Raise foundation skills so that all people can participate in our knowledge society

Objectives

- Significantly improved adult foundation skill levels, achieved through increased access to foundation education in a range of learning contexts.
- Clearer accountability for quality and outcomes within foundation education, including a greater focus on assessment.
- A common understanding of the definition of foundation skills and of best practice teaching in this area.
- Improved linkages between secondary and tertiary education, and improved staircasing for learners within tertiary education.

What are foundation competencies and skills?

While this strategy refers to the need to Raise Foundation Skills so that all People can Participate in our Knowledge Society, it is not just skills that are important, but rather the knowledge, skills and dispositions that people require to be competent in a knowledge society. In this report, we use the term foundation competencies in recognition of this wider understanding of what is needed to participate in a knowledge society.

Foundation competencies are a set of skills, knowledge and dispositions in the areas of language, literacy and numeracy. These are essential to continued learning and active participation in society and family/whānau roles, as well as employment. Foundation competencies include cross-cutting skills, such as the ability to use technology. They should not be conceived of as a list of discrete and specific competencies, but rather as a bundle of commonly required, interrelated competencies. In the New Zealand context, language includes English and/or te reo Māori. Māori language is the gateway to te ao Māori and Māori culture and values. It needs not only to be preserved, but to be a language of communication across communities and accessible to all New Zealanders.

The change required to achieve this strategy

The overall goal of this strategy is to ensure that foundation learning results in real gains for learners and, over time, results in significantly improved literacy, numeracy and language levels in the population.

This requires moving foundation learning from a relatively marginal position within the tertiary education system to being a core activity, underpinned by informed professional practice and improved diagnostic and teaching tools. It also requires improving access for those who are not currently participating.

A staged approach to change is being implemented — starting with increasing teaching capability in foundation learning, along with improving the quality of provision and the outcomes for learners.

At the same time, connections and clearer pathways for learners between foundation learning and other types of education need to improve, including from school to tertiary education. This change will require stronger connections between TEOs and schools, as well as between TEOs themselves.

Over time, there will be an emphasis on increasing the availability of foundation learning to a greater number and range of learners.

Progress to date

The policy work on foundation education is focused on building the evidence base around what works in foundation education. This is leading to the development of improved professional resources to support quality provision.

At the same time, participation in foundation education courses continues to grow, particularly through the wānanga and polytechnics. In 2003, growth in English-based foundation education continued to expand at a similar rate to the previous three years, while growth in te reo and tikanga Māori foundation education has started to level off.

Over the last year, there has been a drop-off in students moving directly from school into formal tertiary education at the certificate level. Some of this is likely to be due to increased participation in Modern Apprenticeships. However, it probably also reflects school-leavers going straight into unskilled jobs as labour demand increases. The latter raises concerns about whether these young people have attained sufficient foundation skills to progress in employment.

While more Māori and Pasifika students are attaining school qualifications, they continue to lag behind other students in terms of school qualifications and movement into tertiary education.

The government has committed additional resources to support young people to continue in education, including career support and planning, tertiary programmes within schools, such as through the Gateway programme, and expanded places in Modern Apprenticeships.

Key challenges for moving forward

From the analysis of progress to date, the following key challenges for moving forward to achieve this strategy are evident:

- building the quality and effectiveness of foundation education, as well as improving access and participation
- supporting pathways for young people from school into tertiary education and meaningful employment.

Implementation of foundation education policy

Learning for Living Strategy

In early 2004, the government released its Learning for Living Strategy, which builds on the TES, the New Zealand Adult Literacy Strategy and the Adult English as a Second or Other Language Strategy.

Over the next two years, the focus of the Learning for Living Strategy will be on building an evidence base about what works in foundation learning in order to improve the effectiveness of foundation learning across the tertiary education sector. The second phase, starting in early 2006, will involve expanding the provision of foundation education to new learners, particularly to those who need it most.

Leading work in adult literacy

Work in adult literacy will shortly put in place some of the infrastructure necessary to raise the quality of foundation learning provision. The adult literacy quality standard — the Adult Literacy Quality Mark — will provide a method of defining and ensuring quality in provision, while the new qualification for adult literacy tutors will be an important part of lifting professional capability.

Building the evidence base

An active research programme is underway to build a strong evidence base to support and inform the continued development of the quality of provision of foundation education across the tertiary sector. One aspect of the research programme is 'exploratory projects' that examine effective literacy, numeracy and language provision to see what works in helping adults to develop the skills they need to meet the demands of everyday life. These projects will help to identify the essential components of programmes successful in delivering foundation learning; what shifts in practice need to occur in foundation education provision; and how these shifts can be encouraged, supported and sustained.

Developing professional resources

Work is underway to prepare the ground for effective resources to be used by educators in planning, developing and delivering teaching. Descriptive standards are being drafted to provide descriptions of what adults know and can do when they are successfully meeting the language, literacy and numeracy demands in their everyday lives. These standards aim to clarify expectations about the knowledge and skills that adults must have to participate effectively in everyday life.

The descriptive standards will also form the basis of learning progressions, which are under development. These progressions will be important in communicating to educators the steps that adults take in developing their language, literacy and numeracy competencies.

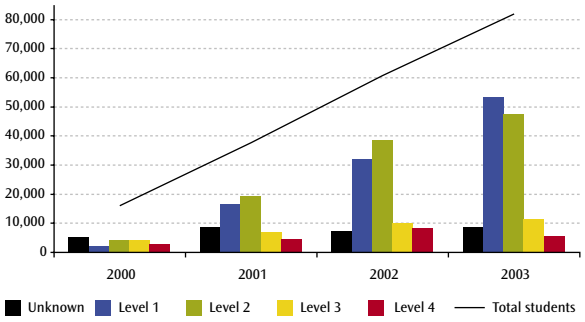
Provision of foundation education

Provision of formal, English-language-based foundation education courses

These indicators look at participation in formal, English-language-based foundation education courses[10]. This provides a proxy for engagement in substantive learning that is subject to assessment. (Te reo and tikanga Māori foundation courses at levels 1 to 4 are reported separately in order to show the differing patterns of participation[11].)

Overall participation in English-language-based foundation education courses has continued to increase, with around 22,000 additional students each year from 2000. The majority of students are taking courses at levels 1 and 2, with level 1 courses increasing the fastest.

Figure 20: Formal domestic students in English-language-based foundation education courses by course level 2000–2003



The growth has been mostly in Te Wānanga o Aotearoa and polytechnics. Half of the students were enrolled with Te Wānanga o Aotearoa in 2003 and 35 percent in polytechnics.

The increase in student numbers has been mostly in those aged over 30. Almost 40 percent of the students taking these courses are Māori. There has been limited growth in the number of Pasifika students in these courses. They represented only 6 percent of students in 2003.

Adult Literacy Learning Pool

The Adult Literacy Learning Pool[12] funds projects that provide quality literacy learning opportunities. Sixty-seven individual programmes were funded at the start of 2004, covering 57 individual providers across the country and reaching an estimated 3,400 learners.

