with campuses in different cities, face the problems of integrating the different cultures of campuses and of developing a sense of being part of a larger group of university students. Wellington- and Christchurch-based students at Otago believe they have less support than Dunedin students, especially in the area of computer support; the university is aware of this and is addressing the issue.

## 4.4 Support for postgraduate study by Maori students

Universities are aware of their responsibility to the Treaty in this area which they see as requiring them to encourage Maori to stay on beyond undergraduate study and undertake postgraduate study. Audit reports suggested that more could be done in promotional material and through other strategies to encourage Maori undergraduate students to undertake graduate and postgraduate study. In some cases universities should consider ways by which they can engender a culture where Maori students feel comfortable, and provide practical means by which this will be achieved.

At Auckland, the Runanga plays an impressive role in the support of postgraduate students. Waikato - 22% of whose students identify as Maori, and 16% of whose postgraduate students identify as Maori - has a Maori support society, Komiti Awhina, and scholarship funding from Tainui and other external organisations. Waikato's audit report suggested the university consider a greater emphasis on the inclusion of te reo Maori in its handbooks. Massey had effective mechanisms for the support of Maori students, and a network of staff to support Maori and Pacific students. The effective strategies in place for the support of Maori postgraduate students should be shared with all heads of academic units. Massey also offered Maori Supernumerary positions which support the appointment of Maori postgraduate students to either fixed-term Assistant Lecturer positions, or Graduate Assistantships for one academic year.

At Victoria, Te Tira Whakaemi Korero research programme had attracted students, bringing them through to postgraduate level, and a number of Foundation for Research, Science and Technology fellowships for Maori (Tuapapa Putaiao Maori Fellowships) had been awarded. Support at Lincoln for Maori students has been provided by the Director and staff of the Centre for Maori and Indigenous Planning and Development, and Te Awhioraki (Maori Students' Association). Regionally in the South Island, Te Tapuae o Rehua - a joint venture between Ngai Tahu Development Corporation, Christchurch Polytechnic Institute of Technology, Christchurch College of Education, Lincoln, Canterbury and Otago universities - has a targeted plan for the recruitment of increased numbers of Maori students. Otago provided a Maori Centre as a place of meeting and support, and financial help with up to four postgraduate awards and four postgraduate scholarships for Maori; the audit report suggested the need for Otago, which claims to be a national university, to take into account the interests and educational needs of Maori students from outside the Ngai Tahu rohe.

## 4.5   Resources for postgraduate students

The provision of resources and facilities for postgraduate students varies. Most universities have institutional policies on resource minima (such as the amount of space, desk, chair, filing/storage facilities, computers, internet access, equipment, photocopying, and access to these resources, especially library facilities) but there appears to be little or no monitoring of the extent to which policies are implemented. The extent of the provision depended on the extent to which university facilities and equipment were essential to a project, and the extent to which departments have the space and funding to provide resources. Ultimately, responsibility for provision most often lies with departments.

## 4.6   Supervision

The quality of supervision, and the development of professional working relationships between staff and students as co-researchers, are vital to creating and maintaining a supportive learning experience for research students. Four aspects in particular were commented on in audit reports: training, the number of supervisors, the expectations of supervisors and students, and the monitoring of progress and resolution of disputes.

### 4.6.1   Training

Supervisors' main experience of training is gained from their own experience as research students. Much of the responsibility for ensuring supervision quality, professional development and mentoring of supervisors is the responsibility of departments, with the consequent potential for variability in quality of training. Student feedback recommends mandatory training of supervisors. Certainly there is a need to promote good practice and to recognise and reward good supervision, and university centres for professional development offer seminars, workshops or courses on postgraduate supervision. Participation in these courses remains voluntary in some universities.

At Waikato, the Postgraduate Studies Office maintains a register of supervisors for doctoral students. It lists experienced supervisors both on-campus and in external organisations and the register enables the monitoring of experience. The Office also provides information about experience in chairing oral examinations. Lincoln is planning a programme that will accredit postgraduate supervisors and increase training and support. At Massey, all staff appointed since 1996 and who are first-time supervisors are required to complete training before appointment as supervisors. At AUT, supervisors normally are required to complete a postgraduate supervision workshop offered by the Centre for Professional Development. At Victoria some departments and schools have been consciously implementing an apprenticeship model where staff act as co-supervisors for several years before being appointed as principal supervisors.

