



New Zealand Nurses Organisation

Collating for Collaboration: Tertiary Education Funding Structures

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Dear Colleague,

**Re: Collating for Collaboration:
Background information for improving nursing education outcomes**

NZNO is committed to supporting and improving Nursing Education in New Zealand. It is well understood that the nursing education environment is complex and varied, and is affected by both the education and health systems.

NZNO has taken the initiative in pulling together a document that backgrounds the funding systems that underwrite the Tertiary Education Commission (TEC) processes. The two primary objectives that have guided this collation are:

- To stimulate awareness and discussion of the issues around funding nursing education in New Zealand
- To promote understanding of the complex funding structures currently in place in New Zealand by students, nurses, nurse educators and nurse managers.

I have found it a challenging exercise to read the many Tertiary Education Commission (TEC) documents and collate them. In recognising the changing education environment, NZNO has taken the decision to post the document on its website <http://www.nzno.org.nz/Site/About/Education/Education.aspx> or under New Research <http://www.nzno.org.nz/Site/Research/default.aspx> so that it can be updated as required. Hard copies of this document are being distributed to the nursing education staff at the tertiary institutions for easy access to this information regarding the complex funding systems that are currently in place.

The next step in this process is to write about the mechanisms of the Ministry of Health's Clinical Training Agency (CTA) as an intrinsic part of nursing education funding. Once completed, the two documents should provide a more accessible and comprehensive overview of the government funding structures from nursing's perspective. This will then meet the third objective of this project:

- To examine nurse education funding frameworks from the Ministries of Education and Health in order to provide an overview

NZNO recognises the urgent need for this structural information to be disseminated as significant changes are taking place in both the education and health systems. It is NZNO's hope that the nursing sector responds in a proactively collaborative way so that more progress can be made in shaping the future of the profession based on individual and population health need. NZNO will support this process to this end.

NZNO hopes that this collation focusing on the TEC will support negotiations around the funding processes which have a significant impact on the education of nurses within the tertiary system. We ask that you pass this information on to other colleagues for better understandings of the education structures that affect nurses as health professionals. Of course, the wider spin-off of securing better nursing education structures will ultimately be the improvement of health outcomes and the reduction of disparities for all New Zealanders.

Regards

A handwritten signature in cursive script, appearing to read "Anne Brinkman".

Anne Brinkman
Professional Nursing Advisor

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Executive Summary

- The funding structures underlying nursing education are complex and interlaced across government departments with different legislative acts authorising funding of policy decisions by the Ministry of Education and Ministry of Health.
- The Tertiary Education Strategy provides the foundation for the Ministry of Education's Tertiary Education Commission (TEC). The TEC's role is to actively facilitate the tertiary education system's planning and funding systems, providing a tangible link with New Zealand businesses, communities, iwi and enterprises.
- The Tertiary Education Organisations (TEOs) that deliver nursing undergraduate, post-registration and postgraduate papers/programmes receive their funding from the TEC through Vote Education. Three universities and thirteen ITPs offer undergraduate degrees, while five universities and eight ITPs offer postgraduate qualifications in nursing. Research Masters and PhDs are predominantly offered in the university sector.
- From 2005 onwards there have been fundamental changes to the funding regulation and provision of tertiary education effected by the TEC. These changes have involved a significant shift from a volume-driven funding system (Bums-on-seats) to a controlled funding system based on three year planning cycles that evaluate educational need - through fiscal predictability, priority-driven investments, sound strategic and business planning, and decision-making.
- TEO funding is now delivered through two main pools:
 - The Student Achievement Component (SAC), which provides a government contribution to the costs of teaching and learning and other functions, driven mainly by student numbers. The SAC component forms approximately 70% of funding allocated.
 - The Tertiary Education Organisation Component (TEOC), which is directed to: supporting costs; promoting and supporting innovation in teaching and learning; and accommodating major changes in provision. The TEO component makes up approximately 30% of funding allocated.
- The Performance Based Research Fund (PBRF) is one of the four components of the TEOC, having been awarded \$231million in 2007, and \$254million for the 2008 funding year.
- The PBRF has refocused tertiary research by allocating research funds on the basis of research excellence. The intention here is that any increased research funding would be concentrated in high-performing research organisations, and that research would have longer-term funding.

- The main changes brought on by PBRF are in the distribution of research funding in the sector; the research reputations of TEOs; and the human resource shifts that have occurred since its introduction.
- The PBRF component is divided into three main funding streams: Quality of researcher, assessed via the Quality Evaluations formats and comprising 60% of PBRF funding; Research degree completions (RDC) absorbing 25%; and with the remaining 15% reflecting external research income (ERI). To put this breakdown in perspective, the external research income for the TEOs participating in the PBRF in 2005 totaled around \$286 million. External funding can be regarded as a proxy measure of research impact, and rose 47% between 2003 and 2006.
- RDCs and ERI are being evaluated annually between 2006 and 2012, and will determine 40% of each TEO's PBRF funding over this period. The remaining 60%, however, is based on the results from the 2006 quality evaluation. A strong performance would be rewarded for six years; a weak performance would limit funding for that same period. It would seem, then, that from this perspective nursing with its low quality evaluation ranking is negatively positioned over this time for 60% of its possible PBRF funding.
- The Quality Evaluations (60% of PBRF funding) are based on the individual staff member's evidence portfolio. The Evidence Portfolios have three elements for marking, which contribute to the funding weightings and subsequent ranking(s). These three are: the research output (RO) component with a 70% weighting; peer esteem with a 15% weighting; and the contribution to the research environment component (also 15%).
- In 2003, half of the TEOs eligible for PBRF funding participated in the quality evaluation (22 out of 45); in 2006 this rose to two-thirds (31 out of 46). All eight universities participated in both years, and in both years universities accounted for the majority of researchers (84.6% in 2003, 78.6% in 2006). Nursing is taught in both the university and ITP settings.
- Over and above the baseline funding formula incorporating the Evidence Portfolio marks, a weighting schedule is also applied to the 42 participating subjects (2006). The multipliers used are either 1, 2 or 2.5 (with 1 making no change as a multiplier). For example, subjects where research is typically more expensive had a larger multiplier applied to their researchers' quality categories, increasing their funding accordingly. Nursing, along with thirteen subjects (33.3% total) had a multiplier of 2. Nineteen subjects (45.2% in 2006) had a weighting of 1. Nursing is one of the few health-related subjects not to have a 2.5 weighting (p. 78).
- In 2006, an average FTE-weighted score emerged of 2.96 (out of a potential maximum of 10). There are 42 subject areas covered in PBRF, and nursing had scored the lowest in research funding for both the 2003 and 2006 rounds. Nursing had an overall score of 0.49 in 2006, compared with 0.34 in 2003.
- Nursing had 271 funded researchers (243 FTEs) in 2006 vs 175 (158 FTEs) in 2003. This was a change in head count of 55%. In 2006, 75 of the 271

researchers came from within universities (28%), while in 2003 the number of university nursing staff was 130 (74%).

- There are now seven Professional Training subjects including nursing and clinical medicine. Professional Training subjects require substantial supervised practice for students earning their degrees in comparison to the other 36 subjects. Ministerial concern has been expressed about whether PBRF changes have affected Professional Training subjects by reducing commitment to providing students with well-supervised, extensive practical training due to the incentives that reward high-quality research.
- Concerns have been expressed that nursing and education have a problematic status within the PBRF as is demonstrated by their low ranking in both rounds. Nursing and education have a collection of factors tending to depress their subject scores, including large numbers of part-time staff, substantial numbers of staff at non-university TEOs (where staff contracts may not reflect time and resources devoted to research) and numbers of researchers and postgraduate students whose primary degree was not a research-intensive one.
- The ethnic mix of PBRF staff has been stable, with 64% being European/Pakeha and 6% Māori in both rounds. The majority of Māori staff in the PBRF were employed in universities and colleges of education, but this proportion decreased from 82% in 2003 to 65% in 2006. Māori staff were on average younger, more likely to be female, and in more junior roles than were non-Māori staff.
- Pacific peoples comprised one percent of staff in the PBRF censuses in 2003 and 2006. There were 90 Pacific staff in 2003 and 94 in 2006. Pacific staff were on average younger and held more junior positions than the PBRF average.
- One concern identified was that younger or early-career staff are a decreasing proportion of the academic workforce. Early evidence shows that in absolute and relative terms there are fewer younger and junior staff in the tertiary research workforce as measured by the PBRF census.
- Early indications are that some TEOs have formalised distinctions between the research-intensive and non-research-intensive pathways, with different contracts and different abilities to access resources enabling research productivity. It seems that there are two routes taken: an academic career pathways and a pathway that involves more of a supporting role.
- A number of research questions have emerged regarding the impact of the PBRF on teaching and learning outcomes in the tertiary sector.

Funding Structures

Introduction

The objectives of this paper are:

- To stimulate awareness, discussion and understanding of the issues around funding nursing education in New Zealand
- To inform students, nurses, nurse educators and nurse managers of the complex funding structures currently in place in New Zealand
- To examine nursing education funding frameworks from the Ministries of Education and Health in order to provide an overview

The purpose of this working document is to help to inform nurses and nurse educators of the current complex funding structures for nursing education. Funding sources for nursing education are from the Ministries of Education and Health funding streams. There is a myriad of layers and differences within these structures, making it all the more important to understand the funding sources, their linkages and their *raison d'être* / objectives.

This document is focused on what happens here in New Zealand. Therefore, the documents, writings and information are primarily sourced from within New Zealand. Many of the documents have been integrated to form a whole framework, so an overview of the links can be provided.

NZNO wants this document to provide information and insights, while stimulating questions and discussion, and raising awareness. Knowing that structures will keep changing and (hopefully) improving means this document can only be as current as its publishing date. That is an issue for all publications, of course, but at a funding negotiating table it is vital that the nurses involved are well informed. We hope this working document, which is placed online, helps in that process!

The education sector is responsible for educating the health workforce as part of its general responsibility of educating New Zealanders. The Ministry of Education is responsible for helping achieve the government's priorities in education. This includes increasing the number of graduates in skill areas according to national priorities and labour market needs. Health has been identified as a strategic priority for the education sector (Ministry of Health, 2006).

Universities, polytechnics and other organisations providing tertiary education for health and disability workers are funded under Vote: Education through the Tertiary Education Commission (TEC).

The TEC was established under the provisions of the Education (Tertiary Reform) Amendment Act 2002 to oversee the implementation of the Tertiary Education Strategy (TES). The TEC's role is to actively facilitate collaboration and co-operation in the tertiary education system, and a greater connectedness to New Zealand businesses, communities, iwi and enterprises (p. 9).

Clinical training is funded under Vote Health via the Ministry of Health's Clinical Training Agency (CTA), whose vision is to facilitate the development of a health and disability workforce which can meet our future requirements (Ministry of Health, 2004).

Overview of Tertiary Sector

There are currently 36 public tertiary education institutions (TEIs), including eight universities, 21 institutes of technology and polytechnics, four colleges of education, three wananga (Maori tertiary education institutions). There are also 46 industry training organisations, and approximately 895 private training establishments, which include private English language schools, registered by the New Zealand Qualifications Authority (NZQA).

In 2006 there were 491,000 students enrolled in formal tertiary study at a government funded tertiary education organisation (TEO).

Sub-sector

▪ ITPs	214,000 (76k EFTS)
▪ Universities	172,000 (129k EFTS)
▪ Private training establishments	80,000 (42k EFTS)
▪ Wananga	49,000 (24k EFTS)

The figures will add up to more than 491,000 (or more than 100%) because of students who enroll in more than one qualification and more than one TEO

Qualification level

▪ Certificate and or diploma	346,000	71%
▪ Bachelors degree level	149,000	30%
▪ Postgraduate level	36,000	7%

Age

▪ Under 25 years	200,000	41%
▪ 25 – 40 years	151,000	31%
▪ Over 40 years	140,000	28%

It is interesting to note that from 1991 to December 2006, adults with a bachelor's degree or higher qualification had risen from 8% to almost 20% (418,000 people). Currently, three universities, 13 ITPs, and 1 wananga (imminent) offer undergraduate degrees, while five universities and eight ITPs offer postgraduate qualifications in nursing. The post-registration programmes webpage is currently being updated (Nursing Council of New Zealand, 2008). Research Masters and PhDs are predominantly offered in the university sector.

At the time of writing, The Counties Manukau District Health Board's proposal to open a new centre of health training for doctors, nurses and other health workers was unveiled. It is to be called the Centre for Health Services Innovation, and will involve the DHB, Auckland University and its South Auckland Clinical School, Manukau Institute of Technology (MIT) and AUT University (NZ Herald, 2008). Nursing Council of New Zealand data provides the following figures for the regulated nursing workforce (Nursing Council of New Zealand Forum, 2008)

- 42,431 Registered Nurses
- 3290 Enrolled Nurses
- 186 Nurse Assistants
- 47 Nurse Practitioners

Funding Structures – Beginning

Funding structures are fundamental to what can, does and/or doesn't occur in nursing education. Therefore, it is essential to try to pull these funding 'strings' together to understand what is and isn't possible, based on the country's (necessarily) finite funding resources.

In health care, expected patient outcomes are the delivery of safe and effective care to individual patients, and effective public health. Health is funded by taxpayers, through multiple revenue collection mechanisms. These taxpayers' monies are intended to be used to their best purpose so the returns to society meet the intended aims of the tax dollar investment. Another way of saying this is that government policy drives the amount and direction of how these public monies are spent.

The economic imperative associated with this social spending formula is one of opportunity cost – spending money in one area precludes spending those same monies in another area. Government policy, in general, aims to ensure the overall funding cake is cut equitably for effective systems to be put in place.

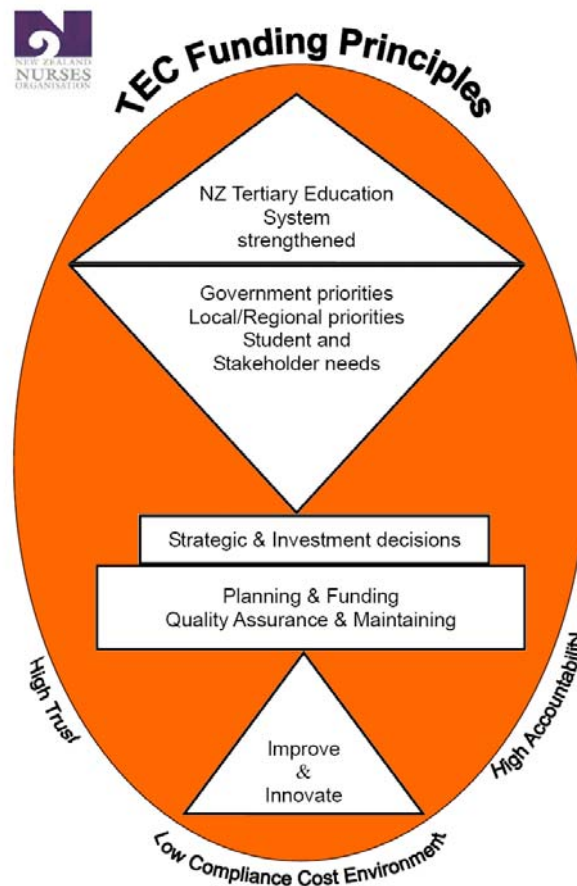
Nursing education is funded through both the Ministries of Health and Education. Each ministry has separate strategic plans that affect the direction of nursing education structures, mechanisms, student numbers and delivery of programmes/courses/study days. Staff from the ministries meet to discuss the implementation of their nursing education policies. However, there could well be a need for a blended (health and education) committee to be set in place to oversee the mechanics, implementation and effectiveness of nursing education delivery, monitoring and evaluation of the achievement of learning outcomes. Is the Nursing Council of New Zealand the best vehicle for auditing nursing education given its complex delivery systems?