A sample of the programmes was evaluated to identify effective practices in delivering literacy programmes to different groups of learners. The evaluations identified that tutors need to have skills and an approach that is learner-focused, so that:

- the content of what is being taught is relevant to the learners
- one-on-one instruction is included, where appropriate
- teaching and assessment methods are appropriate and responsive to the learner
- teaching and support are extended outside the classroom.

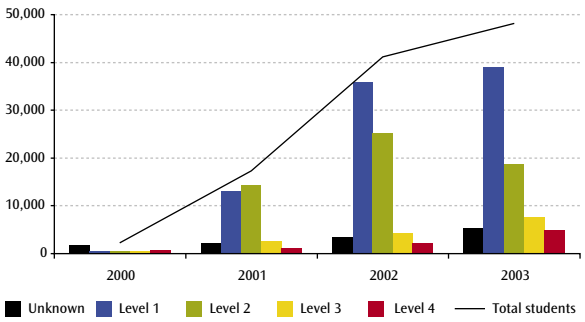
The physical learning environment also needs to be relaxed, safe and comfortable for the learners.

The evaluations of Māori and Pasifika programmes emphasised the need for culturally relevant teaching methods and learning environments, and good relationships with the learners' communities.

Provision of formal te reo and tikanga Māori foundation education

There was rapid growth in the number of students taking te reo and tikanga Māori foundation courses from 2000 to 2002. That growth started to level off in 2003. Participation at level 1 has increased the most. Over the last year, level 2 participation has declined, while levels 3 and 4 participation has increased.

Figure 21: Formal domestic students in te reo and tikanga Māori foundation education courses by course level 2000–2003



10 Formal courses offered through TEOs at levels 1 to 4 of the NQF in the subject areas of mixed-field programmes, English language and numeracy.

11 The data includes both te reo Māori and tikanga Māori as there is a significant overlap between these areas.

12 This fund replaced the Adult Literacy Innovations Funding Pool.

The majority of students (90 percent in 2003) in these courses are enrolled with Te Wānanga o Aotearoa, with polytechnics having a small recent increase in students.

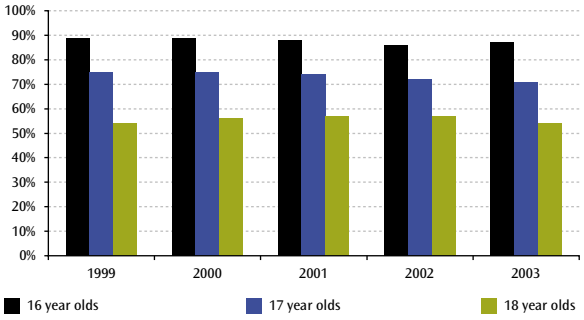
The majority of students are Māori, although enrolments by non-Māori are increasing at a faster rate than those of Māori (from 8,000 in 2002 to 12,000 in 2003). Over two-thirds of the students are aged over 30 years.

Moving from school to tertiary education

No increase in participation rates in education for 16 to 18 year olds

The overall participation of 16 to 18 year olds in education (school and tertiary) has remained steady from 2002 to 2003, with the exception of a small drop in the participation rate of 18 year olds.

Figure 22: Rates of formal education participation for 16–18 year olds 1999–2003



More students leaving school with qualifications

The proportion of students leaving school with no qualifications decreased from 18 to 15 percent from 2002 to 2003. While greater proportions of Māori and Pasifika students continue to leave school with no qualification, in both groups the proportion declined from 2002 to 2003.

The proportion of students leaving with the equivalent of NCEA Level 2 or higher increased from 64 to 68 percent from 2002 to 2003. While the proportions of Māori and Pasifika students achieving this level of qualification are lower, there were increases in both groups from 2002 to 2003.

Decrease in students going from school to formal tertiary education

The proportion of school leavers in 2002 who were in formal tertiary education as at 1 July the following year was down by four percentage points on the proportion of 2001 school leavers. Nearly all of the decline was in those going straight on to certificate-level study. Some of this effect is likely to be due to increased take-up of Modern Apprenticeships[13]. It is also likely that this reflects more school leavers going straight into unskilled employment, given the improved labour market situation.

The decrease is consistent across ethnic groups and is more significant for those from low-decile schools.

Secondary-Tertiary Curriculum Alignment Project at Manukau Institute of Technology

One of the ways of improving pathways from school to tertiary education is improving the coherence between the curricula offered in polytechnics and those offered in secondary schools to meet the needs of students not planning to attend university. This can promote easier progression to polytechnic for many school leavers who would enjoy and benefit from further vocational education.

The curriculum alignment project at Manukau Institute of Technology (MIT) involves MIT developing curriculum-based relationships with local schools and collaborating to ensure that there is a good fit between schools and the polytechnic. Students can then progress from one level to the next well prepared and without overlaps or gaps.

While it has been difficult for MIT to attribute an increase in student participation from neighbouring schools to the impact of the partnership programmes, staff believe that students from alignments are transitioning well into MIT programmes.

In November 2003, with the support of the Tertiary Accord of New Zealand (TANZ), MIT offered a curriculum alignment seminar to all polytechnics in New Zealand. The benefit of this approach has been evident within the members of TANZ and Christchurch Polytechnic Institute of Technology (CPIT) in particular.

At CPIT, subject meetings have been conducted with local schools. Two professional development days were conducted with relevant school staff on how to incorporate industry unit standards into senior school technology programmes.

13 Modern Apprenticeships, and other industry training, are only counted within the formal enrolment statistics where there is an enrolment with a tertiary education provider. On-job training provided to Modern Apprentices or through the industry training fund is not counted in those numbers.

Supporting young people to continue in education

New funding to support youth transitions

The government has committed $57 million in extra funding over four years to assist young people making the transition from school to further education, training or work. The package covers the following initiatives.

Designing Careers

This initiative will pilot the concept of Individual Learning and Career Plans for all Year 10 students, and for selected 'at-risk' students in Years 11 to 13. It is being piloted in 75 schools to help students create a coherent and flexible programme of learning that leads to higher achievement and successful transitions from school into work, education and training.

This initiative includes funding for research to develop a stronger evidence base on what constitutes effective career information, advice and guidance.

New Youth Transitions Service

A new transitions service for young people who are at risk of not accessing education, training or work after leaving school is being set up. The service will be delivered by a lead provider in each area who will:

- engage with school leavers and young people not in work, education or training
- provide customised support and career planning
- work with local employers, and training and education providers to support opportunities for young people
- help integrate youth services in each area.

The service will be progressively rolled out over the period from 2005 to 2007.

Enhancement of STAR, Gateway, Modern Apprenticeships and Training Incentive Allowance

Greater support will be provided to schools in the operation of the Secondary Tertiary Alignment Resource (STAR), which funds provision of tertiary courses within the senior school.

The Gateway programme provides workplace learning opportunities within the school curriculum. It will be expanded from 2005 to cover schools up to decile 6, and will be available to all decile 1 to 6 schools from 2008. This will enable over 6,000 senior school students in about 160 schools to participate in 2005, compared with 4,000 students in 126 schools in 2004.