### 4.6.2   Supervisors

A strong and supportive relationship between supervisor and research student is crucial to any successful postgraduate study which culminates in a thesis. The traditional expectation of a single supervisor per student has been challenged in recent years, and the universities are now requiring more than one supervisor per student for a range of reasons – primarily to improve the

quality and quantity of attention, and to ensure the continuation of support when chief supervisors are unavoidably absent or temporarily or permanently withdraw from their duties. One consequence of involving small 'teams' of supervisors is that students are being viewed increasingly as the department's students, not as individual staff members' students. Victoria appoints not only academic supervisors but also an Administrative Supervisor. This has the potential of separating issues relating to managing the study process from its academic aspects.

Masters students' supervision arrangements vary, with monitoring being either by a central agency, or devolved to faculty or school level rather than to departmental level as in the past. The availability of supervisors and the sharing of workload are of concern in a number of universities, especially where the load is unevenly distributed. Special recognition should be given to supervision of postgraduate students in workload models.

The selection of the best and most appropriate supervisor(s) might also be a problem, and some universities have developed strategies to assist. Some departments in Canterbury, for example, produce a handbook and run a poster day through which students can learn about the thesis or dissertation topics that each staff member is able to supervise.

## 4.6.3    Expectations

All universities provide a code of practice, or schedule of expectations of staff and students, usually within handbooks prepared for postgraduate students. Audit findings suggested that the extent to which staff and students are aware of these documents varies, as does the extent to which they are discussed between supervisors and students. Some universities ensure a formal supervisory agreement; AUT, for example, has a Postgraduate Supervision Agreement which has been found to establish mutual understanding of each other's expectations and a foundation of a good working relationship. Ongoing institutional support is also available: Lincoln, for example, holds Postgraduate Supervision and Examination Workshops for supervisors and students to discuss general issues related to the supervisory process, to identify problems and to determine action to be taken.

Several audit reports considered examples of particular difficulties, tensions and personality issues that can arise in the supervisor-student relationship in the cases of staff who are also doctoral students. This issue is recognised by the universities, and is being addressed by those universities who have as an objective the increase in the percentage of staff who hold doctorates. Having more than one supervisor, for example, can help overcome some of the potential problems arising form the complex relationships where peers are also supervisors.

## 4.6.4    Monitoring of progress and resolution of disputes

Universities require six-monthly reporting to the postgraduate studies directors of committees (titles vary) on the progress of doctoral students. Most universities require regular reporting on the progress of masters students. For many universities, that used to be at departmental or faculty level, but more universities are now requiring reports to the central agencies. Audit reports suggest that report systems - communication, consultation process among supervisors and students, student input by way of comment and the mechanisms to ensure issues arising from

reports are acted upon - could be implemented and monitored more effectively to identify and resolve difficulties before they become disputes.

Problems and complaints are handled informally where possible, but the reality is that while the ideal staff-student relationship is that of co-researchers, the relationship is uneven in terms of perceived power. Most universities require a procedure of working with the supervisor, then the Head of Department before more senior staff, but audit found that the procedures and support systems in place in universities do not always deal well with problems once they become formal disputes. Canterbury has a Joint Academic Grievance Committee (which specialises in informal resolution) and formal disputes are referred to the Dean of Postgraduate Studies or the Academic Administration Committee (of which the Dean is a member). Waikato has a University Mediator to whom students can refer. Massey has a University Grievance Committee, and the processes for resolution were found at audit to be effective although time-consuming. Victoria has a range of personnel with whom students can consult, and students were found to be aware of the options; there is a University Disputes Advisory Service for extreme cases. In general, the mechanisms for the resolution of disputes could be made more open and accessible to students.

## 4.7 Examination

In general, the examination of theses in universities requires the appointment of examiners external to the university, and at least one of whom is external to New Zealand in the case of doctorates. This process provides a useful benchmarking of intellectual achievement.

The main issue identified by universities and in audit reports was the question of whether or not the chief supervisor should be an examiner. Some students are increasingly uncomfortable with the concept of supervisors as examiners, and while there can be occasions where the involvement of supervisors as examiners can add value to the examination process, their involvement can bring into question the independence of the examining process, and the value of the process as an independent benchmarking of standards. Some of those universities that do not permit supervisors to be examiners encourage them to provide a report for the information of examiners. Audit reports generally expressed the view that supervisors should not be examiners, especially (but not solely) at doctoral level, and asked those universities that did permit supervisors to be examiners to review their practice.