The main legislation affecting nursing education are the Health Practitioners Competence Assurance Act (2003) and the Education Act 1989. The former operates via the Ministry of Health's Health Strategy. While sitting alongside the Education Act is the current Tertiary Education Strategy (2007 – 12), which came into effect in January 2007, incorporating the Statement of Tertiary Education Priorities 2008 – 2010 (STEP).

The TEC is responsible within the Ministry of Education for funding decisions for the tertiary education sector. For 2008, the TEC will invest approximately \$3 billion in tertiary education. The primary funding for universities and institutes of technology and polytechnics (ITPs), where formal nursing education takes place, originates from this source.

Over the last few years (2005 onwards), there have been fundamental changes to the funding, regulation and provision of tertiary education by the TEC. These changes have embraced the following principles:

- Strategic and investment decisions are based on government priorities, alongside local/regional priorities, student and stakeholder needs.
- Planning and funding, coupled with quality assurance and monitoring, form the baseline for determining the achievement of strategic investment decisions.
- The capability of New Zealand's tertiary education system is strengthened through the effective operation of tertiary education organisations within this new system.
- An environment that supports high trust, high accountability and low compliance costs will meet its potential.
- Improvement alongside innovation is sought and supported.
- Each part of the system will focus on its strengths in order to realise its distinctive contribution.



Philosophically, these principles reflect a move away from a competitive system (in terms of trying to increase student numbers) to a more collaborative one, to ensure government funding best meets the needs of tertiary education. Nursing needs to position itself within this wider education environment, to understand the focus underpinning funding decisions, and that funding decisions are driven by government

policies. In turn, awareness of government policies being developed is needed in order to influence their formation and final articulation.

TEC priorities

Taking the TEC's four priorities, it is useful to consider where nursing education fits in.

The four priorities for the TEC are:

- ***Increasing educational success for more young New Zealanders (under 25) achieving qualifications at level four and above by age 25.*** For nursing, this means attracting young undergraduate students, and attracting young students for second-level nurse training. Foundation courses serve as a springboard to further achievement, with students gaining skills, knowledge and confidence in their own (unrealised) abilities. As well, to increase the achievement of under-represented groups of young Māori and Pacific students requires more focus, emphasis and support.
- ***Increasing literacy, numeracy and language levels for the workforce.*** The particular implications for nursing here are the educational needs of international nursing students, with a focus on their English literacy and language level. By providing foundation courses for domestic students, there is then a better chance of bridging educational gaps so the motivated but less confident student is able to meet the educational requirements of the degree programme. However, the nursing schools need to make provision for extra assistance with English speaking and writing skills for students who are struggling with communication skills.
- ***Increasing the achievement of advanced trade, technical and professional qualifications to meet regional and national industry needs.*** Nursing qualifications for advanced practice/specialisation to improve health outcomes nationally/regionally have to be determined, planned for and met through relevant programmes. Of course, the assessed health needs of the population(s) will form the basis for this planning.
- ***Improving research connections and linkages to create economic opportunities.*** This research priority is directly linked to economic opportunities, so it makes sense for nursing, for ongoing funding, to structure its intended research outcomes to this end. That is, relevant research projects need to be planned and structured to ensure health outcomes can be linked to economic benefits.

As well, nursing education and research would be well advised to give greater emphasis to problem-solving in systems analysis. The wider aspects of health must be considered, in order to strategically position ourselves within the many competing claims that influence health and economic outcomes.

The recent TEC's Strategy to Advance Research (STAR) Project's \$2.7 million fund to nursing is a good example of funding received to enhance the capacity and strength of nursing research. For example, connections with WINZ, say, for

nurses returning to the workforce for professional and economic opportunities could be considered for research. This sort of project could potentially deliver on the research connection and economic opportunity linkage. The vehicle of STAR funding begs the question that in order to increase research capacity should more money be given, within the funding allocations, to the 'poor performers'?

TEC Funding Process

The TEC funding now spans three-year planning periods, with the first from 2008 to 2010, inclusive. The current investment plans (IPs) for this period were approved at the end of 2007. Most Tertiary Education Organisations (TEOs) are on three-year IPs. Each TEO has developed a plan, with a focus on four main sections:

- Context
- Three-year outlook, including capability building activities
- Summary of activity around planned delivery, with the total funding being sought
- Relevant key performance indicators (KPIs).

The new TEC funding structures significantly shift the focus from student demand to stakeholder need or, stated another way, from a volume-driven funding system (bums-on-seats) to a controlled funding system. This shift encourages TEOs to evaluate educational need rather than simply focus on attracting additional students. As a result, effective and ongoing engagement with the TEOs' stakeholders is a key requirement. Given this, how are nurses' educational needs being assessed across the gamut of nursing education providers? These assessments are pivotal to formulating a sound funding argument. Through assessing the learning needs, gaps and merits of proposed education investments form the basis for attracting future Ministry funding. The investment plans need be well informed, and argued.

Student enrolments were the major factor determining funding levels and allocations in the tertiary sector until 2006. Enrolments in turn had a strong influence on TEOs' expectations regarding staff research, teaching and administrative commitments. This enrolment-based funding system was intentionally highly responsive to changing student demands, and rewarded those TEOs that best adjusted their programmes and staff workloads according to learner demands. TEOs are now expected to balance the incentives in the Performance Based Research Fund (PBRF) to increase research quality with other incentives that reward a culture of strong teaching, student support and staff flexibility. How well is this balance achieved in nursing?

This new capped funding environment has affected the two main sources of TEO revenue: tuition subsidies and domestic student fees. Student fees have generally been controlled by government policy (fee and course costs maxima policy, 2004). This policy sets a ceiling for each course fee, and limits year-on-year increases.

Prior to the new TEC funding structures, TEOs had been able to increase enrolments, thus increasing the amount of fees paid, as well as the tuition subsidy received. Substantial income has also come from international students. The new system means 2008 tuition subsidies are controlled, and overall levels of funding are

determined by the Government through the Budget process, hence funding constraints are now being felt.

Nurses need to be aware of Government policies affecting the funding allocations, influencing the actual quality of education they receive. This statement is nothing new, but worth reiterating in order to understand points of influence.

Sound investment planning i.e. fiscal predictability, priority-driven investments, sound strategic and business planning, and decision-making, by each TEO, aims to support the quality of education and student access. The impetus for these new funding structures is quality and educational value, rather than more “bums on seats”.

These emerging drivers and structures have meant overall TEO funding levels are constrained compared with the former system. Hence, each TEO's planned portfolio, their collective Investment Plan (IP) of provision, is the proposed resource baseline in funding its capability.

As well, the new three-year scheme aims to create greater funding certainty for TEOs, while concurrently reducing compliance costs. However, there will be some uncertainties as the sector adapts to these new demands. Compliance costs could well rise in the short to medium term during the adjustment process. Hence, TEIs need to be aware of support funding mechanisms that exist to allay this transition.

Funding implications for universities include:

Growth in student numbers in 2007 exceeded forecasts. This is partly because student recruitment began before the TEC's funding changes for 2008. However, for the funding purposes for the 2008 – 2010 round, the 2006 student numbers were used. A further challenge under the new controlled funding system is how best to support access while also managing funding. It is a balancing act that requires marketing acumen and skilled business understandings.

Compounding the situation, most universities do not yet have robust systems to manage enrolments and may carry some unfunded students in 2008. A joint work programme between the Ministry of Education, the TEC and the university sector to develop improved forecasting and enhanced enrolment management systems is currently being addressed (Anderson, 4 April 2008).

Moving to a three year planning cycle has also raised issues about funding levels to meet anticipated growth and increased costs in 2009 and 2010. There is concern about student achievement component (SAC) funding being Consumer Price Index (CPI) adjusted for 2009 and 2010. This has meant some University Councils are reluctant to approve 2008 – 10 Investment Plans beyond 2008. Hiccups with the new system are (naturally) being experienced!

The increase in full-time equivalent students in 2007 and shifts to postgraduate programmes means less funding is available to support growth in the university sector in 2008. Funding will be available to current students. Funding for out-years beyond 2008 represents a challenge. This is particularly the case if current trends (including both volume increases and shifts) continue.

The Tripartite Forum (TF) was established in July 2005. It comprises the Minister for Tertiary Education, TEC officials, representatives of the universities/NZ Vice Chancellors Committee (NZVCC) and representatives of the combined unions. It has a budget of \$47 million a year for four years and represents government commitment to ensuring the long-term sustainability and effectiveness of the eight universities, given international markets and competing interests for staff recruitment, and the subsequent enhancement of research outputs.

Funding expectations for ITPs include:

- Focus on provision of applied professional and vocational education
- Provide skills for employment and productivity
- Support progression from foundation to higher levels of learning; and
- Act as a regional facilitator of tertiary education

A key shift of ITPs is to focus much more strongly on servicing the needs of their region and to move from low-quality and low-relevance courses. For some ITPs, particularly those relying on significant out-of-region provision, this requires major change. On the other hand, meeting national need across the regions is still possible. ITPs have developed their own “out-of-region” protocols which are generally consistent with the TEC position.

An example where this is working would be Plunket whose course is being delivered on a national basis in partnership with Whitireia Polytechnic. Whitireia is responsible for the administration and academic support, while Plunket develops and delivers the programme. There are approximately 80 – 90 students nationally per year. To ensure clear process, Whitireia cleared this proposed programme with the other regional TEO providers seeking their approval so as not to ‘trespass’ on their intended programme deliveries.

The Plunket programme is a recognised national qualification at level 800, and secures funding through Vote Education for this Well Child/Tamariki Ora programme. Enrolments include students (RNs) from Maori, Iwi and Pacific providers as well as Plunket nurses. Some Public Health Nurses have also enrolled in this programme (Polaschek, 2008).

ITPs have the opportunity to work collaboratively to make best use of limited resources and avoid duplication, e.g. shared academic services, and new programmes developed collaboratively. Eastern Institute of Technology (EIT) is currently working with, Christchurch Polytechnic Institute of Technology (CPIT), UCOL, and Otago Polytechnic within the TANZ grouping on postgraduate nursing programmes. This is a good example of collaboration in the ITP sector. However, collaboration is difficult under the current funding policies where 70% of funding is still volume based, qualification approval processes do not make collaboration easy and the policy that limits ITPs to regional provision also causes some barriers. Benefits are apparent for the education sector to collaborate nationally, particularly related to the provision of postgraduate nursing education (Watson, 2008).

Operating within a capped funding environment is a major paradigm shift. Some ITPs are finding it challenging to shift from the concept of funding based on uncontrolled volume, to one of overall investment as documented in their Investment Plans. Having secure funding for three years that allows attention to move from volume growth to quality and educational value is a potential benefit of the new system.

The ITP appropriation for 2008 is based on 2006 actual provision, with an allowance for three percent planned growth across the sector. Despite receiving messages from the TEC at the end of 2006 that growth in 2007 would not be funded under the new system, there was significant growth in the sector in 2007, in some cases by up to 20 percent. In these cases, corrections to the business models for 2008 have been significant. The TEC has sought to smooth the transition over the three-year plan where this is the case.

Lack of comparable evidence on ITP performance and the funding required to sustain viable institutions has also been identified as a barrier to change for ITPs. The TEC is currently working on the development of a benchmarking system to establish indicators of: costs; quality of delivery; and agreed standard measurement methods. The system will be progressively rolled out across the 20 ITPs by the end of 2009 (Coyle, 2008).

High employment is affecting ITPs' education delivery. It means ITPs need to be flexible in their mode of delivery but the current employment conditions of staff are often a barrier to this. The changing educational environment has industrial implications for staff on contracts already agreed to. On the other hand, new staff will have different terms and conditions in their employment agreements which can vary from the employment agreements of previously appointed staff. These differences in employment terms could possibly affect relationships within schools/subjects as staff work, individually and together, to their varying performance indicators/outcomes. Do these employment agreement differences have any effect on the ability to recruit and/or retain staff?

If student access is hampered, for whatever reason, then it follows that numbers and (subsequent) funding will fall. A careful analysis of educational needs, and the delivery of such, warrants further study and analysis.

TEO Funding Components

TEOs receive funding from a variety of sources, including:

- Fees from students
- External research and contract income
- Gifts and donations
- Grants and subsidies from government (TEOs can secure research funds from the foundation for Research, Science and Technology, the Health Research Council, the Marsden Fund , government departments, and the private sector).

TEO funding is now delivered through two main pools:

The **Student Achievement Component (SAC)**, which provides a government contribution to the costs of teaching and learning and other costs, is driven mainly by student numbers. The SAC is based on two elements: the types of programmes offered; and the number of valid enrolments. The SAC component represents about 70% of the (government subsidised) funding allocated. The SAC replaces the former Student Component (SC). The intention is to include cushioning through the transition to the new system. Each TEO is receiving the amount of funding in their TEO Component from the Student component funding that they would have received for their projected 2008 enrolments.

Subsidised funding is that which comes directly from the Ministry of Education to the TEOs. In contrast, the 'non-subsidised' monies are those received from students in paying their fees. To illustrate this, the fees that domestic students pay are set out under the 2008 Fee and Course Costs Maxima policy. Accordingly, fees are capped for nursing at \$4,414. The range of fees for domestic students is from \$3,800 to \$9,800. In contrast to these amounts, international students pay an average fee of NZ\$15,000. The international student fees can range between NZ\$10,000 to NZ\$55,000. Thus, the TEOs receive funding from both the Ministry and the students themselves.

The formula deployed for SAC funding is based on the number of equivalent full-time students (EFTSs), that is, approved valid domestic student enrolments enrolled in approved courses with a TEO, multiplied by the funding rate for each category as agreed in each TEO's Investment Plan. Essentially, the numbers enrolled for each year (as per the Investment Plan) determine the amount of money received (Coyle, 2008).

Funding categories and classifications are the components of the funding formulae. These categories and classifications are determined across the subject areas and impact on the funding apportioned for each student. The following tables illustrate the differences between SAC funding received for the levels of study, and the type of Tertiary Education Organisation where the programme is delivered.

The SAC funding categories have a numeric and an alphabetic code. The alphabetic code applies to specified groups of courses, which are linked to course classifications, while the numeric code is based on the level of study. The funding rates vary for universities, Institutes of Technology and Polytechnics (ITPs) and Wananga as is shown in the following tables.

The Funding Category (numeric) classification is as follows:

Table 3 (p. 9, TEC, 21 November 2007).

Category (numeric)	Classification by level and content of study
1	Courses designed for non-degree qualifications with no research requirement, including certificates and diplomas.
2	Courses designed for undergraduate degree qualifications, including bachelor's degrees, graduate certificates and diplomas.
3	Courses designed for taught postgraduate qualifications, including postgraduate certificates and diplomas, bachelor's degrees with honours and taught master's papers.
4	Research-based postgraduate qualifications, including master's theses/dissertations of 1.0 EFTS or more for masters and doctoral study.
5	Foreign student enrolments in research-based postgraduate qualifications

The alphabetic funding category for nursing for SAC funding is that Nursing is assigned the 'L' Funding Category [alongside Agriculture and Horticulture (non degree), Osteopathy, and Science]. It's interesting to note that Agriculture and Horticulture (degree) are placed in the 'M' Funding Category, which receives approximately 25% more funding at the university level. Could this be interpreted that the cultivation of animals and plants is given greater value than the cultivation of human/population health? Do these funding categories need revisiting?