The government will also expand the Modern Apprenticeships programme to 8,000 places by June 2006. There has been steady growth in Modern Apprenticeships since the introduction of the scheme.

A pilot programme is being established to determine whether the Training Incentive Allowance could be used to encourage teenage parents to remain in, or return to, education.

Develop the skills New Zealanders need for our knowledge society

Objectives

- Accurate and timely skills forecasting capability
- Industries are supported in meeting their self-identified skill needs
- Equity of access and opportunity for all learners
- Learners are equipped to make informed choices about career and learning options
- Broader development of skills for active citizenship and the maintenance of New Zealand's cultural identity
- Improved provision of, and better systems of recognition for, high-level generic skills
- Promotion of specialist skills that contribute to New Zealand's development

The change required to achieve this strategy

New Zealand's continued prosperity and social well-being will rely on the skills and knowledge of its people, and how successfully their skills and knowledge are applied to generate economic growth and improve social outcomes.

Achieving this strategy requires greater engagement between the tertiary education system and employers, regional development organisations and communities to identify the current and future skills and knowledge that graduates will require in employment and wider society. It also requires a tertiary education system that is more effectively connected with global knowledge developments.

ITOs have been asked to take a much stronger leadership role in this area, connecting their industries with the tertiary education system, to meet current and future skill needs and promote training for employers and employees.

There needs to be greater ownership by employers, communities and individuals of the need to foster and develop skills. It cannot be seen solely as the responsibility of the education system.

This strategy addresses equity of access and opportunity to participate and succeed in education at all levels. There is a particular concern for Māori, Pasifika, learners from low socio-economic backgrounds, learners with disability and those living in remote areas.

Accompanying this is improving the information and support for learners to make well-informed decisions about education and career options.

A key part of this strategy is the development of generic skills, which complement the development of specialist skills. As with foundation skills, there has been a shift in thinking towards a broader framework of 'key competencies'. Competencies cover the knowledge, skills and dispositions that are needed by people to participate in a knowledge society. Key competencies are those that are important across a range of areas of life and contribute to overall success in life and a well-functioning society. Key competencies are acquired and further developed at all levels of learning.

The strategy emphasises greater, explicit recognition of key competencies in programmes and qualifications throughout the tertiary education system.

Along with key competencies, this strategy recognises the importance of specialist skills, particularly through postgraduate education. Specialist skills include technical, research, entrepreneurial and managerial skills.











Progress to 2003/04

As the economy gets stronger, the demand for both unskilled and skilled labour is increasing, leading to shortages across the skill spectrum. For firms to continue to grow, they will need to increase their productivity. This requires, amongst other things, investment in people and skills.

The Ministry of Education's discussion document on a framework for key competencies for the tertiary education sector emphasises developing higher levels of competence for effective participation in the knowledge society and enhancing the teaching and learning of key competencies in tertiary programmes.

Completions of postgraduate qualifications continue to increase, including in the priority growth areas identified by government. The government is providing additional support to develop skills in areas of national priority.

TEOs are building on their existing relationships with industry and expanding the size and scope of activity. Universities are focusing mostly on linkages through professional teaching programmes. Most polytechnics recognise linkages with industry as a core part of their business. However, it is not clear how well all parts of industry are being served, particularly those areas dominated by small business.

The ITOs are continuing to develop their leadership role within their industries, with the support of the TEC. Skill development within industry has also been supported by a number of initiatives in the government's Skills Action Plan and by funding to support TEO industry linkages.

There have been continued increases in participation by Māori students. However, their participation at higher levels remains relatively low. While Māori student completion rates are strong at certificate level, they remain low at higher levels.

Pasifika participation has also increased, but most notably at certificate level. Pasifika completion rates remain relatively low at all levels.

The proportion of students with a reported disability remains steady.

A number of new resources have been developed to support learning and career decisions.

Key challenges for moving forward

From the analysis of progress to date, the following key challenges for moving forward to achieve this strategy are evident:

- working more with all parts of business and industry to ensure that tertiary education remains relevant in a rapidly changing world and to provide flexible and adaptable delivery options
- continuing to improve the participation, retention and completion of under-represented groups, including Māori, Pasifika and people with disabilities.

Skills in the labour market — the current context

This section provides a summary of the current labour market context for skills demand. It is taken from the latest Department of Labour report on skills in the labour market[14].

"The New Zealand economy is in full swing and pressure in the labour market remains intense. The September 2004 quarter unemployment rate was the lowest in the 18 year history of the Household Labour Force Survey, underemployment and long-term unemployment are very low and growth in average wages is at cyclical highs.

"It is not surprising then that all indicators of skill shortages are at historically high levels. Firms are now having more difficulty finding *unskilled* staff than at any time in the last 30 years and the net percentage reporting it harder to find *skilled* staff is up to 54% — just short of the previous high of 55% in the December 1994 quarter. Nearly a quarter of firms cite labour as the main constraint on their ability to increase output.

"Solid economic growth in the last five years has led to a large expansion in jobs and, up until now, that expansion has been absorbed by rising labour market participation rates, higher levels of net migration, and a large fall in unemployment. However, looking ahead, labour productivity growth will be the single most important factor in easing labour market pressures and lifting our economic growth rate."

The report notes that the recent report of the Workplace Productivity Working Group "identified seven drivers of workplace productivity", one of which is "investing in people and skills".

The implication of the current labour market situation for tertiary education is likely to be a move away from demand for pre-employment education and training, particularly for lower-skilled jobs, to greater demand for employment-based education and training.

Developing a New Zealand framework for key competencies in tertiary education

As mentioned in the introduction to this strategy, there has been a shift in thinking from generic skills to a broader framework of key competencies, which includes knowledge and dispositions, as well as skills.

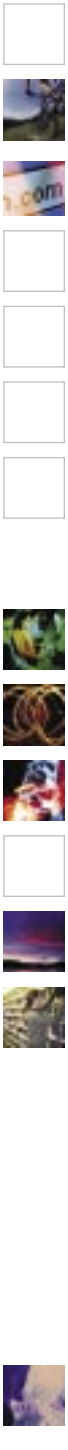
The Ministry of Education has developed a discussion document offering a New Zealand framework for key competencies for the tertiary education sector. The framework proposes three key shifts:

1. building a **shared understanding** of desired outcomes in relation to key competencies within and between the education and employment sectors
2. developing **higher levels of competence** for effective participation in the knowledge society
3. enhancing **teaching and learning** of key competencies in tertiary programmes.

The tertiary education framework has four groups of key competencies:

1. **operating in social groups**, including relating to others, managing and resolving conflict and motivating groups to achieve a particular outcome
2. **acting autonomously**, including identifying and taking action regarding one's interests, limits and needs and acting within the big picture/larger context
3. **using tools interactively**, which means the ability to understand, use and make meaning from language, literacy and numeracy, symbols, knowledge and technology
4. **thinking**, including creative thinking, critical thinking, reflection and judgement.

The Ministry is seeking feedback on the discussion document before moving into implementation of the framework. Existing mechanisms such as the NQF and charters and profiles are will be used to enable the framework to be embedded into practice.