Other issues included the inconsistent approach in some universities to external assessing of coursework, the lack of formal or consistently applied processes surrounding examination practices for theses/dissertations, and the often long delays in completion of the examination process. Audit reports asked for these issues to be addressed.

# 5

# Looking forward

## 5.1   introduction

The preceding chapters of this document draw together the findings of audit panels, as recorded in their audit reports, on their assessment of policies and practices of New Zealand universities in the areas of research policy and management, the research-teaching nexus, and the provision and support for postgraduate students. This chapter provides a concluding statement in which the strengths of New Zealand universities are enumerated, along with the Unit's assessment of the most important improvement activities that should be undertaken by the universities in the immediate future.

## 5.2   The system's strengths

- New Zealand universities contribute very significantly to the national research effort through their research output and the application of their research in association with industries, businesses and social agencies.

- New Zealand universities contribute very significantly to the world of research and scholarship in all disciplines, in support of ongoing intellectual exploration and creative endeavour.

- New Zealand universities contribute as well to the national research effort through the education of the workforce required for the research development and entrepreneurship elements of the knowledge economy.

- The quality of research undertaken by New Zealand universities is generally high by national and international standards as indicated by the quantity of the research published in internationally refereed publications, by the ease with which universities form alliances and develop collaborative projects with universities and institutions of international standing, and by the success of universities in attracting external funding for research.

- New Zealand universities retain a close and beneficial interrelationship between research and teaching in their academic programmes.

- Students at New Zealand universities, both as undergraduate students and as postgraduate research students, appreciate the advantages resulting from interacting with active researchers and from working in a learning environment characterised by a research culture of enquiry and creation of new knowledge.

## 5.3   The way ahead

The activities listed below are those which the Unit believes are the most critical at the present time.  It is important to appreciate that these activities address issues which the universities themselves are already working on, and that the universities are achieving various degrees of success in dealing with them.  There are, indeed, good practices and effective mechanisms in place in some institutions, but as the audit reports reveal, good practice is not always common practice.  The Unit believes that, for the university system as a whole, priority attention should be given to these activities so as to enable universities maintain, enhance and enrich the research, teaching and learning environment from which tomorrow's graduates will come.

### 5.3.1      Research policy and management

- *Attention must be given to ensuring:*

* *a stronger alignment of the university's institutional, faculty, school and departmental planning processes and plans,*

* *a more rigorous monitoring of the implementation of plans, and the alignment of activities with goals and objectives.*

  Planning processes and policies have improved since Cycle 1 audits, but the problems of lack of alignment across institutional, faculty, school and department planning persist to varying degrees.  Plans resulting from processes involving consultation with appropriate communities of interest within and without universities are not ends in themselves; nor are they to be understood as products necessary to satisfy external requirements.  Plans provide direction and frameworks for action and activities, and strong monitoring and reporting on activities is necessary:

  - * to ensure the extent to which actions and activities are consistent with agreed goals and objectives, and

  - * to inform the next planning process to ensure the appropriateness and relevance of goals, objectives and plans that will facilitate activities that fulfil the universities' visions.

- *Attention must be given to maintaining processes that enable universities sustain and enhance individual research programmes and programmes outside of institutional research priorities.*

  The development of all areas of university research and teaching is important to the welfare of New Zealand's intellectual base which underscores a knowledge economy.  Government strategies suggest an environment where universities might be enticed – and encouraged – to develop research themes and research platforms and priorities in areas which are determined by Government as national goals, or which are able to be funded externally to the universities.  In such an environment where strategic positioning will become stronger when competing for limited research funding, universities must find ways to ensure the sustainability of all research undertaken.  This is crucial both for the health of

the university system and for the health of the country, and is essential to the maintenance of academic freedom which means:

*The freedom of academic staff and students to engage in research.*

Education Act 1989 Section 161(2)(b)

• ***Attention must be given to the development of reliable and system-wide measures of the quantity and quality of research outputs.***

The universities' contribution to the national research effort is significant, but there is no reliable way of measuring that contribution. Traditional measures – such as publication rates and external research funding - are lacking in discrimination as to what is appropriate in various disciplines and discipline groups. They say nothing about quality except that publications have been successful in exercises of peer review against criteria suited to the purposes of publication, and that research grants have been successful in evaluation against criteria suited to the purposes of research funding. A consistent university system-wide measure of research outputs for the university system is needed at this time, given the promise of new structures for the management of the tertiary sector and the introduction of new protocols and procedures for funding.