The funding rates then vary according to the type of TEO. It is apparent from the following tables that nursing undergraduate programmes taught in a polytechnic and wananga attract less SAC funding than their university counterparts despite 'producing' the same product (BN). Does this difference affect the quality of the teaching at the ITPs and Wananga as opposed to that done in universities? How are these differences in funding for the TEOs determined, and how are programme learning outcomes affected?

Where should nursing education be positioned within the tertiary education sector? And what is the place of research in nursing? If the quality of teaching was shown (through research) to be better in one type of TEO over another, given the competing teaching and research interests, then what are the implications? Would more students be attracted to the quality teaching environment where, it could follow, better completion rates are achieved?

How are styles of teaching affected by funding? For example, what are the drivers for on-line teaching: student access; reduced overall staff contact hours; and/or reduced capital costs through there being a lesser need to use classroom space (Wilson-Salt, 2008)?

Funding Calculations and Categories – Student Achievement Component Funding

1. Table of Funding Categories

Category	Relevant discipline and course or programme classification	1 Non-degree	2 Undergrad degree	3 Taught postgrad	4 Research postgrad	5 Foreign student research-based
L	Agriculture and Horticulture (non degree) [#1], Osteopathy [#3.1], Science [#18], Nursing [#24]	L1	L2	L3	L4	L5

2. Student Achievement Component Funding Rates for 2008

Rates for Universities

Rates are \$ per EFTS, exclusive of GST

Category	Relevant discipline and course or programme classification	1 Non-degree	2 Undergrad degree	3 Taught postgrad	4 Research postgrad	5 Foreign student research-based
L	Agriculture and Horticulture (non degree) [#1], Osteopathy [#3.1], Science [#18], Nursing [#24]	8666	8666	10926	11661	5714

3. Student Achievement Component Funding Rates for 2008

Funding rates for Institutes of Technology and Polytechnics (ITPs) Rates are \$ per EFTS, exclusive of GST

Category	Relevant discipline and course or programme classification	1-4 Rates for non-degree, undergraduate, taught and research postgraduate (where applicable)	5 Foreign student research-based
L	Agriculture and Horticulture (non degree) [#1], Osteopathy [#3.1], Science [#18], Nursing [#24]	7479	4012

4. Student Achievement Component Funding Rates for 2008

Funding rates for Wananga

Rates are \$ per EFTS, exclusive of GST

Category	Relevant discipline and course or programme classification	1-4 Rates for non-degree, undergraduate, taught and research postgraduate (where applicable)	5 Foreign student research-based
L	Agriculture and Horticulture (non degree) [#1], Osteopathy [#3.1], Science [#18], Nursing [#24]	7221	3874

The key aspect of the SAC funding is that it is capped with a 3% buffer above and below the capped volumes. Thus, education providers can not increase revenue by increasing volumes. Faced with capped SAC revenue, rising costs, progressive loss of the degree 'top up' funding from 2003-2007, and the fee maxima policy that limits increasing student fees educational institutions have been forced to find other ways of increasing revenue and decreasing costs. The primary response to increasing revenue has been to increase research particularly in the university sector but also in the ITP sector. The primary response to reducing costs seems to be to increase the student to staff ratio. This is perhaps most prevalent in the ITP sector where the ability to increase revenue through research is limited compared with the university sector. Another avenue for potentially decreasing face-to-face teaching is through the provision of online teaching. This, of course, varies across the sector and can affect overall contact time across the programme's staff. Close exploration of the

effects of changing student-to-staff ratios on the quality of nursing education is warranted (Watson, 2008).

The actual process of funding has important aspects. The TEOs are funded over three-year periods based on their Investment Plans. The funding is lodged with each TEO, which in turn allocates/distributes it to the various schools/departments. This funding is not based on student numbers completing courses. However, the intention is that from 2011 onwards, the student completion rate will be factored into funding equations (Coyle, 2008). The incentive will then be there to encourage student completion through robust processes which meet their education needs, as well as the identified needs of the community. It will be vital that education standards are upheld in the pursuit of encouraging course completions for funding purposes. New Zealand cannot afford to lower education standards with students being 'pushed through' in the interests of meeting funding requirements.

It is important to note that the TEOs have 'organisational contributions', as such, charged to the subject/school which are directly deducted before allocations are dispersed. In some cases, TEOs 'charge' more than 50% for this 'contribution' for the varying running costs of the organisation. In order to maximize the funding allocations at the TEO tables, having advanced negotiation skills is an essential requirement for senior nurse educators.

1. The **Tertiary Education Organisation Component (TEO Component)**, is a government contribution to support each TEO to focus on its specific and distinctive roles in education provision. The TEO component of the funding is directed to: supporting costs; promoting and supporting innovation in teaching and learning; and accommodating major changes in provision. The TEO component makes up approximately 30% of funding allocated.

Nurses need to be aware of the six elements of TEO funding in order to consider where application can be made / lobbied for in increasing funding possibilities for better learning outcomes. These are four elements within the TEO Core Component, and two elements within the TEO Strategic Component.

The TEO Core Component

1. **Public Provider Base Grant (PPBG)**

This grant, allocated through a formula, is for the TEO's effective governance and management, working with stakeholders and maintaining a culture of continuous performance improvement.

The full formula reflects four variables and can vary from TEO to TEO: a base amount for operation of core functions and roles; the TEO's particular provision as part of its distinctive contribution; the distinctive needs of the students served by the TEO; and the nature of the TEO's catchment and/or region served. Could a case be argued for, within this pool of funding, for new and creative

teaching/learning methods for clinical experiences with its distinctive needs across a multitude of settings?

The PPBG, is a useful negotiating entry point for nursing schools to work with the DoNs (with their CTA funding capacities), particularly given the distinctive needs of their students and/or the nature of the catchment/region they serve.

For 2008 the formula that has been used is to help TEOs transition to the new system. Data will be collected during 2008 to support development of the allocation formula for the next Investment Plan cycle.

2. ITO Sector Leadership Component

This component supports the Tertiary Education Strategy's priority outcomes through strategic impact projects for Industry Training Organisations. It has no relevance to nursing education for registered nurses and second level nurses.

3. Performance Based Research Funding (PBRF)

The PBRF is designed to:

- Increase the average quality of research
- Ensure that research continues to support degree and postgraduate teaching
- Ensure that funding is available for postgraduate students and new researchers
- Improve the quality of information about research output
- Prevent undue concentration of funding that would undermine research support for all degrees or prevent access to the system by new researchers, and
- Underpin the existing sector strengths in tertiary education research (PBRF Working Group, 2002)

The PBRF component is divided into three main funding streams:

- a. Quality of researchers (Quality Evaluations – QE) (60%)
- b. Research degree completions (RDC) (25%)
- c. To reflect external research income (ERI) (15%)

Academics have focused strongly on the PBRF component of the TEOC funding stream. Therefore, PBRF will be given greater attention within this document as a consequence of its wider focus.

4. Priorities for Focus

This element provides a mechanism for the government to provide additional funding to support specific priorities. These are likely to include those in the Tertiary Education Strategy 2007 – 2012. As well, more specific priorities for particular sub-sectors, communities, or stakeholder groups could be included. The types of priorities supported may also be relevant to, or supported by, other parts of the funding system. The Priorities for Focus element will provide additional funding where ministers consider this necessary to achieve desired outcomes in relevant areas. In other words, strong rationale and politically savoury issues have a greater chance to secure monies from this pool of funding.

\$40 million over four years has been allocated to support change in the University sector in areas such as:

- Further differentiation and complementarity
- Increased achievement of under-represented groups (Young New Zealanders, Maori, Pacific peoples)
- Collaboration

Nursing needs to consider whether or not their strategic aims align closely with the Tertiary Education Strategy's priorities in order to justify funding from this element.

The TEO Strategic Component

1. **Supporting Change (SC)** – funding to support changes TEOs intend to make to their courses/degrees. The Supporting Change funding only supports the TEO's planned change itself, and the plan must align with national priorities, national and regional skill, learning and knowledge exchange needs. This funding is related to the individual TEO being able to meet the criteria for this component, which includes: getting out of some courses and providing new courses in response to need; supporting capability development; meeting TEI funding that together covers the cost of undertaking the proposed change; and addressing gaps in the network of provision in order to generate the greatest value in terms of the overall network of provision.

2. **Encouraging and Supporting Innovation**

This fund is designed to promote and support innovation, particularly where it will benefit learners, and stakeholders outside the tertiary education sector. This fund is intended to support a large range of initiatives, including:

- Innovative delivery systems (key focus)
- Collaborative initiatives between TEOs and other stakeholders (key focus)
- Skill development
- Infrastructure (excluding capital items)
- Research linkages
- Relationships to enhance technology and knowledge transfer and exchange

The estimated size of the funding pool is in the vicinity of \$14million (excl GST). The fund is not intended to support everyday activities, core activities or business as usual. The funding is available to: TEOs; TEO representative bodies; consortia of TEOs; and consortia of TEOs and stakeholders outside the tertiary education sector.

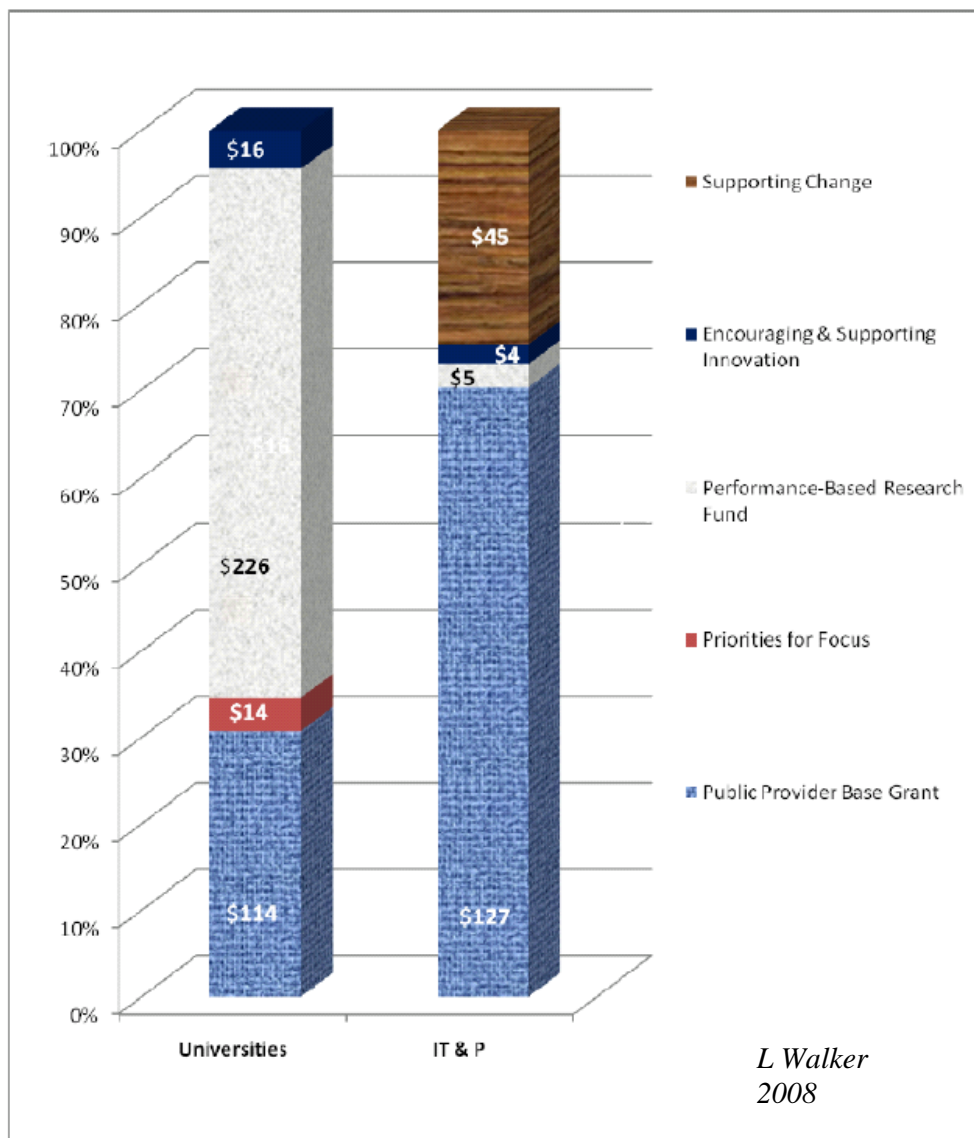
It would seem there are opportunities here for nursing within the wider health arena. 'Innovative delivery' can include clinical practice (alternative) learning possibilities. It is apparent that to secure this funding nurse educators, with, possibly, other stakeholders, will need to work at the TEO level. Again, negotiating skills are a crucial element for success.

For example, the Christchurch Polytechnic Institute of Technology and Otago Polytechnic have recently gained Encouraging and Supporting Innovation funding for a new midwifery compressed programme of study that involves

distance delivery systems. This project will address the shortage of midwives in New Zealand.

As well, the newly announced collaborative plan by Counties Manukau DHB, Auckland University and its South Auckland Clinical School, Manukau Institute of Technology (MIT) and AUT University to open their Centre for Health Services Innovation illustrates the type of consortia and project that the Encouraging and Supporting Innovation Fund encourages. The Centre is designed to have a particular emphasis on increasing the number of health workers who are Maori, Pacific or Asian (NZ Herald, 2008).

TEOC 2008 \$million (GST exclusive)



The PBRF is proving to have some seismic effects on the nursing education and research community/ies. Therefore, a more detailed focus will be given to it, including the recent evaluation of the PBRF commissioned by the TEC.

The government's decision to implement the PBRF was the product of detailed analysis of the relevant policy issues and options by the Tertiary Education Advisory Commission (2000-01), the Ministry of Education, the Transition Tertiary Education Commission (2001-02), and the PBRF Working Group (2002).

The PBRF was introduced when government tertiary funding was based primarily on the number of student enrolments. Research funding via Vote Education was available through 'top-ups' based on domestic enrolments at bachelor degree and higher levels and through competitive special purpose funds. The funding system had only limited ability to recognise and support research in areas that did not attract student enrolments. By the late 1990s, some observers believed the funding model should be changed. There was concern that research funding was insufficient, dispersed across too many areas, and too volatile and short term (Boston, 2006; TEAC (2001). The introduction of the PBRF refocused tertiary research by allocating research funds on the basis of research excellence. This approach was designed to ensure that any increased research funding would be concentrated in high-performing research organisations, and that research would have longer-term funding.

The recommendations from the Phase 1 evaluation of the 2003 PBRF round speak to the need for "a robust, transparent and defensible funding-allocation process" (Web Research, 2004, 10). In order to achieve this aim the evaluation encourages fairness and transparency in the funding process in order to sustain the PBRF during its transition years, with a number of recommendations to be taken through to the next round.

PBRF has brought changes:

- In the distribution of research funding in the sector
- In the research reputations of TEOs
- Human resource shifts have occurred since the introduction of PBRF

In 2007, the largest single subsidy was the student achievement component fund. This subsidy was directly linked to the volume of equivalent full-time students (EFTS) enrolled at TEOs and totalled \$1.85 billion. From 2008, the Student Component fund was replaced by new funds, including the Student Achievement Component and the Tertiary Education Organisation Component. The subsidy was received by over 200 organisations, including all those participating in the 2006 PBRF quality evaluation. Before the introduction of the PBRF, the TEOs received a research subsidy that was included within the Student component – the research top-up.