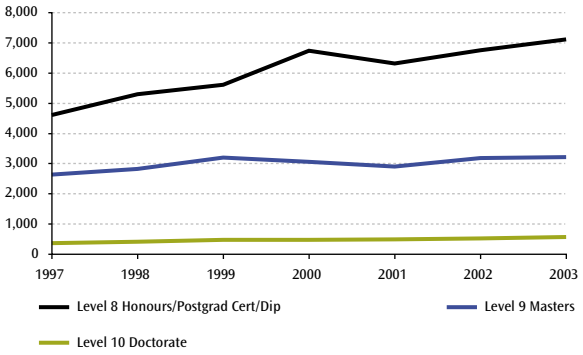
14 Department of Labour, *Skills in the Labour Market*, December 2004.

Supporting development of specialist skills

Steady increase in the number of postgraduate qualification completions

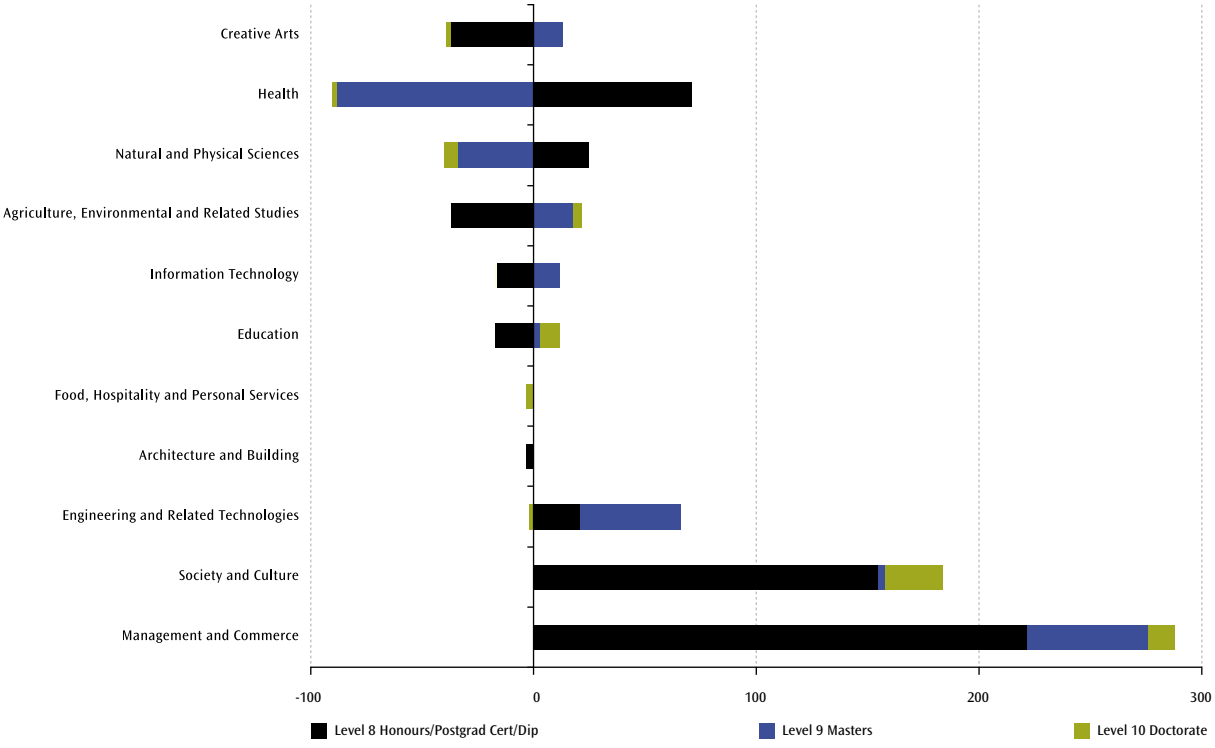
The number of postgraduate qualification completions increased to 12,870 in 2003, from 12,400 in 2002, an increase of 3 percent. The strongest relative growth was in doctoral completions, which increased by 7 percent.

Figure 23: Postgraduate qualifications completed by formal domestic students 1997–2003



The fields of study with the largest increases in postgraduate qualification completions were management and commerce, society and culture, and engineering and related technologies. The fields where there were decreases were sciences, health and creative arts.

Figure 24: Increase/decrease in postgraduate qualifications completed by formal domestic students from 2002 to 2003 by field of study and qualification level



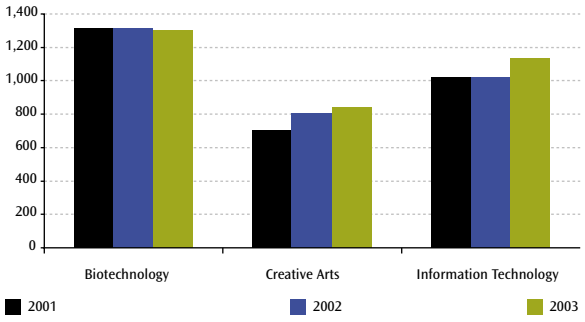
Note: Qualifications coded as 'mixed-field' have been recoded to a subject field using the main subject code.

The government's Growth and Innovation Framework (GIF) identifies three sectors that have high growth potential and can enable growth in other sectors of the economy, namely information and communications technology (ICT), biotechnology and the creative industries.

The postgraduate enrolments (in EFTS terms) in biotechnology-related courses remained fairly constant from 2002 to 2003[15]. Postgraduate enrolments in creative arts and information and communications technologies courses increased. The EFTS consumed in courses in the three areas made up around 20 percent of all postgraduate EFTS consumed for 2002 and 2003.

15 In this year's report we have expanded the definition of biotechnology-related qualifications to include all biological sciences.

Figure 25: EFTS consumed by formal domestic students in postgraduate courses in GIF priority areas 2001–2003



Growth and Innovation Pilots

The Growth and Innovation Pilot Initiatives have been introduced to help build the capability of TEOs to underpin the development of GIF priority sectors (referred to on p.34).

The intention of the pilots is for TEOs to work with industry and enterprise to design an approach that will best suit their specific circumstances and capability requirements. This may differ according to TEO type, the different GIF areas, and even across different regions within particular GIF areas.

As a result of funding decisions in the first round of the pilots, eight were confirmed and signed with a total funding of $1,980,000 in the first year. This investment is predominantly aligned to Enterprise Training pilots (90 percent) and covers all the GIF sectors — i.e. biotechnology ($200,000, one pilot), design ($373,000, two pilots), ICT ($1,209,000, four pilots). In addition, funding of $198,000 was granted for one pilot in the Knowledge Sharing and Entrepreneurship stream.

Expansion of Step Up Scholarships

Step Up Scholarships were established in 2004 for students from low-income backgrounds entering degree-level courses in human and animal health. The scholarships were granted to 169 students in 2004, which was fewer than had been anticipated.

The government has expanded the criteria for 2005 to include students up to the age of 24. In 2006, a new category will provide 175 scholarships for school leavers studying towards degrees in the areas of science and technology.