## 5.3.2 The research-teaching nexus

• ***Attention must be given to building on the momentum gained with respect to developing the awareness and measuring the impact and effectiveness of research-teaching and teaching-research links in university education.***

New Zealand universities are required to fulfil five characteristics as defined in the Education Act 1989 section 162(4) (see page vi-vii of this document). Critical among those characteristics is the requirements that research and teaching in universities are closely interdependent and most of their teaching is done by people who are active in advancing knowledge. Involving students in research, and research students in teaching and other aspects of academic life (constrained, of course by students' responsibilities to their studies), as well as involving academic staff in teaching in their specialist research areas, brings an immediacy to the transmission of new knowledge which is at the centre of the distinctive character of university education. Universities must aim to sustain and enhance this distinctive character in a time when the requirements for research-teaching links in degree teaching may be relaxed for non-university providers. In such a scenario, the measure of the impact and effectiveness of the links are critical to achieving this aim.

## 5.3.3 The provision and support for postgraduate students

• ***Attention must be given to ensuring the best learning experience and research training for research students by ensuring good practice across the universities by:***

\*    ***providing training and support for all supervisors,***

\*    ***providing access to appropriate facilities and resources for all postgraduate students,***

\*       *monitoring the effectiveness of training courses and resource provision in improving the quality of the supervisory and learning experience of students, and the quality of the research outputs.*

Good practice models with respect to supervisory training are already in place in a number of universities – including mandatory training for staff without experience in supervision, apprenticeship mentoring of staff as associate supervisors before appointment as supervisors. Practices such as these must be adopted by all New Zealand universities so as to provide the best chance for high quality supervision experience by students. Good practice with respect to the provision of resources for postgraduate students are already in place in a number of universities – including the definition of minimum provision of adequate accommodation, computer/internet access, library resources. Practices such as these must become normal expectations for all postgraduate students in all New Zealand universities. These provisions do not come without cost, and universities will have to overcome considerable difficulties given the other pressures on funding priorities. Nevertheless, the most valuable resource is, in the end, people, and the most telling indicator as to the international standard of New Zealand universities will be the quality of the outcomes arising from the work in the community by graduates of our universities. It is important, therefore, that every aspect of the university experience of students that impacts on their ability to perform well as graduates must be the subject of enhancement and continuous improvement.

•       *Attention must be given to improving the alignment of institutional, divisional, faculty, school and departmental handbooks that contain policies, regulations and guidelines, and to strengthening the processes that monitor their implementation and effectiveness.*

Universities develop policies, regulations, codes of practice and guidelines to ensure fair treatment and the best quality learning environment for students. As with planning processes, policies (and the like) are only as good as the extent of their implementation, and more needs to be done in many areas to assure universities that policies are, indeed, being implemented and monitored for effectiveness.

## 5.3.4     Staff-related issues

•       *Attention must be given to the workload of academic staff and the impact on the capacity of staff to conduct research in an environment dominated by the increasing pressure from expanding rolls, the introduction of summer schools, the demands of administration and the constraints on funding.*

Universities strive to provide the best learning environment for students. However, the increasing workload for staff, with associated preparation and assessment demands, is affecting the capacity of many staff to maintain former levels of research. Many departments have high numbers of postgraduate students, with the potential for increasing difficulties in maintaining the quality of supervision with finite staff levels. Benchmarking processes – such as conference and study leave - must be protected if international standards of curriculum and research support are to be achieved and enhanced, and these important activities have to be taken into account when allocating staff to teaching and research supervision. The issues associated with workload must be addressed; the

appropriate balance may not be easy to determine, and may be difficult to achieve within present resource levels.

- *Attention must be given to implementing effective measures:*

∗    *to address the issues related to staff who are inactive or underperforming in research,*

∗    *to provide incentives and rewards for excellence in teaching,*

Universities are, generally, better able to identify and support and reward well-performing staff, but are, generally, less effective at identifying under-performing staff and implementing measures to address the issues related to their lack of performance.  The present environment tends to provide incentives and rewards for excellence in research.  For some staff, teaching becomes a more fulfilling aspect of academic life than research, and the application of research and scholarship through teaching may be their calling.  For others, the interaction between research and teaching remains strong.  In both cases, incentives and rewards for the development of teaching delivery and for research into the 'scholarship' of teaching which bring improved quality to students' learning experiences must be regarded as an important and vital investment.  Attention must be given to determining the causes of under-performance, in both teaching and research, if progress is to be made in ensuring quality teaching and learning across the university system.