In the 2007 funding year, the funding allocated by means of three PBRF performance measures was forecast to be \$231 million. It was derived from 100% of the former degree top-up funding and \$67 million of additional funding from the government.

In the 2003 funding year, all TEC research funding was allocated through degree 'top ups'; that is, based on student enrolments (EFTS-based funding). The transitional model from EFTS-based funding to performance-based funding (PBRF)

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began directly after the 2003 quality evaluation round. The proportion of research funding based on EFTS declined to 90% in 2004, with the remaining 10% allocated on the basis of PBRF results from 2003. The proportion of research funding allocated through the PBRF increased steadily from 2003 to 2007.

The Performance-Based Research Fund's component allocations are as follows (Cambridge, 2008):

		(\$000, GST inclusive)
2004	Quality Evaluation Research Degree Completions	\$ 11,162
	External Research Income	\$ 4,651
	TOTAL	<u>\$ 2,791</u>
		\$ 18,604
2005	Quality Evaluation Research Degree Completions	\$ 26,168
	External Research Income	\$ 10,903
	TOTAL	<u>\$ 6,542</u>
		\$ 43,613
2006	Quality Evaluation Research Degree Completions	\$ 75,680
	External Research Income	\$ 31,533
	TOTAL	<u>\$ 18,920</u>
		\$ 126,133
2007	Quality Evaluation Research Degree Completions	\$ 138,428
	External Research Income	\$ 57,678
	TOTAL	<u>\$ 34,607</u>
		\$ 230,713
2008	Quality Evaluation Research Degree Completions	\$ 152,267
	External Research Income	\$ 63,445
	TOTAL	<u>\$ 38,067</u>
		\$ 253,778

Much of the increase is a result of the transition of 'research top-up' funding into the PBRF. These additional funds were distributed according to each TEO's PBRF performance so the same percentages were honoured. The government has added funding through Budgets, as follows (Cambridge, 2008):

Budget 2003 - \$32.99 million over 4 years

Budget 2005 - \$85.00 million over 4 years

Budget 2006 - \$26.68 million over 4 years

Budget 2007 - \$18.00 million over 4 years

Budget 2008 - \$52.55 million over 5 years

(NB: all figures are GST inclusive)

Organisational markers for PBRF funding

External Research Income (ERI) – component of the PBRF (15% of funding stream)

The external research income for the TEOs participating in the PBRF totaled around \$286 million in the 2005 calendar year. This is an increase of 47% from \$195 million in 2002. Of course, this sum of \$286 million is more than the total PBRF funding - \$231m in 2007. Hence, it is an obvious all-round incentive to the PBRF system to raise the quality and impact/relevance of research being carried out in order to attract external research income.

Awarding PBRF funds that reflect the external research income (ERI) is a means of recognising and funding research excellence, as measured by the ability of strong research to win competitive external research grants. External funding can be a proxy measure of research impact – research that contributes to solving important health problems, for example, or creating commercial technologies. Such funding can identify research that resonates with the urgent issues of the day, or research that is more accessible to the public, so has a greater impact.

These co-factors are congruent with government attention to public concerns. Yet by funding in part on the basis of ERI, the PBRF may diffuse its focus on research quality. The Australian version of the PBRF is being designed to evaluate and fund both research quality and impact. The ERI component potentially reflects the issue of impact, with some possible effect of creating subject bias that tends to raise the profile of some subjects on the basis of factors other than solely research quality. A careful balance between quality and impact needs to be considered in developing the synergies between funding intent and design.

Reported ERI rose 47% from 2003 to 2006. ERI is not reported by subject, so it is difficult to know which subjects generate more external research funding. It is likely that overall ERI is concentrated in the sciences and medical research areas. Along with the subject-area weighting of quality evaluation outcomes that also account for higher research costs in some fields, the overall effect of this weighted funding is to award the bulk of PBRF funds in response to strong research in the sciences and in response to the costs associated with this research.

External research income represents one of the few ways that tertiary educational institutions can increase their revenue in the six years between PBRF funding rounds. There are very limited nursing discipline specific external research funding sources available in New Zealand. Those discipline specific funds that do exist (e.g.

NERF) tend to be relatively small. Consequently, nurses are forced to adapt their research proposals to the requirements of non-nursing funding bodies (Watson, 2008).

It would be useful to have an analysis of the influence of the publication of PBRF results on future PBRF performance. Did high-performing subjects attract more external funding, more peer esteem in the form of good reviews, and more postgraduates? Did these high-performing subjects attract more researchers from overseas – and hence higher peer esteem feedback? Were there more research degree completions (RDCs), and, ultimately, a jump in subsequent PBRF evaluations due to some extent, to publicly available PBRF results rather than altered research productivity and quality? Did lower-performing subjects have more difficulties because this information was published? Are there correlations here and, if so, what can we learn from them? How do the wider drivers of a subject's reputation influence student interest in enrolling? For example, if research were to show that the average life span of mental health nurses was decreased would this limit future interest in the subject?

The importance of the PBRF for TEO reputation should also be considered. Both the University of Auckland and the University of Otago feature their PBRF-based reputations for research leadership on their website home pages. The University of Auckland states that it is “New Zealand's top-ranked university for research”, and has links to a page of PBRF data detailing its ranking (<http://www.auckland.ac.nz> and <http://www.otago.ac.nz>). Other TEOs also detail the areas in which their PBRF scores indicate they lead.

Research Degree Completions (25% of funding stream)

Research degree completions in participating TEOs totaled 2574 in the 2005 calendar year. These completions have increased by 49% (from 1720) since 2002. The majority of completions were master's courses, with approximately 25% being doctorate completions.

The clinical nursing master's degree is not a research degree so is not included in the RDC funding component. This reflects the differing incentives and needs reflected in the funding systems of the Ministry of Education in contrast to those established through the Ministry of Health. The CTA funding is driving taught master's degrees to prepare nurse practitioners. Taught master's courses to prepare nurse practitioners are resource intensive, they are funded to a similar level as undergraduate courses, and require educators to have a specific clinical skill set.

At the same time TEC funding is driving a move to research based master's degrees which are funded at a higher level, and require nurse educators to have a research skills set. Nursing education has competing interests to balance between the systems in formulating programmes that meet the requirements for the Nurse Practitioner's clinical masters on the one hand versus the drivers for research degrees in order to secure a slice of the RDC funding pie (Nursing Council of NZ, 2008).

Again, there is a clear need for the Ministries of Education and Health to jointly examine the impact of their funding policies on both undergraduate and postgraduate nursing education.

The 25% research degree completion component of the PBRF has a number of potential consequences particularly in a capped volumes environment:

1. Institutions can limit entry to those with higher achievement level who are more likely to complete their degrees and are perhaps likely to require less teaching and support resources to complete their degree. This has the potential to limit some group's access to tertiary education.
2. Academic staff feel pressure not to fail students because funding in part depends on students passing.
3. Institutions increase completion exit points for students. An example of this is at postgraduate level where students might be enrolled in postgraduate certificates or diplomas rather than masters degrees (Watson, 2008).

The design of the PBRF in distributing some funding on the basis of RDCs encourages greater TEO support for existing postgraduates, but also assumes postgraduate numbers will grow in TEOs and in subjects with higher research quality. This assumes postgraduates are well informed and highly mobile, and base their decisions about further study almost entirely on the quality of the programme. However, experience shows that many other factors influence learners' decisions to pursue postgraduate study/work and to enrol at particular institutions. For example, the encouragement of a respected lecturer may keep a student at their undergraduate institution. Partners, family and peers can also influence prospective students' mobility. Factors such as the cost of living in different cities and the type and quality of life a student may expect during the years of postgraduate work also affect learners' decisions. While students certainly consider the quality of programmes when choosing to enrol for postgraduate work, their ability to discern quality, and the other factors against which they measure the importance of programme quality in their final decisions, are not yet well known.

A further point affecting this research quality measure is that many departments send their best graduates overseas for postgraduate study. In some disciplines, it is also considered good practice for students to pursue postgraduate work at different institutions from the ones at which they completed their undergraduate degrees. Therefore, while growth in postgraduate completion numbers is related to growth in quality, complicating and confounding factors indicate this is not a linear relationship. There is a gamut of factors that influence where and to what level an individual is willing to take their studies.

The programmes with the strongest postgraduate completions will most likely be high-quality research programmes; but some programmes of equivalent high quality will not show comparable postgraduate completions for a variety of reasons. A possibly pernicious effect from the drive for research is that researchers can benefit from having postgraduate workers (and tutors), and, therefore, may easily over-enrol students. This could lead to a rise in postgraduate numbers and potential completions, but an eventual decline in actual research quality (as well as the postgraduate completion rate) in a subject, as more marginal students are enrolled and advanced is a possible outcome. However, there is no indication that this is happening in the existing PBRF results.

RDCs and ERI will be evaluated annually between 2006 and 2012, and determine 40% of each TEO's PBRF funding in this period. The remaining 60%, however, is based on the results from the 2006 quality evaluation. A strong performance would be rewarded for six years; a weak performance would limit funding for that same period. It would seem, then, that from this perspective nursing with its low quality evaluation ranking is negatively positioned over this time for 60% of its PBRF funding. Nursing is also affected by offering clinical masters degrees that are not research degrees in order to meet regulatory requirements.

Quality of Researchers

The PBRF quality evaluations have two major outputs: research funding and the publication of research scores by subject and by TEO. Both outputs from the 2003 quality evaluation could be expected to influence tertiary research leading up to the 2006 quality evaluation round. The funding was allocated at the TEO level, and decisions about subject-level funding remained the purview of individual TEOs, to be negotiated with their subject departments. The public dissemination of subject scores for each TEO, by contrast, could influence researchers independently of TEO decisions on how to spend the PBRF funds. Researchers had (personal?) incentives for the sake of their career options and their close colleagues to work to enhance their PBRF quality category and hence the research reputation of their subject, whether or not their employers directly rewarded their subjects extra funds for higher scores. This TEO allocation process has significant implications for nursing education.

Research funding allocated on the basis of PBRF results was provided to TEOs directly from 2003. The effect of the PBRF on specific subjects was, therefore, strongly mediated by TEO management, and subsequent negotiations held with their staff. TEOs could decide to direct the PBRF funds to improve weaker-performing areas or to enhance and reward stronger-performing ones. Alternatively, they could choose to grow in new directions. Information on the TEO research investment strategies would greatly enhance the understanding of how specific subjects were affected by the PBRF. What factors influence the decisions taken by the TEO(s) when it comes to deciding research strategies? How well do nurse educators plan and position their research strategies when faced with competing interests around the TEO negotiating tables?

Quality Evaluations

Quality Evaluations measure the research quality component of the PBRF, comprising 60% of the funding stream. Quality Evaluations (QEs) assess the research performance of eligible individual TEO staff, and are independently assessed by one of 12 expert peer review panels.

The QEs for the PBRF funding have occurred in 2003 and 2006, with the next round due to occur in 2012. The assessment periods now cover six year periods.

For the Quality Evaluations, the Evidence portfolio (EP) is the collection of information on an eligible staff member's research components during the assessment period and is reviewed by a peer review panel and assigned a Quality

Category. The QEs are assigned individual quality categories (A, B, C, C(NE), R(NE) and R, with the (NE) standing for “new and emerging researcher”). The aggregated (not individual) results, including quality scores (out of 10) and the distribution of quality categories for TEOs, subject areas, and nominated academic units, are publicly reported.

The **Evidence Portfolios** have three elements for marking, and subsequent funding weightings:

- Research output (RO) component with a 70% weighting “Peer esteem” (PE) component with a 15% weighting
- Peer Esteem component – 15% weighting
- “Contribution to the research environment” (CRE) component with a 15% weighting.

Research output

The research outputs comprise two sections:

- Nominated research outputs (NROs) which are the (up to four) best research outputs that the PBRF-eligible staff member nominates in the RO component of her/his EP. These outputs are given particular scrutiny during the Quality Evaluation process.
- Other research outputs being the additional (up to 30) research outputs that the PBRF-eligible staff member nominates in the RO component of her/his EP.

More detail about research output (RO) will be described later regarding the marking schedules and consequent funding formulae applied. A brief overview of the PE and CRE components of the Evaluation Portfolios will now follow.

Peer Esteem component

Peer esteem is the recognition of your research by your peers. The key point is that its focus is about research and not about esteem for the individual’s other activities within the TEO, their subject area, or the academic community. Examples of peer esteem include: favourable mention in a formal context; appointment following the release of a research output; appointments to key discipline-based, research, industry, professional, community, or government bodies; and favourable attestations.

Citation in papers is part of the peer esteem category. In the humanities and social sciences subjects, the social sciences had an average of 1.95 citations per paper and 0.21 per paper in the humanities between 1997 and 2001. This is in comparison with 6.65 per paper in the sciences and 7.33 in health in the same period (MoRST, 2005).

It is worth noting that research in Humanities and Social Science subjects, say, frequently considers topics of local and national importance that may have fewer outlets for internationally regarded publication than does research in other subjects. In many cases, national publication (*e.g. New Zealand Nursing Journal, Kai Tiaki*) is the best outlet for such work, as it will have a greater impact in New Zealand than would publication in a northern hemisphere journal (Munro, 2005). However, the

PBRF funding criteria can work against 'local dissemination' of locally-researched and locally-useful findings.

Contribution to the Research Environment (CRE)

The Contribution to the Research Environment component is designed to encourage high-quality and active research environments. The CRE must be research-based. The CRE component includes (but is not limited to):

- Research and disciplinary leadership
- Contribution through students and emerging researchers
- Contribution to institutional vitality

There are many examples of what might qualify as a CRE. Some examples being: facilitating discipline-based and research networks; membership of research collaborations and consortia; contribution to researcher development; and supervision of student research.

There is some overlap between peer esteem and contribution to the research environment. This overlap is recognised in the Evidence Portfolio assessment. For example, if you are a member of a research consortium, you can include this as a contribution to the research environment, while an invitation to join the consortium might be a mark of peer esteem.

Together, Peer Esteem and CRE comprise 30% of the weightings assigned through the Quality Evaluation. The total results of the periodic Quality Evaluation, together with the results of the Research Degree Completions and External Research Income measures, provide the basis for funding allocations to participating TEOs.

Overview of participation

In 2003, half of the TEOs eligible for PBRF funding participated in the quality evaluation (22 out of 45); in 2006, this rose to two-thirds (31 out of 46). All eight universities participated in both years, and in both years universities accounted for the majority of researchers (84.6% in 2003, 78.6% in 2006). In 2006, an average FTE-weighted score emerged of 2.96 (out of a potential maximum of 10). This represents a 14.3% measured (as opposed to actual) improvement in research quality since 2003 across the sector.

The proportion of PBRF-eligible staff grew 8.2% between 2003 and 2006. A total of 11,006 individual researchers appeared in both rounds. A core group of 5057 researchers appeared in both the 2003 and 2006 censuses. The other 5,949 (54.1%) appeared in only one of the 2003 and 2006 quality evaluations. This large group of tertiary staff who effectively left New Zealand tertiary research after 2003 or entered it for the first time in this brief period indicates a large and fast-moving shift in the tertiary sector. Nearly half the PBRF pool of researchers have undergone major change in their involvement with their role and/or employment conditions within the tertiary sector between 2003-2006.