New funding for international scholarships

The government has committed funding for up to 100 postgraduate and 100 undergraduate scholarships to attract top international students to New Zealand. The scholarships will be awarded on academic merit, with the postgraduate scholarships being awarded to candidates whose research will contribute to the priorities in the government's Growth and Innovation Framework.

The government will also fund up to 100 New Zealanders to study overseas, with academic merit and contribution to GIF priorities as key criteria. Both sets of scholarships will be introduced over the next three years.

Engagement of TEOs with industry for skills development

A key element of this strategy is strengthening the linkages between TEOs and industry and business, to ensure that education continues to meet the skill requirements of industry.

The 2005 to 2007 profiles of TEOs provide a view of how TEOs are currently going about this engagement and the areas where they are planning further development. While profiles do not provide a total picture of activity, they do provide a good indication of what each organisation sees as strategically important in this area. The 2005 to 2007 profiles largely describe planned activity over the next three years and therefore provide information on intended direction. The achievement of this direction will be followed up in future monitoring reports[16].

Universities' main focus on professional qualifications

In the area of skill development, universities are planning to engage with industry mostly on improving the relevance of professional education programmes, by seeking greater input from industry into course design and monitoring the employment outcomes for graduates.

In general, universities are consolidating on existing relationships with industries with regard to existing teaching programmmes, some of which include industry-based delivery of teaching. University linkages with industry at an institution-wide level are relatively light, with the major linkages being at a faculty and programme level. The strongest linkages tend to be around professional programmes.

16 The profiles have been analysed by looking at the kinds of activities that are in place and planned. These activities have been grouped into areas. This analysis only looks at the reference to the activity in the profile and does not take into account the degree of activity involved.

University of Canterbury developing engagement with business, industry and its wider community

The University of Canterbury has identified 'community engagement' as one of its eight key strategic areas in its 2005 to 2007 profile. A Stakeholder Engagement Plan will be developed in 2005 to build on its existing relationships with business, industry and other stakeholders. Examples of existing engagement include involvement in the Christchurch City Mayor's 'Prosperous Christchurch' project, the university's marketing internship programme and programmes involving student field placements in areas such as engineering, management and social work. These programmes benefit industry and business in providing graduates who are better prepared for employment, assistance with product development and research and opportunities for joint ventures in commercialisation of intellectual property. The university benefits through opportunities for exchange of staff, student placements in business, industry and professional organisations and greater income.

From University of Canterbury Profile 2005/07

Polytechnics building on established links in vocational education

Polytechnics have a long history of engagement with industry in the delivery of vocational education. Most are building on these relationships, particularly through education/industry partnerships of various kinds, including regional development groupings and joint ventures.

Most polytechnics have undertaken some planning for future skill needs of their region and industries. However, the scope of this is varied. Some polytechnics are giving greater attention to improving industry input into decisions about course provision and design, while others have a greater focus on opportunities to deliver tailored programmes for industry, through industry training and other contractual arrangements. A few are building awareness of the role that polytechnics can play with industry, while most are focused on enhancing existing links.

Most polytechnics are involved in workplace training to varying extents. A common theme in the profiles is the development of flexible modes of delivery. ITOs play a significant linking role in this area.

In general, there are strong linkages between polytechnics and industries to deliver relevant and innovative education. These links will be working better for some industries than others. It is unclear the extent to which small businesses are being well served, particularly if they are not part of a strong industry representative group.

Waikato Institute of Technology aiming to meet the needs of business and industry

Waikato Institute of Technology has identified business and industry relationships as one of its strategic goals for 2005 to 2007. The goal includes developing "close relationships with local business, industry, union and trade groups to provide early warning of changes in industry needs, enhance the quality of its qualifications and provide training and support for business and industry".

One of its senior managers has specific responsibility for building agreements with ITOs and industry. All Deans and Heads of Schools have specific responsibilities for relationships with industries and ITOs in their area. Wintec Training Solutions works closely with business and industry to provide training and professional development. It works with other local providers to deliver the training with minimal overlap. The polytechnic is also working with other polytechnics to deliver ongoing training in the agricultural sector.

From Waikato Institute of Technology — Te Kuratini o Waikato, Profile 2005–2007

Supporting skills development in business and industry

Increased coverage and participation in industry training

In 2003, there were:

- 29,206 employers participating in industry training, an increase of 19 percent from 2002
- 126,870 trainees participating in industry training, an increase of 19 percent on 2002. During 2003, 14,181 national certificates were completed by trainees, an increase of 45 percent on 2002
- 6,259 Modern Apprentices as at 31 December, participating in industries covered by the 30 ITOs from which Modern Apprenticeships were available. Three new ITOs were added during the year.

Industries contributed at least $41.6 million in 2003 to the costs of industry training, an increase from $38.2 million in the previous year. Government invested $98.5 million in 2003 and $90.6 million in 2002.

The proportion of women in industry training increased slightly from 24 percent in 2002 to 25 percent in 2003. The proportion in Modern Apprenticeships increased from 7 to 8 percent in the same period.

ITO Leadership Plans

The Industry Training Amendment Act 2002 included a new role for ITOs to provide leadership on skill and training matters to the industries they represent.

Following consultation with key stakeholder groups, guidelines to assist ITOs to implement this new requirement were developed in 2003. Work is currently underway in the industry training sector to develop this new role. The TEC is taking a developmental approach to ITO implementation of this role, which will be assessed through the charters and profiles processes.

Skills Action Plan

The Skills Action Plan is a set of projects managed through the Department of Labour, involving a large number of agencies and departments and connecting with employers, industry clusters, trade unions, education providers, workers and students.

The Plan aims to:

- speed up the matching of people's skills to the job opportunities that are currently available
- reduce skill shortages in the future by helping people to make informed decisions about education and training.

The Plan covers:

- improving access to information through the labour market portal WorkSite, which provides information on skills and work to a wide range of people, as well as the six-monthly publication workINSIGHT, which is aimed primarily at career advisors
- making greater use of local-level information through TEC quarterly reports on skills shortages, MSD's online survey of work brokers and Career Services' labour market information
- developing new information through the Job Vacancy Monitoring Programme and future development of the Employment Outcomes of Tertiary Education and Linked Employer-Employee Data project
- helping job-seekers make better choices through improved career information, advice and guidance (discussed in a later section)
- assistance for regional/industry problem-solving covering labour shortages, working with enterprises, developing ITO leadership roles (as discussed above), increased funding for industry training and Regional Skills and Employment Fora
- supporting skill development through extra funding for Modern Apprenticeships and Gateway, the youth transitions project (discussed under the foundation education strategy) and funding for small and medium-sized enterprises to engage with industry training
- immigration initiatives to attract global skills and talent.

Polytechnic Regional Development Fund

The year one review of the Polytechnic Regional Development Fund showed that the fund was having a positive effect on relationships between polytechnics and industries. In particular, the fund was starting to facilitate the development of new relationships between polytechnics and industries as well as further developing and deepening existing relationships. The review highlighted that polytechnics were becoming more aware of the need for students to have a pathway to employment as well as the need to work on curriculum alignment between secondary and tertiary institutions.

The fund was established in 2002 to enable and encourage polytechnics to further extend their partnerships with local industry and enterprise to develop skills-related initiatives that will support regional and economic development. By February 2004, three funding rounds had been completed and grants totalling $3.8 million had been awarded to 15 polytechnics for a variety of initiatives.

ITP Business Links Fund

This new fund, which is a component of the Innovation and Development Fund, was announced in September 2004. The fund is designed to develop the capability of institutes of technology and polytechnics (ITPs) to transfer knowledge and technical expertise to industry and to provide high-quality, relevant education and training to students. The fund will assist capability development by supporting ITPs to develop better and more productive working arrangements with business. ITPs will need to submit proposals in the form of a business-engagement plan which may cover at least one year but can also cover up to four academic years.

Improving equity of access and opportunity for under-represented groups

The first part of this section looks at access and opportunity for Māori and Pasifika students in terms of participation rates in level 1 to 3 certificates and bachelors degrees in 2003 and completion rates after five years (i.e. to 2003) for those who enrolled in 1998.

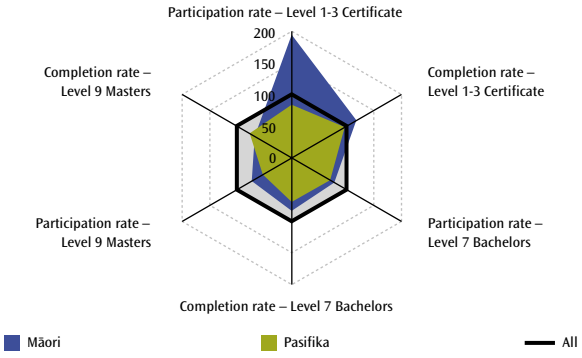
Māori successful at certificate level but under-represented at degree level

Māori participation rates at certificate level have continued to increase and are higher than any other ethnic group. Māori students also achieve higher completion rates at certificate level.

However, at degree level, Māori still have lower participation rates than non-Māori, in spite of overall growth in numbers in recent years. Five-year completion rates for Māori at degree level are also lower than for non-Māori.

At masters level, Māori participation rates and five-year completion rates are also notably lower than non-Māori.

Figure 26: Comparison of participation rates and five-year completion rates for Māori, Pasifika and all formal domestic students 2003



Notes:
1. Rates are represented on an index for comparison, where the rate for all students is set at 100.
2. Participation rates are age-standardised for 2003.
3. Completion rates are five-year completion rates for those starting a qualification in 1999, that is, the proportion of those who started in 1999 who had completed a qualification by the end of 2003.

Pasifika students under-represented, with low completion rates at degree and postgraduate level

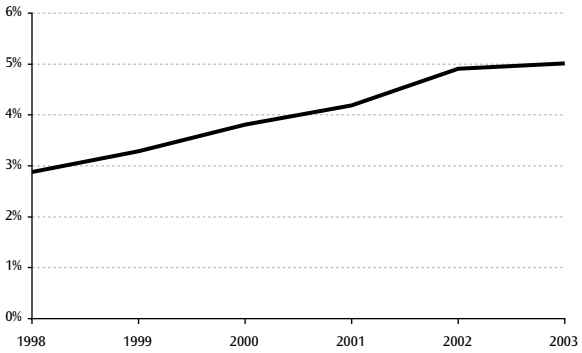
Pasifika participation rates remain the lowest of all ethnic groups at degree and masters levels. They also have the lowest completion rates of any ethnic group at degree level.

At certificate level, Pasifika participation rates are lower than those of all students but higher than those of European/Pākehā. It is important to note that the rate for all students is affected by the high participation rates of Māori students. Pasifika completion rates at certificate level are similar to those of all students.

Proportion of students with disabilities still steady

The proportion of students in formal tertiary education with a reported disability[17] remained similar to 2002, at 5 percent.

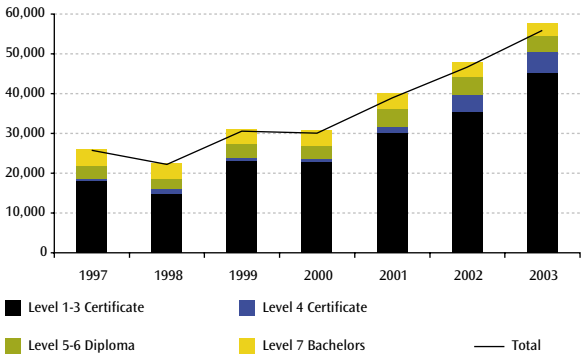
Figure 27: Percentage of formal domestic students with a disability 1998–2003



Increasing numbers of first-time students aged over 25

In 2003, an estimated 55,500 students aged over 25 years started tertiary education for the first time. The majority (45,000) enrolled in level 1 to 3 certificates. The largest number were in polytechnics (32,000), followed by wānanga (13,000).

Figure 28: Formal domestic students aged 25 and over in tertiary education for the first time by qualification level 1997–2003



17 These numbers are based on students who self-reported having a disability to their provider as part of the enrolment process. The recommended question for providers is: "Do you live with the effects of significant injury, long-term illness, or disability?" However, the actual questions used may vary among providers.

Improved support for learning and career decisions

Improving career and study support, information and advice is an important aspect of ensuring that students make informed choices about learning and career options. There have been a number of initiatives to improve study and career information and support.

Pathfinder launched

The Pathfinder web-based guidance and planning tool was launched in July 2004. This addition to the KiwiCareers website significantly improves access to career guidance for tertiary students and other New Zealanders. In particular, those in rural communities, caregivers and others who may have difficulty accessing traditional career information, advice and guidance services will benefit.

Users can customise their exploration by age and/or stage of life, which allows Pathfinder to meet differing needs. This makes Pathfinder particularly suitable for enhancing the decision-making of intending tertiary students across the spectrum, from pre-entry, to modifying pathways while in tertiary study, to connecting with the labour market.

Informed Tertiary Education Decision-Making (ITEDM) — Take-off to Tertiary.

This initiative includes:

- a series of workshops for potential tertiary students, some in collaboration with StudyLink. It is intended to replicate these seminars nationally in 2005
- a series of television commercials promoting tertiary study. Some of these commercials have encouraged viewers to use the Career Services online 'chat' facility
- a range of paper resources including passports, leaflets and Countdown to Action worksheets. More than 300,000 of these resources have been distributed since the campaign started in November 2002
- a special section on the Career Services website on tertiary education. Use of this website has increased since the site was developed
- an online 'chat' facility which provides an alternative means of delivering information and advice to users.











Strengthen research, knowledge creation and uptake for our knowledge society

Objectives

- Excellent research performance is encouraged and rewarded
- Stronger accountability and enhanced performance reporting for tertiary education research
- Increased global connectedness and mobility
- A more focussed tertiary research investment through world-class clusters and networks of specialisation
- Greater alignment of tertiary education research with national goals
- Improved knowledge uptake through stronger links with those that apply new knowledge or commercialisation of knowledge products
- Increased breadth of support for research students and emerging researchers, with a particular focus on the development of Māori researchers

The change required to achieve this strategy

A key aspect of this strategy is to encourage and reward excellent research in the tertiary education sector, supported by improved accountability and performance reporting. The Performance-Based Research Fund is a key policy for achieving this.