In 2003, 72% of PBRF-eligible researchers (5770 individuals) had Evidence Portfolios submitted and their research assessed by a peer-review panel. For the 2006 round, only Evidence Portfolios that were likely to meet funded-Quality-Category standards were required to be submitted to the TEC. In 2006, 78.5% of

PBRF-eligible researchers (of the 8671 PBRF eligible staff) submitted Evidence Portfolios. The remaining researchers had no Evidence Portfolio submitted and were assigned to the R or R(NE) quality category.

The majority of staff in both years were male: 58% in 2003 and 59% in 2006. Nursing was one of the three subjects with the highest female majorities in both 2003 and 2006. Nursing had the largest proportions of women of any subject in the PBRF (89.7% female in 2003 and 88.6% in 2006). Nursing, and two other subjects, also had large proportions of researchers employed outside the university subsector, complicating any interpretation of how gender balance might relate to subjects' quality scores.

The ethnic mix of PBRF staff has been stable, with 64% of staff being European/Pakeha and 6% Māori in both rounds.

At the subject level, in 2003, Evidence Portfolios were submitted in 41 subject areas. For the 2006 evaluation round, the subject area Pharmacy was added, taking the number of subjects to 42. In both years, Evidence Portfolios in these subjects were evaluated by 12 review panels.

Research Quality

Evidence Portfolio Ratings

The scale for each of the three marking components has 8 steps (0 – 7) with “7” being the highest score, and “0” being the lowest. Only whole scores are permitted with no fractions being allowed. Following the application of a rating formula, each Evidence Portfolio is then assigned a mark/category. There are six Quality Categories for each EP: “A”, “B”, “C”, “C(NE)”, “R”, and “R(NE)”. The (NE) stands for “new and emerging researcher”.

In 2006, the PBRF recognised a new category of researcher, those who had only relatively recently completed their terminal degree, begun tertiary employment and/or begun an active research career. Staff who met the criteria were categorised as NE, and were eligible for two new quality categories: R(NE) and C(NE). For determining the quality score and funding, these categories were equivalent to R and C final quality categories. The introduction of the C(NE) category, which allowed newer researchers to achieve a funded quality category with less evidence of peer esteem or contributions to the research environment (which usually develop over time) than is required for a C, also allowed scores to increase. This is a more encouraging format for new entrants, and helps level the introductory playing fields.

The ability to achieve the C(NE) quality category made it possible for more staff to achieve funded quality categories. Nearly half (46.7%) of NE staff received C(NE) scores in 2006. Five subjects had less than a quarter of NE staff receive the C(NE) final quality category, with nursing being one.

The funding weights for the six Quality Categories were then assigned in 2006 as follows:

“A” (5), “B” (3), “C” (1), “C(NE)” (1), “R” (0), and “R(NE)” (0).

These were then multiplied by 2 to give an enhanced weighting (rounding the scores off out of ten (Boston, 2008). The weighting regime was applied to all PBRF-eligible staff, whether or not an Evidence Portfolio was submitted in 2003, carried over, or only submitted in 2006. Those PBRF-eligible staff who didn't submit an Evidence Portfolio were assigned a “R” category.

****put here or not - Therefore, it is in every department's / school's best interests to encourage all PBRF-eligible staff members to participate in the round with a view to rising beyond the “R” category, hence the drive for research. An essential question is: has this drive to produce research sometimes come at the cost of quality teaching? Are the ten Tertiary Teaching Excellence Awards (TTEA), for example, a sufficient enough driver to encourage quality teaching in the tertiary sector? What other drivers exist beyond student feedback, performance appraisals and promotion rounds to promote quality teaching?

With these Evidence Portfolio scores, the evaluation formula then becomes: adding the weighted scores in the relevant TEO, subject area or nominated academic unit; multiplying by 2 and then dividing by the number of staff (the denominator). Therefore, a higher number of PBRF-eligible staff with a “R” category rating (the denominator) will lower the outcome rating, so it is in the interest of the TEO to have staff working towards gaining at least a “C” category. This means that staff must necessarily be working towards meeting the research requirements, alongside their teaching (academic and clinical, in some cases for nursing) commitments.

These rating results are then put forward by the Peer Review Panels in the subject areas and then scrutinised by the Moderation Panel to determine the Final Quality Categories.

Research Quality Scoring system

0 – 199	R
200 – 399	C
400 – 599	B
600+	A

An example of how the rating process works is: An Evidence Portfolio is rated 4 for Research Output, 3 for Peer Esteem and 5 for Contribution to the research environment. Research Output (RO) had a weighting of 70 (out of 100), so a score of 4 generated a total score of 280 (4 x 70). Peer Esteem (PE) had a weighting of 15 (out of 100) so a score of 3 generated a total score of 45 (3 x 15). The Contribution to research environment (CRE) had a weighting of 15 (out of 100) so a score of 5 generated a total score of 75 (5 x 15). Therefore, the Evidence Portfolio's aggregate score would be 400, earning a “B” category according to the scales. This score is then referred to as the Research Quality Score (RQS) for that PBRF-eligible staff member.

The researcher whose Evidence Portfolio (EP) was assigned a “B” Quality Category attracts a quality rating of “3”. If they worked on a fulltime basis at the census date they would attract an FTE status of “1”. If they were engaged in research in nursing then their subject weighting would be “2”.

The contribution that this Evidence Portfolio (EP) makes to the performance of the researcher's TEO in the Quality Evaluation measure is the sum of 3 x 1 x 2 x \$4,678.77 (see TEC, 2008, Allocating PBRF funding, p. 7 for further details). This results in funding for the researcher's TEO of \$28,072.63 for the 2006 calendar year.

Researchers are not routinely informed of their RQS yet substantial numbers of researchers requested, through the Privacy Act, their RQS component scores. Many may have used this information to decide whether to carry-over their 2003 quality category in 2006.

Scores on the cusp between quality categories were scores of 180 – 220 between R and C, 380 – 420 between C and B, and 580 – 620 between B and A. Up to a quarter of active researchers could end up 'on the cusp' because of how the moderation panels scored research – or, rather, where their scores objectively fell.

The smaller proportion of researchers on the cusps in the Professional Training (PT) subjects is expected and due to the large proportions of researchers in the R categories in subjects like education and nursing. Nursing was one of the five subjects with the smallest proportions of researchers on the cusp of a changed indicative quality category in both rounds. Nursing had 5.7% of its researchers on the cusp of a score change in 2003 and only 4.8% in 2006. Nursing had 12% of its researchers funded in 2003, and 14.4% in 2006. In the entire PBRF, the proportion of funded researchers was 59.1% in 2003, and 56.9% in 2006, so the proportions in nursing are notably low. Clinical Medicine had the largest proportion on the cusp for Professional Training subjects in 2003 (23.5%) and the largest proportion of funded researchers in the Professional Training that year (72.3%).

Weighting with scores

For the PBRF, weighting is also applied such that subjects in which research is typically more expensive had a multiplier applied to their researchers' quality categories affecting the funding achieved by that subject. Lower-cost subjects had a multiplier of 1. Nineteen subjects (45.2% in 2006) had this weighting. These subjects are in the humanities, the less 'expensive' social sciences, commerce, and some other areas. Fourteen subjects (33.3%) had a multiplier of 2. Most sciences, some health subjects (including nursing), and most creative and performing arts had a multiplier of 2. The heaviest multiplier of 2.5 applied to nine subjects (21.4%) largely in the applied sciences, engineering and applied health areas.

In practical terms, an A quality category in Clinical Medicine (weighting of 2.5) accrued 12.5 times more funding than a C in Education (weighting of 1). A quality category of C in Pharmacy (weighting of 2.5), by contrast, brought in 83% of the funding of a B in social work (weighting of 1).

Subject weighting reflects that it is more costly to achieve an A in some subjects than in others. The building space, technology, materials and human resources required for strong research in Biomedical research is significantly higher on average than in English Literature (although the latter will have significant costs in terms of library resources, access to expensive databases and, possibly, substantial travel to archives). On the other hand, the number of research outputs and the number of researchers whose names are on those outputs are also likely to be higher in

Biomedical research: two A researchers may have laboratories in which a further 10 individuals share in the publications, so can more readily achieve a B or C quality category in the PBRF.

It is not clear, however, that the subject weighting has an influence on the institutional behaviour surrounding the PBRF. The multipliers are very general, reflecting the variation in research cost within subjects – some research in archaeology is extremely expensive, while it is possible to have a research project in engineering that is low cost (for example, research in low-cost engineering solutions for use in developing nations). The effect of subject weighting in the PBRF is to attempt to factor in the expense of conducting research – and perhaps to prevent overinvestment in low-cost research, and the subsequent loss of existing research excellence in some areas of higher-cost research.

It is worth noting that within the scope of the review of the PBRF (2007) was that the weightings for the three components of the PBRF be considered, including the subject-area cost weightings that apply to the Quality Evaluation and research degree completions. The subject weighting of '2' for nursing is questionable with impacts being felt on the clinical learning environments most particularly with the diversion of staff to research priorities.

Nursing needs to effectively lobby for inclusion in the 2.5 multiplier category in order to maintain and sustain the requirements of the teaching environment, particularly in the clinical settings, to achieve vital learning outcomes.

Scores / scoring

In 2006, more researchers were PBRF-eligible than in 2003, and quality scores for the 41 subjects reviewed rose by an average 14.3% from the 2003 overall PBRF score of 2.59 to 2.96 in 2006. All but four subjects improved in score. Of the 22TEOs participating in the PBRF in both 2003 and 2006, 17 improved in score. In part, the increase in scores may have been a function of greater familiarity with the PBRF review process – researchers and TEOs had learned what made a strong Evidence Portfolio, so some of the increase in scores may be a function of better communication of research achievements rather than purely better research.

The average FTE-weighted quality score at universities for the 41 subjects reviewed was 2.98 in 2003, and 3.72 for the 42 subjects in 2006. While universities dominated the PBRF, participation by other parts of the tertiary sector increased in the 2006 quality evaluation. Particularly notable was the five-fold growth in the number of ITPs participating in the PBRF (from 2 to 10).

Subjects in which enrolments soared over the PBRF period may have lower PBRF scores because staff had increased teaching and administrative responsibilities. Subjects experiencing more stability or even a decline in student enrolments may have stronger PBRF scores as a consequence. An understanding of changing student enrolment patterns would enhance this discussion of the trends in the subjects, hence robust systems and practices need be put in place.

Nursing, which is taught in both the university and ITP settings, received a weighted quality score of 0.49 in 2006 compared with 0.34 in 2003.

Overall Quality scores

Staff turnover

PBRF data reveals changes in tertiary academic staffing and research performance from 2003 to 2006. These changes have multiple causes, and it is not clear to what extent they were influenced by the introduction of the PBRF.

Significant turnover has occurred in at least part of the academic workforce since the 2003 Quality Evaluation. Of the 8018 PBRF-eligible staff reported in the 2003 Quality Evaluation, 29% (2,347 staff) were not PBRF-eligible in 2006 either because they were no longer employed by a participating TEO or because their employment functions changed. This, of course, will have impacted (positively) on the denominator values (described earlier) for the assessment of the aggregated Evidence Portfolio scores.

In terms of researchers who exited the PBRF, subjects had as few as 10% of their researchers exit (anthropology and archaeology) and as many as 53.1% (nursing). The subjects with the most exits also had higher ratios of exiters who had been in the R category in 2003 (nursing 96.8%). Most subjects increased both in size (non-FTE-weighted) and in proportion of researchers evaluated by Evidence Portfolios. Nursing was one of the two subjects whose PBRF-eligible staff grew by more than 50% (Nursing – 54.9%). This was driven primarily by the entry of new TEOs, particularly ITPs, into the 2006 round.

Nearly half (47%) of the staff assigned to the R category exited, as did just under a quarter (23%) of staff assigned to the C category. Exiting staff encompassed the full range of quality categories, although only 1% (33) had received an A in 2003. A total of 65% of exiting staff (1528) had received an R in 2003. This compares with 6% of staff who received an A in 2003 and 41% who received an R. Of the exiting staff, 76% were full time.

Subjects that scored especially well in the 2003 PBRF experienced fewer staff exiting the PBRF by the 2006 quality evaluation. Lower-scoring subjects achieved substantial improvements in their subject scores, in part, through the large-scale exits of R researchers. Nursing was in the latter group. Hence, given these incentives and better TEO understandings of the process, a smaller proportion of PBRF-eligible staff were assigned to an R quality category in 2006 than in 2003.

Overall, there was a very slight tendency for more PBRF-eligible staff to be employed full time, with 87% of staff in 2003 being employed as at least 0.75 full time equivalents (FTEs), rising to 88% in 2006. In 2003, there was a positive relationship between full-time status and higher final quality category, and this was carried through to 2006.

New researchers and subject entrants

There were 2994 new researchers in the 2006 staff census across 31 TEOs. Most subjects increased both in size (non-FTE-weighted) and in proportion of researchers evaluated by EP.

Their average age was 43.3 years, and 47% were female. Nearly a third of these entrants (29%) were staff at the 12 TEOs participating in the PBRF for the first time. They comprised 34.6% of all PBRF-eligible staff in 2006. Staff numbers were steady in most TEOs and most subjects, but significant churn underpinned that apparent stability.

Subject areas - Nursing

There are 42 subject areas covered in PBRF, and nursing has scored the lowest in research funding for both the 2003 and 2006 rounds. Nursing had 242.86 eligible staff participating in the 2006 round with an overall score of 0.49. This score was less than half of the next lowest score (design at 1.27, with 82.54 staff). The highest overall score was in philosophy at 5.15 with 67.89 participating staff. Biomedical scored at 4.65, with 221.53 eligible staff.

Most subjects improved their PBRF scores, with 18 subjects achieving more than a 20% increase over their 2003 subject score. The best research results were found in long-established subjects (e.g. earth sciences and philosophy), while relatively new subjects areas such as nursing; design; education; sport and exercise science; theatre and dance; film, television and multimedia were at the other end of the spectrum.

Nursing had 271 researchers (243 FTEs) in this subject in 2006 and 175 (158 FTEs) in 2003. This was a change in head count of 55%, with 70.1% of its 2006 researchers being new to the PBRF. This was due in part to increased participation in PBRF by more ITPs. The proportion of FTEs to researchers was 90% in 2006 and 90% in 2003. In 2006, 75 of the 271 researchers came from within universities (28%). In contrast, in 2003, the proportion of university nursing staff was 130 (74%). Of those who left nursing (53.1%), 93 left the PBRF entirely, while six transferred to another subject within the PBRF. The age group with the highest number of exits was the 35 – 44 age band.

Additional shifts in personnel in nursing

Exit PBRF between 2003 and 2006	93
Enter 2006 PBRF in this subject	190
Transfer to another subject between 2003 and 2006	6
Transfer from another subject between 2003 and 2006	5
Retained in this subject between 2003 and 2006	76

Nursing was one of the three subjects with the highest female majorities in both 2003 and 2006. Nursing had the largest proportions of women of any subject in the PBRF (89.7% female in 2003 and 88.6% in 2006). Whereas, the majority of staff in both years were male: 58% in 2003 and 59% in 2006. Nursing, and two other subjects, also had large proportions of researchers employed outside the university subsector, complicating any interpretation of how gender balance might relate to subjects' quality scores.

Nursing had 7.4 "A"s or "B"s in the 2006 round, the lowest result. The TEC briefing paper comments that there seems to be a "lack of critical mass of experienced and highly respected researchers capable of providing strong leadership", being directed at the low scoring subject areas, and not just nursing. With nursing being a comparatively young academic discipline in New Zealand this is not surprising (TEC, 2007). The question is, can the profession of nursing survive the demands of meeting research outputs on the one hand while trying to balance the clinical teaching demands with the other? The episodic nature of clinical teaching loads

precludes attractive employment contracts being offered so there can be a very finite pool of appropriately prepared and available teaching associates on offer.