Achieving this strategy requires TEOs involved with research to develop a more concentrated research effort based on networks of specialisation and a strong focus on quality, relevance to end-users and uptake of new knowledge.

This strategy also addresses support for research students and emerging researchers, particularly Māori and Pasifika researchers.

While it is expected that there will be greater engagement with end-users and improved knowledge uptake, the continued contribution of the tertiary education sector to basic and long-term research will be essential.

Progress to 2003/04

The PBRF was successfully implemented in 2003 and funding will shift over time to payment on the basis of the PBRF quality evaluation.

The PRBF quality evaluation results show that around half of the researchers that produced sufficient quality and quantity of work over the last six years to be assessed (that is rated 'A', 'B' or 'C') were of national or international quality and reputation. It also showed that sciences, social sciences, humanities and law are areas of relative strength in terms of both the number of high-rating researchers and overall quality.

Universities are continuing to develop their role in providing research for industry, especially to develop new knowledge. A number of polytechnics are developing, or redeveloping, their applied research programmes with industry.

Doctoral enrolments and completions continue to rise. However, Māori, Pasifika and women remain under-represented at this level.

The CoREs, established in 2001 and 2002, are making steady progress towards achieving their work programmes.

Key challenges for moving forward

From the analysis of progress to date, the following key challenges for moving forward to achieve this strategy are evident:

- continuing to build quality and excellence across tertiary education research
- utilising the considerable capability in tertiary education research to contribute to the economic and social development of the country.

Performance-Based Research Fund — implementation and quality evaluation results

Implementation of PBRF

In 2003 the quality of research conducted in participating TEOs was assessed by a series of subject-based panels. Following the quality evaluation, the new funding system is being progressively phased in, and will be fully implemented by 2007. Under the new funding regime, 60 percent of the available funding will be allocated on the basis of the results of periodic quality evaluations, 25 percent on the basis of research degree completions and 15 percent on the basis of external research income.

The evaluation of the implementation of the PBRF[18] found that it was carried out successfully despite a very tight timeline. While there were problems due to rapid implementation, none of these posed an immediate risk to the implementation of the policy. Some will need to be resolved to ensure the longer-term goals of the policy are met.

There was general support from TEOs and stakeholders for the process, with suggestions for improvement. The evaluation found a high degree of trust and co-operation among TEOs, their staff and the TEC, with an understanding of the enormous demands of putting such a scheme into place and of the limitations inherent in an assessment of research quality.

The expectation from TEOs is that, before the next quality evaluation round in 2006, greater consensus will be developed around what the standards are and how they are understood and interpreted, so that there is improved fairness and consistency in the next round.

Results of PBRF quality evaluation

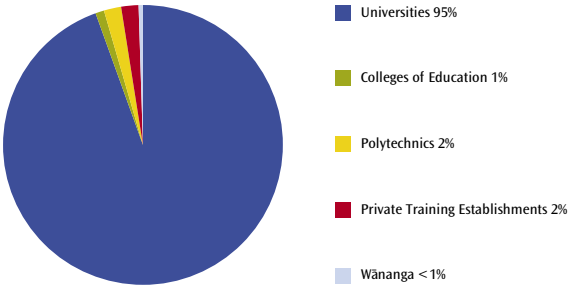
New baseline indicator

The results of the quality evaluations undertaken by the PBRF panels provide a view of the quality of research across the tertiary education sector.

As mentioned earlier in the report, the quality evaluation found that just under half of the research staff who produced sufficient quality and quantity of research over the previous six years to be assessed (that is, staff rated 'A', 'B' or 'C') were producing research of national or international reputation.

Ninety-five percent of staff rated 'A', 'B' or 'C' were based in universities, with 2 percent each in polytechnics and PTEs, 1 percent in colleges of education and less than 1 percent in wānanga. However, only one wānanga and two polytechnics decided to be involved in the PBRF in this initial round.

Figure 29: Distribution of research staff (in FTEs) rated 'A', 'B' or 'C' by the PBRF quality evaluation by sub-sector 2003

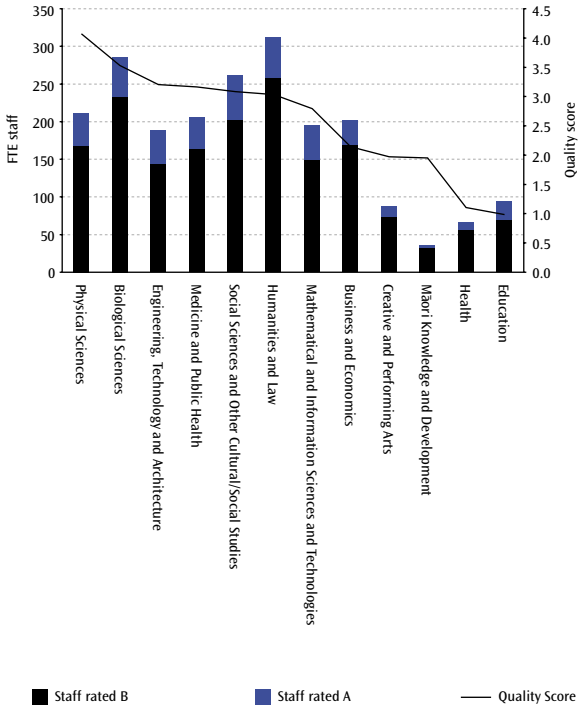


Source: Tertiary Education Commission

The panel areas that had the highest average quality scores in the PBRF were sciences, engineering, technology and architecture, and medicine and public health. Around 42 percent of research staff rated 'A' or 'B' (i.e. of national or international reputation) worked in these four areas.

The areas with the largest numbers of 'A' or 'B' rated staff were humanities and law, biological sciences and social sciences and other cultural and social studies.

Figure 30: PRBF quality evaluation results by panel, number of research staff (in FTEs) rated 'A' or 'B' and overall quality score (FTE basis) 2003



Source: Tertiary Education Commission

18 Centre for Research on Work, Education and Business Ltd, *Phase 1 Evaluation of the Implementation of the PBRF and the Conduct of the 2003 Quality Evaluation*, July 2004.

Engagement of TEOs with industry for knowledge creation and transfer

A key element of this strategy is on increasing the relevance of research to end-users, particularly business and industry, and promoting greater knowledge transfer.

The 2005 to 2007 profiles of TEOs provide a view of how TEOs are working with business and industry on research and knowledge transfer[19].

Universities expanding contract research and enabling greater knowledge transfer

All universities are engaged in contract research for business and industry and most have established research partnerships of various kinds, including in association with the Crown Research Institutes (CRIs).

Most universities are planning to expand the amount of contract research undertaken for business and industry. Six out of the eight are planning to develop, or further develop, knowledge transfer programmes. These generally involve co-location of researchers from the university, CRIs and industry.

In general, the focus of universities is on building on existing strengths and relationships, rather than moving into entirely new areas of engagement.