The number of researchers in nursing who improved their final quality category between 2003 and 2006 (regardless of whether they were in Nursing or another subject in 2003) was 15. Of the new entrants, 1 received an A, 1 a B, 11 a C, 5 a C(NE), 133 an R and 44 an R(NE) p. 155.

The recent introduction of the Strategy to Advance Research Project's (STAR Project) \$2.7 million fund by the TEC, and commensurate processes, will be a good test of nursing's research leadership in developing capacity and strength over these next two years (Finlayson, 2008). However, the STAR funding while a good example of funding received to enhance and strengthen research capacity in nursing is directed primarily to strengthen capacity in the university sector rather than the ITP sector where the majority of nursing education still occurs (Watson, 2008).

It is important to place nursing in context with other subjects having to meet professional training issues. The evaluation strategy synopsis to follow provides a perspective around the context of those designated Professional Training (PT) subjects.

PBRF evaluation strategy

A three-phase evaluation strategy was developed and is planned to operate over 10 years from mid-2004 to late 2014. The first phase was completed in 2004, with a report by WEB Research (2003) to the TEC.

The second phase of the PBRF evaluation is focused on identifying the emerging effects and any unintended consequences at the earliest stage possible. Phase two is composed of three major aspects. The first aspect of the evaluation featured work streams to support the set up and design of the PBRF evaluation. The second aspect involved using existing data sources, with a PBRF monitoring framework under development. This provided commentary on the impact of PBRF on a prioritised set of indicators. This framework will be updated and republished annually. The third aspect of the evaluation is an independent strategic review of the PBRF, with the information being synthesised in a review report that will complete phase two of the PBRF evaluation. The TEC has commissioned Dr. Jonathan Adams, of the UK-based company, Evidence Ltd., to undertake the second phase's independent strategic review.

Additionally, the design of the PBRF includes specific incentives to encourage increased research participation by and support for Māori and Pacific researchers. Ministerial instructions also ask that the evaluation assess areas in which unintended effects might emerge. These instructions direct the TEC to actively monitor PBRF impacts on:

- Courses in humanities and social science subjects
- Courses required for professional training such as health
- Risky and innovative research
- Provider engagement with the community, or on the contribution of academics to administration within their provider.

Professional Training Subjects

The six Professional Training subjects in the 2003 round were Architecture, Clinical Medicine, Dentistry, Education, Nursing and Veterinary Science. Pharmacy became the seventh Professional Training subject in the 2006 round.

The Cabinet decisions requiring the phase two evaluation direct the TEC to evaluate PBRF influences on courses required for Professional Training such as health. The subjects in this group require tertiary staff who have commitments to excellence in professional practice, alongside the usual commitment to quality teaching and quality research. The concern is that the PBRF may create incentives to focus staff resources on research to the detriment of student training in fields such as medicine, dentistry and nursing.

Many subjects involve elements of Professional Training. For the evaluation the focus was on those subjects requiring substantial supervised practice for students earning degrees. Such students need instruction and supervision by staff members who are themselves practitioners as well as tertiary instructors (for nursing, in some cases, holding a contract with the TEO but having minimal theoretical teaching input). In addition, graduates from degree programmes in these subjects require registration with professional bodies that require evidence of substantial practical work. TEOs offering degrees in these subjects must have staff who are practitioners as well as instructors, must commit staff time to professional practice, and must meet the requirements of the external registration bodies in their training delivery. The Professional Training subject designation is on subjects with a preponderance of teacher-practitioners. Yet, there are a number of nursing lecturers who no longer practice clinically, gaining their registration through meeting competencies for nurses involved in education that do not require clinical practice (Nursing Council of New Zealand, 2005).

Concerns for the professional training subjects

Tertiary teaching in some programmes is best provided by a mix of staff. Some staff are primarily research-informed instructors who produce research outputs leading to strong scores in the PBRF. Other staff have more limited (or none) research time because they are primarily practitioner-instructors, as is the case in nursing. Tertiary staff who combine professional practice with teaching and research bring a necessary expertise to Professional Training subjects. Without them, the production of well-qualified graduates in these subjects would suffer. Questions being asked by the TEC include the following:

- Does the PBRF make it difficult for subjects dominated by practitioner-instructors to gain recognition for the research that is produced by the staff? That is, do Professional Training subjects have lower quality scores than other subjects despite having staff of similar ages, educational background and employment status? What about the nature and structures of the nursing profession and its best avenues for teaching? Simulated learning pathways have their strengths and limitations when compared with the cut-and-thrust of the clinical nursing environments. Finding a working balance in learning pathways is vital to generating confident, competent professionals.

- Do any changes suggest TEOs are reducing the proportion of practitioner-instructors, while increasing the proportion of researcher-instructors? Do any changes suggest TEOs may be reducing their commitment to providing students with well-supervised, extensive practical training in subjects like clinical medicine, nursing and dentistry, due to the incentives in the PBRF that reward high-quality research? What are the implications for nursing if that is the case? Anecdote speaks to enrolments numbers in some nursing programmes in the USA being strictly limited due to the inability to secure clinical nursing teachers (Alvarez & Trent, 2008).
- There have been some signals noted that nursing educators are questioning their funding amounts as being inadequate for meeting clinical teaching requirements, with payments going to the clinical settings. Options are being discussed as to the sustainability of these payments, by some institutions. Is this a sorry reflection of the subject weighting of '2' ascribed to nursing, instead of the more generous '2.5' multiplier?

It might be expected that Professional Training subjects have more researchers in the quality categories R and R(NE) because their research time (and funding, for that matter) is necessarily limited by their commitments to professional practice and regulatory requirements. Quality scores in these subjects may not fully reflect the strength of research produced in these fields because of this 'dilution' effect – resources having to be spread across a wider spectrum of teaching/learning components when compared with other non-Professional Training subjects.

Researchers in Professional Training subjects appear to have some disadvantages compared with other PBRF researchers that derive from their professional practice commitments. The variety of scores across the Professional Training subjects and across the two quality evaluations suggests that these disadvantages are not severe. There is concern, however, that nursing and education have a problematic status within the PBRF as is demonstrated by their low ranking in both rounds.

A recent example of staff changes, given this problematic status as linked to the PBRF, occurred at the Victoria University's College of Education where 16 of the 140 staff lost their jobs. The remaining 124 staff were confirmed across the college's three schools as the university sought to stem a \$1.7 million budget blowout in training early childhood, primary and secondary school teachers. It was stated that "the changes were imposed as the college sought to apply more emphasis to research and research-led teaching (Dominion Post, 2008)."

Nursing had no researchers achieving the A quality category in 2003, and only one in 2006 (a new entrant). There were also relatively few B researchers, and only a modest number of C researchers. In Professional Training subjects, nursing accounted for only 3% of the funded researchers in 2003, and 5.2% in 2006, with nursing comprised 9.3% of all Professional Training researchers in both rounds.

For most Professional Training subjects, score changes were more a function of researchers exiting and entering the subjects than existing researchers achieving changed scores in the subjects. Only nursing and education had small proportions of new researchers achieving PBRF funding, although these proportions aligned with the generally low scores in these subjects. It is possible that the staffing changes

between the 2003 and 2006 rounds may reflect a more firm distinction between staff-practitioners who supervise student training and are not to be considered PBRF-eligible, and staff who have significant research commitments and expectations. It is not clear how this may affect the education of students in these professions. Research is needed on staffing and contractual arrangements and how these factors affect nursing education outcomes.

Three of the six Professional Training subjects (2003 round) had significant numbers of researchers working in non-university TEOs. Staff contracts in these organisations, particularly for part-time staff, can have more substantial teaching requirements and leave less time for research than the average university staff contract. In some instances in nursing, TEOs contract in part-time, intermittent staff to support and/or supervise undergraduate students in clinical settings. It follows that the actual pool of experienced and appropriately educated nursing staff is limited given the sporadic nature of the employment. Questions need to be asked about the quality of the education received in the clinical setting. For example, are learning outcomes – theoretical and practical - clearly understood and integrated to the learning process by both TEO and hospital/primary health care nursing staff supporting the students?

The clinical practice learning arena is fraught with inconsistencies (Fox, 2008), with student learning outcomes often imperiled by staffing numbers, patient services and their demands. The KPMG report (2001) states that:

Assessment in clinical would appear to be often an ad hoc arrangement between tutors and clinical staff with clinical staff often not always fully conversant with the learning objectives and competencies expected of the students and educators sometimes unfamiliar with current clinical practice (p. 81).

How much has this changed in the seven intervening years since 2001? Is it possible that the contracted clinical educators are less familiar with the curriculum and its intentions than before the introduction of PBRF and its influence on process? How is the student supported to integrate their theoretical/classroom learning with the practice realities? These questions need to be answered in the changing education environments and expectations.

Nursings' rankings could well be related to the varying postgraduate degrees with the relatively recent push to clinical masters in order to secure Nurse Practitioner status. The clinical master's programmes is not a research-focused degree. Many of the TEOs offering this degree have to meet the regulatory requirements as determined by the NCNZ. This clinical focus then dilutes the number of lecturers' hours teaching research-focused papers, and the number of nursing graduates who gain research skill sets from their postgraduate education. This 'dichotomy' within professional nursing education will necessarily impact on PBRF outcomes as resources are pulled in varying directions in meeting learning needs, regulatory requirements and the funding criteria from the Ministry of Health's Clinical Training Agency (CTA).

To secure CTA funding for postgraduate study the requirement that the course be approved by the Nursing Council is limiting with invidious consequences, working against multi-disciplinary, business or other 'outside-of-nursing' studies. Added to

the already competitive environment of health research, is the PBRF driving behaviour away from inter-institutional collaboration, and multi-disciplinary research due to constructed counter-productive incentives. The Health Strategy makes it clear that collaborative work underpins the ability of the health system to improve health outcomes and reduce disparities and yet mixed messages are being sent out across the nursing sector.

In addition, because the appropriate terminal degree for many tertiary instructors in Professional Training subjects may be a master's degree, the Professional Training subjects may have a greater number of staff without doctorates compared to other subjects. The terminal degree may also not be as research-intensive as ones in some other subjects, because the mastery achieved must have a significant professional practice component. Professional Training staff without doctorates or research-focused terminal degrees may have less access to national and international networks of researchers, may have more difficulty publishing their work in the better-regarded journals, and may be less likely to participate in activities that comprise contributions to the research environment. Not only may these Professional Training researchers have fewer research outputs, they may also have more difficulty establishing peer esteem as researchers and contributors to the research environment. If this effect exists, it may create pressure on institutions seeking to raise their PBRF performance to reduce the proportion of practitioner-instructors in favour of research-instructors, with a possible detrimental impact on the professions concerned. Is this happening in nursing education?

In nursing, teaching staff who have a doctorate as their terminal degree are a distinct minority, with senior lecturers in the subject routinely having a master's degree across the TEOs. This level of education/preparation is at an international standard – for example, there are staff in the education faculty of Harvard University whose highest qualification is a master's degree in education, and senior lecturers in architecture at Cambridge University whose highest qualification is a master's degree.

As a result of these varied paths to subject mastery, Professional Training staff in some subjects are less likely to have a terminal degree that is research-intensive, so many Professional Training staff have less involvement in a research community. One would expect larger proportions of R staff in these subjects as a result, and lower PBRF scores. This may be entirely appropriate for many Professional Training subjects because professional practice occurs outside the context of research in these fields, whereas in most of the PBRF subjects research and professional practice are identical. For example, in English literature, to analyse literature and publish one's findings is to practise one's professions. When professional practice can be separated from research, as in the Professional Training subjects, PBRF scores are frequently low. There is also some concern that structural elements of the PBRF lead to the under-reporting of research excellence in some Professional Training subjects. In nursing, for example, the Cumulative Index to Nursing and Allied Health Literature (CINAHL) database is the definitive reference tool covering English-language journal literature for nursing and allied health disciplines, and included 547 nursing journals in 2005. Of these, only 39 were ranked by the Institute for Scientific Information (ISI) from which the PBRF panel assessing nursing drew its ranking of journals for the purposes of assessing research quality. These 39 journals also achieved only low-impact quality ratings from the ISI. Research in

nursing could have difficulty achieving a strong quality score in the PBRF unless it was published outside the standard nursing journals – where it might gain a higher PBRF rating but be less likely to have impact within the profession in New Zealand.

The opportunity cost of taking nursing research publication outside of New Zealand is potentially high. The reduced possibility for integrating research findings into relevant areas of practice locally is compromised due to findings not being accessible to many nurses via academic journals and/or information technology and databases. Subjects with lower-ranked, and substantial numbers of unranked journals, may suffer in the PBRF due to the lower esteem in which the subject is held by external organisations such as the ISI.

Professional Training subjects may also have lower PBRF scores due to the large proportions of part-time staff employed to teach in Professional Training programmes. Up to a third of researchers in these subjects were employed outside the universities. Part-time staff have, on average, lower PBRF scores than full-time staff, and large proportions of part-time staff are in some Professional Training subjects. It could be that many Professional Training staff may have been active practitioners.

Yet part-time status alone does not fully predict an influence on PBRF scores. Rather, it is a cluster of traits that bear influence on the outcomes: part-time status; employment outside the university subsector; gender; and whether the terminal degree is a research-intensive degree; can coincide to reduce scores in subjects. This confluence is found in the Professional Training subjects, making it difficult for most of these subjects to achieve strong PBRF scores. Up to a third of researchers in the Professional Training subjects were employed outside the universities. Professional Training subjects had lower scores than other subjects in 2003 and experienced shifts in staffing that allowed improved scores in 2006. While there is no clear evidence of disadvantage, the shifts in these subjects suggest that further attention to ongoing changes in PT subjects related to the PBRF may be justified.

PT subject	% in non-university sector 2003	% in non-univ 2006
Nursing	25.7%	72.3%
Cl. Medicine	0%	1%

Nursing experienced a notable shift, with 74.3% of its researchers in the universities in the 2003 quality evaluation and 72.3% in ITPs in 2006, reflecting the greater participation by ITPs in the 2006 round but also a 42.3% decline in the number of nursing researchers at the universities (from 130 in 2003 to 75 in 2006) – representing a significant shift.

Changes in PT participation

Nursing

New staff in 2006	72%
% of new staff in funded quality categories	9.2%
% of 2003 staff exiting by 2006	34.3%

Medicine

New staff in 2006	38.9%
% of new staff in funded quality categories	49.6%
% of 2003 staff exiting by 2006	30.9%

Nursing absorbed a very large proportion of entrants, with very few of them being in the funded categories.

Growth in researchers in all PBRF subjects was 8.2%, and in all Professional Training subjects was 3.1%. The variation in staff numbers in the Professional Training subjects was substantial, however, and suggests that clarifications regarding staff eligibility and the entry of more ITPs into the PBRF have had strong influences in some Professional Training subjects.

Professional Training subjects quality scores

Professional Training subjects received lower-than-average quality scores in the 2003 PBRF exercise. The Professional Training subjects' average was 1.42, well below the 2.59 PBRF average across all subjects in 2003. The average Professional Training subject score in 2006 was 1.76, still below the 2.96 quality score for the entire PBRF. In a ranking of subject areas, none of the top 10 subjects was a Professional Training subject, and 4 of the lowest 10 were Professional Training subjects, including two of the three lowest-ranked subjects in 2003.