Relationships between universities and industry are mostly at the research programme level, with relatively few relationships managed at the institutional level.

A number of polytechnics developing their role in applied research

Eight of the polytechnics identified research as an area for contribution to industry. A number of these institutions are developing or redeveloping their research programmes and looking forward to a greater role in industry-relevant contract and applied research. Three of them had developed research partnerships with industry and another was planning developments in this area.

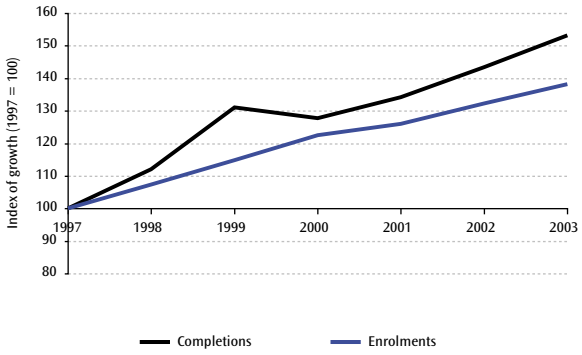
Support for new and emerging researchers

Support for research students and emerging researchers is an important emphasis of this strategy. Formal training in research is mainly carried out through postgraduate research degrees.

Continued increases in doctorate participation and completions

From 2002 to 2003, the number of domestic students enrolled in doctoral degrees increased by 4.6 percent and the number completing degrees increased by 6.7 percent.

Figure 31: Index of doctoral degree completions and formal domestic doctoral students 1997–2003 (1997=100)



In terms of the rates of completion and retention, 42 percent of students who began a doctorate in 1997 had completed by the end of 2003, with a further 9 percent still engaged in study. The pattern of completion and retention has remained pretty much constant for subsequent cohorts.

Women remain under-represented in enrolments in doctoral degrees, but their numbers and proportion are increasing. From 2002 to 2003, the number of women enrolled in doctoral degrees increased by 6.1 percent, compared with 3.0 percent for men. Women made up 50 percent of doctoral enrolments in 2003. Completion rates by 2003 were the same for men and women who had started in 1997. However, for those who had not completed, women were more likely to be still enrolled than men.

Māori and Pasifika students remain significantly under-represented in doctoral degrees. The number of Māori enrolled in doctoral degrees rose by 5.9 percent from 2002 to 2003. However, they still only make up 6.6 percent of domestic enrolments, similar to 2002.

19 See the section on *Engagement of TEOs with industry for skills development* (p.35) for further information on analysis of profiles.

Māori completion rates, for those who started in 1997, were significantly lower in 2003 at 27 percent. However, a further 31 percent were still working towards completion. This may reflect the additional demands placed on Māori doctoral students in universities.

Pasifika enrolments jumped by 22 percent from 2002 to 2003, from 63 to 77 students. However, they still only make up 2.0 percent of domestic enrolments at this level, an increase of 0.3 percentage points on 2002. Pasifika doctoral numbers are too small to provide accurate estimates of completion and retention rates.

Building capability and collaboration in research

Centres of Research Excellence making satisfactory progress on work programmes

Seven CoREs were established in 2001 and 2002 to support leading-edge, international standard research that fosters excellence and contributes both to New Zealand's national goals and to knowledge transfer. The CoREs are primarily, but not exclusively, inter-institutional research networks, with the researchers working together in a commonly agreed work programme.

All CoREs have reported satisfactory progress against the research and operation targets they have identified each year. A mid-term review of the CoREs is to be completed during the first half of 2005. This review will more closely assess progress to date prior to a decision being made to commit the remaining three years' funding.

The National Centre for Advanced Bio-Protection Technologies

The National Centre for Advanced Bio-Protection Technologies was established in February 2003 as one of the seven CoREs. Its goal is to conduct internationally recognised research into the management of New Zealand's weeds, plant pests and diseases and to develop systems for improved biosecurity.

It is hosted by Lincoln University and comprises four partner organisations: Lincoln University, Massey University, AgResearch, and Crop and Food Research. It collaborates with eight other research and academic institutes. The majority of personnel are in Canterbury, with others located around the country.

The Centre supports both laboratories and field facilities, as well as the Biotron, a purpose-built plant growth facility that enables observation and measurement of plant microbe and physical interactions above and below the ground.

The research conducted by the Centre is divided into four major themes: biosecurity, biocontrol, agri-biotechnology and mātauranga Māori bio-protection. Two of these areas are highlighted below.

Biosecurity: detecting unwanted organisms at the border using sensor technology and molecular diagnostics and developing intelligent computing systems to predict the potential of new organisms to become pests.

Progress to date: *This area of research uses the Biotron, which is able to provide answers to questions about the likely host range of invasive species, their ability to tolerate diurnal and seasonal extremes and likely damage potential. With research in this area, the Centre should be able to provide significant research information for biosecurity agencies in New Zealand and overseas.*

Mātauranga Māori bio-protection: researching bio-protection techniques that are acceptable to Māori growers by incorporating Māori perspectives and tikanga into bio-protection strategies. Māori knowledge of horticulture has been developed over the past 1,000 years in the many and varied soil types and climates of New Zealand and therefore inclusion of this knowledge and tikanga, where appropriate, will add value to existing scientific research into the management of pests and diseases.

Progress to date: *A network of Māori growers has been established to identify case study groups. This includes selected growers from a broad range of crop production systems, from 'traditional' crops such as kumara and taewa (Māori potato) through to more contemporary crops. This activity uses varied production methods and philosophies such as organic, spray-free and conventional.*

Development of databases on Māori in the agriculture/horticulture sector provides important baseline information for ongoing research. The information to date has identified gaps in the knowledge bases as well as issues and problems associated with crop production and protection. There are also issues around decision-making for Māori land with multiple owners and other collective assets and around product development and marketing of crops produced by Māori growers. There is emerging a diverse range of views within the Māori community as to what constitutes Māori horticulture and recognition of the importance of both mātauranga Māori and western science in developing the industry.

Building Research Capability in the Social Sciences

Building Research Capability in the Social Sciences is an initiative to build the capability of the tertiary education social science sector, and promote greater quality and relevance in social science research. The initiative is intended to:

- support targeted basic research which meets high standards of excellence and has the potential to improve the ability of stakeholders such as industries, communities or the government to understand and tackle issues of national significance
- help build a critical mass of research capability and knowledge in the social sciences
- develop advanced human capital and skills, particularly by engaging research postgraduates and providing research, mentoring and structured development opportunities for emerging researchers.

The TEC has begun funding a collaborative initiative that draws together a group of leading social science researchers from six research organisations (five universities and one private organisation). Over the next five years this formal network of researchers will run a co-ordinated programme of research activities that will provide insight into New Zealand's social future by exploring a set of research themes of emerging strategic importance to New Zealand, including:

- social dimensions of participating in a global knowledge-based economy
- social justice and development for all New Zealanders
- New Zealand's demographic trends and their effects on our society
- sustainability of diverse households, communities and settlements.

The network will also focus strongly on developing New Zealand's future social science research capability not only by explicitly including participation by new and emerging researchers, but also by enhancing connections between researchers and practitioners.