Subjects and scores in the Professional Training group include:

PT Subject change	Quality score 2003	Quality score 2006	Percentage
Architecture	2.34	2.68	14.7%
Clinical Medicine	3.32	3.58	7.7%
Dentistry	1.85	3.80	105.5%
Education	1.02	1.31	28.0%
Nursing	0.34	0.49	42.3%
Veterinary	1.82	3.24	77.4%

The improvement in Professional Training scores by 2006 suggests that the PBRF may be affecting these subjects. There is evidence that researchers in Professional Training subjects are now more likely to be full time and devote a greater portion of their resources to research-based activities than in 2003.

Six subjects that covered qualifications identified as being key to the training of doctors, nurses, architects, and other professionals were examined. These subjects achieved lower-than-average PBRF scores: 1.42 in 2003 and 1.76 in 2006 compared with PBRF averages of 2.59 and 2.96.

Gender

Nursing had the largest proportions of women of any subject in the PBRF (89.7% female in 2003 and 88.6% in 2006) - page 77. The gender imbalance in nursing's numbers also suggests that female researchers will remain a majority in this subject in the short term. By contrast, the staff members of the other Professional Training subjects (apart from education) were disproportionately male.

Subjects with high numbers of female researchers need not necessarily have lower scores than those with mainly male researchers. Nursing and education have a

collection of factors tending to depress their subject scores, including large numbers of part-time staff, substantial numbers of staff at non-university TEOs where staff contracts may not reflect time and resources devoted to research, and numbers of researchers whose terminal degree was not a research-intensive degree.

Nursing is one of the few health-related subjects not to have a 2.5 weighting. This is an issue that needs to be followed up in order to bring nursing into a more equitable funding platform having to meet student learning needs across a variety of settings. The other subjects not having a 2.5 weighting are 'other health studies', which has the third largest proportion of female staff in both years of the PBRF (following nursing and education), and sport and exercise science. In general, men in the PBRF in Professional Training or in health areas are more likely to appear in subjects in which their research scores are weighted 2.5, while women in these areas are more likely to appear in subjects in which their research scores are weighted less.

Even if gender does not necessarily lead to the under-reporting of female researchers' excellence in the Professional Training, it does appear to be associated with less funding than males of comparable research excellence earn for their TEOs, because male and female researchers cluster in Professional Training subjects with different funding weights.

Staff Ethnicity

The ethnic mix of PBRF staff has been stable, with 64% of staff being European/Pakeha and 6% Māori in both rounds.

The majority of Māori staff in the PBRF were employed in universities and colleges of education, but this proportion decreased from 82% in 2003 to 65% in 2006. Māori staff had a quality score of 1.46 in 2003 and 1.55 in 2006. This was an increase of 6.2%. Māori staff were on average younger, more likely to be female, and in more junior roles than were non-Māori staff. In 2006, 34% of Māori were identified as new and emerging staff, compared with 22% of all PBRF staff. Māori had stronger representation in more junior academic roles. Māori staff were concentrated in subjects weighted 1 (70% in 2003, and 71% in 2006). The subjects with the highest proportions of Māori staff in 2006 were Māori knowledge and development (34%) and education (24%).

Two concerns regarding Māori research were noted as needing to clarify whether staffing levels affect the availability and effectiveness of mentors for the more substantial pool of younger and junior Māori staff.

The second concern noted in the report is that, on average, Māori staff did not improve their PBRF quality score at the pace of other groups in the PBRF (a 6.2% improvement compared with a 14.3% average PBRF improvement). The higher concentrations of Māori in lower-scoring subjects such as education and employed outside the universities are relevant here. Māori improvements in quality category are likely to be consistent with (and at time surpass) those of comparable staff in the same subjects and TEOs, but further attention to this issue after the next quality evaluation may provide a better understanding.

Pacific staff

Pacific peoples comprised one percent of staff in the PBRF censuses in 2003 and 2006. There were 90 Pacific staff in 2003 and 94 in 2006. Pacific staff were on average younger and held more junior positions than the PBRF average. The gender balance of Pacific staff shifted slightly from 2003 to 2006, with a female majority in 2003 and a male majority in 2006. Pacific staff worked in a range of subject areas, with the 94 Pacific staff in 2006 distributed across 29 subjects. Over 25% were in education. Pacific staff were also concentrated in public health and sociology, social policy, social work, criminology and gender studies. In 2003, 61% of Pacific staff were in subjects weighted 1, and in 2006 this increased to 70%.

The small numbers of Pacific staff in the PBRF make it difficult to reliably identify trends in staffing or performance. Between the 2003 and 2006 quality evaluations, the numbers of Pacific staff in the PBRF remained stable despite significant turnover, and quality categories improved. Other trends may be identified in later quality evaluations.

Junior Staff in the PBRF

One concern found in the evaluation process was that younger or early-career staff were a decreasing proportion of the academic workforce. Early evidence shows that in absolute and relative terms there are fewer younger and junior staff in the tertiary research workforce as measured by the PBRF census. The staff eligibility guidelines that were later clarified affected staff in junior roles more strongly than staff in senior roles. There was a 14% decrease in the pool of staff aged under 35 from 1,034 to 887. This trend is not necessarily significant but does warrant monitoring.

Tertiary Education Organisations participating in the PBRF

NZ has eight universities, which all participated in both rounds of the PBRF. There are 20 ITPs, of which two participated in 2003 and 10 in 2006.

Universities dominate the PBRF, with 85% of PBRF staff employed at universities in 2003, although this fell to 79% in 2006 with the influx of TEOs. As well, universities dominate with respect to higher quality category results, with all but one 'A' being awarded to university staff in 2003 and all but three 'As' in 2006. Four universities reported a decrease in the number of PBRF-eligible staff, all universities increased their numbers of 'A' and 'B' staff. Of the 2168 "Bs" only 58 were received by staff in TEOs outside the university sector. In 2003, 36.5% of Professional Training researchers were employed outside the universities. This contrasted with the 9% of non-PT researchers throughout the PBRF who were employed outside the universities. In 2006, 33.3% of PT researchers and 18% of all non-PT researchers in the PBRF were in non-university TEOs.

The low quality scores achieved by the ITPs is not surprising given their history and (non-research) role in the tertiary sector. However, there were a relatively large number of PBRF-funded researchers within this sector in 2006. Almost half of these PBRF-funded staff are found in five subject areas: visual arts and crafts (71); computer sciences, IT (35), engineering and technology (24); education (22) and business portfolios (21). The implication for nursing is that there is more work to do

to attract PBRF funding. Having recognized research outcomes, combined with persuasion at the individual TEO's negotiating (intra-school/department) table will necessarily influence the resourcing that is possible from the TEO's funding pool. The research weightings, the ability to assess and measure educational processes and outcomes, the actual negotiating abilities of the senior nursing staff, and the culture of the education institution all combine to influence the outcomes of negotiations for nursing's financial resourcing within TEOs.

In the wider picture, information from the 2006 Quality Evaluation on the distribution of research excellence will help TEOs in deciding what role they may play in providing tertiary education.

Career Path and Staff Development Issues

As far as staff mobility is concerned across the levels and the sector, the evidence suggests a high level of stability among academic staff who received high PBRF quality categories.

Early indications are that some TEOs have formalised distinctions between the research-intensive and non-research-intensive pathways, with different contracts and different abilities to access resources enabling research productivity. It seems that there are two routes taken: an academic career pathways and a pathway that involves more of a supporting role. An audit of PBRF staff found that 37% of PBRF staff who exited the PBRF after 2003 remained employed at PBRF-participating TEOs in 2006, but in PBRF-ineligible roles. The report suggests that this may result from contracts being clarified or it may suggest the existence of a pool of tertiary academic labour that is increasingly separated from traditional academic pathways.

Another confounding factor to recruitment and retention of staff is that nurse educators in the ITP sector are now worse off financially compared with nurse educators in the District Health Board sector (Watson, 2008).

The high rate of new entrants to the PBRF in 2006 receiving funded quality scores suggests that TEOs, especially universities, expect many newly hired PBRF-eligible staff to be productive researchers from the beginning of their employment. How staff (and prospective staff) are supported in developing research programmes at the beginning of their careers, after periods of less-intensive research, or after periods of PBRF-ineligible academic support roles, is an area meriting ongoing attention

For example, how does a lecturer who carries a heavy teaching load and who is essentially 'clearing the path' so senior lecturers and above can give due attention to their research, do their own study to reach the higher echelons of the academic hierarchy? The support given to these staff members is essential or good teachers will be lost because of the unreasonable demands placed on their time. Ironically, the bulk of a TEO's work is quality teaching, and the bulk of funding is for that teaching. Is undue emphasis being placed on the 'the icing on the cake', i.e., that which commands the extra funding and mana through PBRF?

Reports signal that in most TEOs, efforts to develop existing staff to improve their PBRF performances did not appear to directly compete with efforts to recruit strong researchers. TEOs that were particularly successful in developing existing staff were often also particularly successful at recruiting staff who would achieve funded quality

categories. Basically, a supportive and strategic work environment is rewarded by its own efforts.

Staff development to higher categories in the 2006 round:

9% of staff who received B categories in 2003 developed into A staff

17% of staff who received C categories were assigned to higher categories

15% of staff who received R categories were assigned to higher categories

Hiring research-minded staff did play a significant role in increasing TEOs' pools of funded staff in 2006. The staff who received an A category for the first time in 2006 were 61% developed staff and 39% newly recruited staff. For those newly achieving a B category, the rates were similar: 58% of new B staff were developed and 42% recruited. In the C category, by contrast, 36% of new C staff were developed and 64% recruited.

TEOs successfully developed staff into higher categories between 2003 and 2006, but there were also significant numbers of strong researchers recruited, in all the funded quality categories. It would seem that the new message to prospective staff can be: complete your studies before applying for senior positions as there is not enough 'flex' in the system to support demanding teaching and research workloads.

Quality Assurance – TEC/NZQA

Quality assurance of tertiary education in New Zealand focuses on the quality of learning outcomes recognized through qualifications as a whole, and also on the systems and processes that support quality delivery by providers. Quality assurance bodies decide whether providers and qualification developers meet appropriate standards.

NZQA accredits and audits educational institutions.

The TEC intends that the new quality system will be strongly evidence-based.

The quality assurance focus will be on:

- Outcomes
- Setting common standards and performance
- Providing information to government and the public
- Ongoing self assessment
- External review and validation

The TEC expects and rewards high-quality performance and drive for continuous improvement based around clear criteria, with a straightforward system of accountability.

As part of this process, a new Sector Reference Group (SRG) has been established to consider feedback received and lead any redesign of the PBRF before the 2012 Quality Evaluation. It is planned that the SRG will make recommendations by June 2010 for this purpose. The agreed changes will then be incorporated into the PBRF's design for the 2012 Quality Evaluation.

In the future, it would be strategic for nurse educators to seek nomination for positions on influential committees such as the SRG.

As well, the need for quality teaching within the new, and often research-driven environment has not been set aside. For example, the focus on quality teaching is part of the Ako Aotearoa's brief in overseeing the Tertiary Teaching Excellence Awards that were established by the Government in 2001. These awards aim to recognize and encourage excellence in tertiary teaching while also providing the opportunity for teachers to further their careers and share their good practice with others. A key focus of the awards is to identify and reward teaching practices that are student-focused and committed to promoting effective learning.

There are up to nine awards of \$20,000 each and a supreme award, the Prime Minister's Award, of \$30,000. The 2008 TTEA supreme winner, Dr. Emerson, of Massey's School of English and Media Studies, was cited for the variety and breadth of her teaching and assessment. She spoke to the complexities of her teaching styles and roles in saying that, "Science is so huge that you have to teach in a relatively flexible way. What might work for a psychologist might not work for an IT specialist." In order to meet the spectrum of student learning needs, she teaches and designs courses in writing across the university and has research interests, including science writing, plagiarism and online writing. Dr. Emerson publishes widely on academic writing and runs The Writery, an online community for creative writers (Dominion Post, 2008).

Sharing her good practice with others, alongside the other award winners, will help to reinforce successful teaching approaches and delivery. Dr. Emerson's role modeling ties in seamlessly with best practice teaching and research roles within the tertiary environment.

PBRF - Further Research possibilities

Students

- While students certainly consider the quality of programmes when choosing to enrol for postgraduate work, their ability to discern quality and the other factors against which they measure the importance of programme quality in their final decisions are not yet well known – further research is needed here.
- If student access is hampered, for whatever reason, then it follows that numbers and (subsequent) funding will fall. A careful analysis of educational needs, and the delivery of such, warrants further study and analysis.
- The effect of changing student:staff ratios on the quality of nursing education warrants research across the sector.

Teaching

- How is PBRF impacting on teaching? For example, workloads, class sizes, clinical teaching and quality of the programmes warrants further study.
- Is research being prioritised ahead of those departmental activities with no direct funding spin off? Has the contribution of academics to administration within their institution being affected?
- Has there been a change in focus of academics manifesting itself in changes to degree programmes themselves? Are researchers weaving their research interests into the curriculum ahead of other teaching priorities?

Nursing-related

- Where should nursing education be positioned within the tertiary education sector?
- What is the place of research in nursing?
- Information on the TEO research investment strategies would greatly enhance the understanding of how specific subjects are affected by the PBRF . What factors influence the decisions taken by the TEO(s) when it comes to deciding research strategies? How well do nurse educators plan and position their research strategies when faced with competing interests around the TEO negotiating tables?
- Questions need to be asked about the quality of nursing education received in the clinical setting. For example, are learning outcomes – theoretical and practical - clearly understood and integrated to the learning process by both TEO and hospital/primary health care nursing staff supporting the students at the varying levels?
- CPIT is about to start a research project (August 2008) to validate the Clinical Learning Environment Supervision and teaching scale in the New Zealand context. This tool has the potential to become a quality indicator in relation to nursing students clinical learning and can contribute to understanding the clinical learning setting.
- Does subject weighting have an influence on the institutional behaviour surrounding the PBRF? The multipliers used in the funding formulae are very general, and do not necessarily reflect the realities and exigencies of the clinical settings that are necessary to meet nursing learning outcomes.
- Further work on the role of gender in the PBRF could explore why female staff in the PBRF are disproportionately concentrated in lower quality categories; employed outside the universities; employed part time; and working in lower-scoring subjects such as education and nursing.

Community / Collaboration

- Is the engagement with the community being affected – positively or not?
- How does the external funding income, and all its influences, affect the research choices and processes?
- Why is external funding income not reported by subject?
- Is there reduced willingness of tertiary researchers and institutions to engage in industry relevant research due to pressure to pursue peer reviewed academic research outputs versus more industrial based applied research.
- Is PBRF driving behaviour away from research collaboration especially inter-institutional collaboration and also multi-disciplinary research?
- How is the balance between research quality and impact being considered in the developing synergies between funding intent and design?

Research productivity/implications

- Are changes in research productivity reflecting changes in the research culture in the tertiary sector? What circumstances increased productivity and quality and in what circumstances does it not?
- There is concern that the PBRF can end up comparing ‘apples with oranges’ in that it can compare the research outputs of subjects with relatively high numbers of full professors against those dominated by lecturers.
- Is the development of e-Research being encouraged or hindered within the PBRF environment?

- Do the 6 yearly Quality Evaluation cycles affect the length of studies being undertaken, particularly in terms of PBRF assessments needs?
- Further work to understand how research productivity has changed since the introduction of the PBRF would address whether the PBRF has stimulated the tertiary academic workforce to engage in more research as well as better research.

Staff/Employment implications

- How are staff (and prospective staff) supported in developing research programmes at the beginning of their careers, after periods of less-intensive research, or after periods of PBRF-ineligible academic support roles, merits ongoing attention.
- Are staff drawn from overseas or from the growing pool of postgraduates educated in New Zealand?
- Additional research is required on the reasons for the changing age profile of staff, with the proportion and age of junior staff requiring further monitoring.
- Do staff who exit the PBRF go to academic positions overseas, or to non-PBRF-eligible positions in TEOs in New Zealand or whether they leave the tertiary sector. If the latter, it would be interesting to know whether these staff participate in research and development in New Zealand.

Concluding remarks

The incentives provided by the TEC reforms, and the PBRF, have been designed to underpin future improvements in the actual quality of tertiary education sector research. In turn, this is expected to yield significant economic, social and cultural dividends. Essentially, this underlines the need for strategic, well-networked research to be put in place.

Has the PBRF succeeded in encouraging greater research quality and productivity in the tertiary sector? Has this increase in research productivity come at the cost of better quality teaching in nursing (or not)? This is a particularly important set of questions to answer as the effects on nursing education outcomes are currently unknown on a national basis for both the classroom and clinical settings across the programmes.

Nursing needs to be aware of the structures and implications of the TEC reforms across the education sector in order to position itself within the internally competitive systems of each of the education institutions. External research collaboration and income are life-giving components to the PBRF system. Learning to vie for, secure and maintain funding are necessary to taking nursing forward in order to improve patient outcomes.

Nurses can contribute to the TEC reforms and realise national fiscal benefits through effective resource use and achievement of outcomes resulting from national strategic decisions taken. The survival of the profession depends on knowing itself, combined with political acumen in the education and health arenas.

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Abbreviations

CINAHL	Cumulative Index to Nursing and Allied Health Literature
CPI	Consumer Price Index
CPIT	Christchurch Polytechnic Institute of Technology
CRE	Contribution to the Research Environment
CTA	Clinical Training Agency
CUAP	Committee on University Academic Programmes
EFTS	Equivalent Full time Student
EIT	Eastern Institute of Technology
EP	Evidence Portfolio
ERI	External Research Income
HPCAA (2003)	Health Practitioners Competence Assurance Act
IP	Investment Plan
ISI	Institute for Scientific Information
ITO	Industry Training Organisation
ITP	Institutes of Technology and Polytechnics
MoE	Ministry of Education
MoH	Ministry of Health
(NE)	New and Emerging Researcher
NETS	Nurse Educators in the Tertiary Sector
NZQA	New Zealand Qualifications Authority
NZVCC	NZ Vice Chancellors Committee
PBRF	Performance Based Research Fund
PE	Peer Esteem
PPBG	Public Provider Base Grant
PT	Professional Training
QE	Quality Evaluations
RDC	Research Degree Completions
RO	Research Output
SAC	Student Achievement Component
SC	Supporting Change
STAR	Strategy to Advance Research
TANZ	Tertiary Accord of New Zealand
TEAC	Tertiary Education Advisory Committee
TEC	Tertiary Education Commission
TEI	Tertiary Education Institution
TEO	Tertiary Education Organisation
TEOC	Tertiary Education Organisation Component
TES	Tertiary Education Strategy 2007 - 2012
TTEA	Tertiary Teaching Excellence Awards
WINZ?	Work & Income New Zealand

Glossary

Committee on University Academic Programmes (CUAP)

The standing committee of New Zealand Vice-Chancellors' Committee (NZVCC), which assures qualification approved by the academic boards of universities. CUAP has authority delegated to it by the NZVCC. This Committee oversees inter-university course approval and moderation procedures, provides advice and comment on academic developments, encourages the coherent and balanced development of curricula, and facilitates cross-crediting between qualifications.

Completion

'Completion' measures the pass rate of learners on a given course expressed as a percentage of total valid learner enrolments and where a final outcome has been established. It is a measure of whether learners succeed in meeting all the course requirements.

Compressed programme of study

A Student Achievement Component-funded programme of study that is completed by delivering the total number of learning hours in a shorter timeframe than the norm for the qualification.

Contribution to the research environment (CRE)

Contribution that a PBRF-eligible staff member has made to the general furtherance of research in his/her TEO or in the broader sphere of his/her subject area. One of the three main components of an EP.

Course

A course may be known as a paper, module or unit. A course is usually related to an enrolment event. For Student Achievement Component funding purposes, a course or a collection of courses form a programme of study which, if completed successfully, results in the award of a qualification.

Domestic student

For the purposes of Student Achievement Component funding a domestic student is one of the following

- A New Zealand citizen, including citizens of the Cook Islands, Niue and Tokelau.
- A New Zealand permanent resident, currently living in New Zealand.
- An Australian citizen who is currently living in New Zealand.
- An Australian permanent resident who has a returning residents visa who is currently living in New Zealand.
- Certain exchange students and dependants of diplomats.

Note: Refugees are not considered domestic students until their residency is granted. The only exception to this is when the refugee take a course arranged by the Refugee and Migrant Service to gain residency, typically an English language course.

Education (Tertiary Reform) Amendment Acts 2002 and 2007

Legislation passed to reshape the tertiary education sector and achieve coherence among different parts of the sector and the strategic use of resources.

Equivalent Full-Time Student (EFTS)

The measure of tertiary teaching input for Student Achievement Component funding. Equivalent Full-Time Student units are the length, in part or whole academic years, that it would take an average, full-time learner to complete a qualification. One (1.0) EFTS unit is defined as the learner workload that would normally be carried out in a single academic year (12-month period) by a learner enrolled full-time, for example a bachelor's degree is normally completed in three years and has an EFTS value of 3.0.

The EFTS value indicates the qualification size. It is established by the TEC and is based on the number of credits, total tuition hours or full-time teaching weeks approved by the appropriate external quality assurance body.

The EFTS factor indicates the course size (a course being part of a qualification). It is the course's portion of the qualification's EFTS value.

EFTS units measure course factors multiplied by the number of validly enrolled learners.

Evidence portfolio (EP)

Collection of information on an eligible staff member's research output (RO), peer esteem (PE), and contribution to the research environment (CRE) during the assessment period; is reviewed by a peer review panel and assigned a Quality Category.

External research income (ERI)

Income for research purposes gained by a TEO from external sources. ERI is one of the three elements in the PBRF funding formula, along with the Quality Evaluation and research degree completions (RDC).

Fee/course costs

Fee/course costs refer to the costs of Student Achievement Component-funded courses and includes the following costs when they are compulsory:

- Tuition fees
- Administration charges
- Examination fees
- Other charges associated with a course or programme of study
- Material charges
- Field trips
- Any purchase of equipment or books through the Tertiary Education Organisation (TEO)

Foreign student

Any learner who does not qualify as a domestic student. Foreign students do not qualify for Student Achievement Component funding and pay full-cost fees, unless they are undertaking wholly research-based postgraduate qualifications and are therefore eligible for specified Student Achievement Component funding.

Funded Quality Category

A Quality Category that attracts PBRF funding (i.e., an "A", "B", "C", or "C(NE)" Quality Category).

Funding Agreement

Used for funds that are not approved via Investment Plan Approval. It is an agreement signed by the TEC and a Tertiary Education Organisation (TEO) that sets out the terms and conditions related to funding.

Funding category

A grouping of classification prescriptions into bands for the purpose of funding courses/programmes. Funding categories are also prescribed levels that correspond to levels of the tertiary qualification, for example non-degree, undergraduate, postgraduate.

Learning hours

Includes all the time spent by a learner on study, including self-directed study, practical work and teaching hours. The total number of learning hours could include lecturer and tutor contact hours, tests/assignments, supervised practical placements, study time and examination periods. For Student Achievement Component-funded qualifications 1,200 hours are considered the normal total learning hours expected in one full-time academic year.

Moderation/moderators

The function of moderation is to ensure that standards are consistent across peer review panels and that the PBRF guidelines are properly adhered to. For the 2006 Quality Evaluation, there was a Principal Moderator and two Deputy Moderators.

New Zealand Qualifications Authority

The Government agency charged with the responsibility for approving qualifications and courses, and registering and accrediting Tertiary Education Organisations (TEOs) (other than universities) to deliver these qualifications and/or assess against standards. The NZQA quality assures secondary and tertiary qualifications as well as TEOs, evaluates overseas qualifications and administers the New Zealand Register of Quality Assured Qualifications and the National Qualifications Framework.

New Zealand Vice-Chancellors' Committee (NZVCC)

A committee, established under section 240 of the Education Act 1989, comprising the university vice-chancellors that, among other functions, is responsible for the final approval and quality assurance of university qualifications.

Nominated academic unit

Groupings of staff as nominated by each TEO for the purposes of reporting aggregated results of the Quality Evaluation process.

Nominated research outputs (NROs)

The (up to four) best research outputs that the PBRF-eligible staff member nominates in the RO component of her/his EP. Given particular scrutiny during the Quality Evaluation process.

Other research outputs

The additional (up to 30) research outputs that the PBRF-eligible staff member nominates in the RO component of her/his EP.

“Partial” round? ?include

A description of the 2006 Quality Evaluation; it is a “partial” round in that Quality Categories assigned to EPs in the previous (2003) Quality Evaluation were “carried over” to the 2006 Quality Evaluation, with the only EPs submitted for assessment being first-time EPs and those EPs that were assessed under a subject area with a higher cost-weighting than the subject area used for its assessment in 2003.

PBRF-eligible staff member

TEO staff member eligible to take part in the Quality Evaluation

Peer esteem (PE)

Esteem with which a PBRF-eligible staff member is viewed by fellow researchers. One of the three main components of an EP.

Peer review panel

Group of experts who evaluate the quality of research as set out in individual EPs. There are 12 peer review panels each covering different subject areas.

Permanent resident

A learner who has been granted the status of a permanent resident of New Zealand. Once residency is obtained, the learner is entitled to Student Component subsidies and to pay domestic student fees, as long as the learner is resident in New Zealand and satisfies the criteria (if any) prescribed by regulations to fulfil the requirements of a domestic students. Permanent residents can also access the Student Loan Scheme at any time, and the Student Allowances Scheme once they have been resident for two years.

Polytechnic

A Tertiary Education Institution (TEI) that is characterised by a wide diversity of vocational and professional programmes. It includes an institution established as a polytechnic, institute of technology, technical institute or community college under the Education Act 1964.

Postgraduate study

Study beyond the final year of a bachelor degree (levels 8, 9, or 10) undertaken by an enrolled learner (normally a graduate) in a quality-assured programme of study at a Tertiary Education Organisation (TEO) eligible for funding.

Public Provider Base Grant

This is part of the TEO Component and supports TEIs with their core roles and distinctive contributions. This support provides for effective governance and management, working with stakeholders, and maintaining a culture of continuous performance improvement.

Quality assurance body

A body that has legislated or delegated authority for quality assurance functions, for example the Committee on University Academic Programmes (CUAP) of the New Zealand Vice-Chancellors’ Committee (NZVCC), the Institute of Technology and Polytechnics Quality (ITPQ) of the Institutes of Technology and Polytechnics of New Zealand (ITP New Zealand) and the New Zealand Qualifications Authority (NZQA).

Academic boards may also quality assure some qualifications with the approval of the relevant QAB listed above.

Quality Category

A rating of researcher excellence that PBRF-eligible staff are assigned to following the Quality Evaluation process. There are six categories – “A”, “B”, “C”, “C(NE)”, “R”, and “R(NE)”. Category “A” signifies researcher excellence at the highest level, and category “R” represents research activity or quality at a level which is insufficient for recognition by the PBRF. “(NE)” signals a Quality Category specific to new and emerging researchers.

Quality Evaluation

The component of the PBRF that assesses the quality of research outputs produced by PBRF-eligible staff, the esteem within which they are regarded for their research activity, and their contribution to the research environment.

Quality score

A standard measure of research quality. It is calculated by adding the weighted Quality Categories (i.e., “A” [10], “B” [6], “C” [2], “C[NE]” [2], “R” [0], and “R[NE]” [0]) of the PBRF-eligible staff in a particular unit (such as TEO, nominated academic unit, either on a headcount or FTE basis).

Recognition of Prior Learning (RPL)

Previous learning and experience for which learners receive credit or academic recognition. This may include courses/programmes of study that learners have previously undertaken, non-formal prior learning, and work and/or life experience. Also known as Approved Prior Learning (APL).

Research degree completions (RDC)

A measure of the number of research-based postgraduate degrees completed within a TEO where there is a research component of 0.75 EFTS or more. One of the three components of the PBRF, along with the Quality Evaluation and external research income (ERI).

Research output (RO)

Product of research that is evaluated during the Quality Evaluation process. One of the three components of an EP.

Statement of Tertiary Education Priorities (STEP)

This is incorporated into the Tertiary Education Strategy (TES) and specifies the particular priorities for a given period, signalling the types of activities and education provision that Tertiary Education Organisations (TEOs) should focus on.

Student Achievement Component

This is the largest funding pool supporting delivery of Investment Plans. The Student Achievement Component (SAC) is the government’s contribution to the direct costs of teaching and learning and other costs driven by student numbers within approved tertiary education Investment Plans.

Subject-area

An area of research activity. For the purposes of the 2006 Quality Evaluation, research activity was classified into 42 subject areas each of which embodies a recognised academic discipline or disciplines.

TEO Component

Funding provided to a Tertiary Education Organisation independent of student enrolment levels, to support its Investment Plan. The TEO Component comprises six elements. Together these support the areas critical to ensuring TEOS' capability and maintaining a responsive and effective network of provision.

Tertiary Education Commission (TEC)

The TEC has the role of steering and funding the tertiary sector to achieve the tertiary reforms. The TEC was established by the Education (Tertiary Reform) Amendment Act 2002 and commenced operation on 1 January 2003.

Tertiary Education Institution (TEI)

An institution established under section 162 of the Education Act 1989 (universities, polytechnics, colleges of education, specialist colleges and formally established wananga).

Tertiary Education Organisation (TEO)

An organisation that is public, private or community-based, offering tertiary education or tertiary-related services.

Tertiary Education Strategy (TES) 2007 – 2012

A high-level set of Government strategic priorities and associated strategies for tertiary education. The TES incorporates the Statement of Tertiary Education Priorities (STEP) 2008 – 2010.

Tripartite Funding

Funding provided to universities to support their research capacity, now part of the TEO Component (PPBG) designated 'International Competitiveness'. The first tranche of funding came from the 2006 universities' tripartite agreement.

University

A Tertiary Education Institution (TEI) that has the following characteristics:

- Primarily concerned with more advanced learning, the principal aim being to develop intellectual independence.
- Research and teaching are interdependent and most of their teaching is done by people who are active in advancing knowledge.
- Meets international standards of research and teaching.
- Is a repository of knowledge and expertise.
- Accepts a role as critic and conscience of society.

Valid learner enrolment

An enrolment is valid for Student Achievement Component funding if all of the following requirements are met:

- The learner has domestic student status

- The learner and the Tertiary Education Organisation (TEO) have entered into an enrolment contract, which includes a commitment by the learner to pay fees (if fees apply).
- Both the TEO and the learner understand that the learner intends to complete the qualification.
- The specified time period in which a learner can withdraw with a refund of fees/course costs has passed.

Wananga

A Tertiary Education Institution (TEI) that provides tertiary education, training, and research that advances and disseminated knowledge, develops intellectual independence, and assists the application of knowledge about ahuatanga Maori (Maori tradition) according to tikanga Maori (Maori custom).