



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga



State of Education

in New Zealand 2007

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Foreword Minister of Education

State of Education in New Zealand: 2007 provides an overview of the progress of New Zealand's education system across the early childhood, schooling and tertiary sectors.

Our education system is world class, and it has to be. Education is a corner stone of what the Government is trying to achieve. New Zealand's labour market is considerably more dynamic than in the past, and is likely to remain so as New Zealand's economy becomes further integrated with the global economy. Education can assist us to succeed in the world market place and moderate the negative effects from labour market fluctuations.

Education is fundamental to addressing social issues. In the Government's priority area of Families – Young and Old, education will support initiatives aimed at raising achievement and reducing disparities, and initiatives aimed at strengthening family functioning and capability.

In early childhood, quality and participation continue at record levels, with around 94 percent of New Zealand children taking part in early childhood education before starting school.

In our schools, student achievement continues to improve. Our students perform as well as or better than students in other OECD countries. The introduction of NCEA has had a positive impact on numbers of students leaving school with qualifications, particularly students from groups that historically have struggled.

And our tertiary system is meeting the needs of more New Zealanders. The proportion of students going directly from school to tertiary education has continued to increase.

The indicators in this report help us to monitor, and continually improve our education system. I expect future reports to show continued improvement in the future, building on the successes to date.



Hon. Chris Carter
Minister of Education



Foreword Secretary for Education

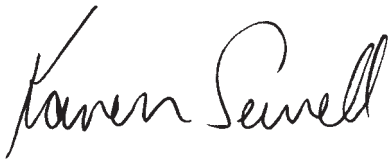
State of Education in New Zealand provides an annual overview of our education system.

It is based on the Ministry's initiative to develop and make available a set of education sector indicators to:

- provide a system-wide assessment of key aspects of the education system and of education outcomes that can be monitored over time
- highlight national trends in various aspects of education and consider how New Zealand compares with other countries in education and skills development
- help identify key issues to inform strategic planning, policy, research, and information priorities.

This report provides a synthesis of material already publicly available on the Ministry's website for statistics and research – Education Counts. Detailed data that underlie the indicators and associated publications and other resource materials that have been drawn on can be accessed on www.educationcounts.govt.nz

I hope that this report will encourage interest in using our evidence base and will help us all to understand how our education system is performing.



Karen Sewell
Secretary for Education



Executive Summary

Participation in early childhood education (ECE) contributes to a child's later development and future learning. The number of children attending early childhood education services, and the time they spend in these, has been steadily increasing for all children across all ethnic groups over the past 16 years (see Chapter 1). The quality of education children are receiving in early childhood services as measured by the number of qualified and registered teachers have increased markedly in recent years (see Chapter 4). Accessibility, including affordability, does not appear to be a systemic problem (see Chapter 2) and the early childhood services themselves appear to be sustainable (see Chapter 3).

Primary schooling builds on the concepts gained in early childhood. Young New Zealanders are, as a whole, performing as well as or better than their peers internationally (see Chapter 5).

Similarly, secondary schooling builds on the achievements of primary schooling. The knowledge and skills young New Zealanders gain at secondary school are critical to their likelihood of successful participation in tertiary education and/or future employment. International studies show that New Zealand secondary school students perform at a high level compared with students from other countries (see Chapter 9). Secondary students are generally performing better academically at school, with more secondary students leaving school with qualifications than in previous years and are in a better position to take advantage of future learning opportunities (see Chapter 10).

Retention of students who 'engage' with their schooling communities has positive effects on their future education and employment. Students who disengage from schooling, and in particular leave school early, face a life time of disadvantage. Students from socio-economically disadvantaged communities and Māori students have relatively poor rates of school participation and engagement (see Chapters 6 and 7).

Participation in tertiary education allows people to develop the knowledge and skills to live in a modern society and knowledge-based economy. Participation in tertiary education opens up career opportunities, and has a range of positive impacts on income, standards of living, and health. New Zealand's open tertiary system and flexible learning opportunities for people to study have helped see a substantial increase in enrolments during this decade (see Chapter 12) while qualification completion rates have been maintained (see Chapter 13). Policy changes were implemented to restrict funds available for short awards towards longer courses.

While the general education picture for New Zealand is very positive, there are disparities when different groups of the population are compared. Generally early childhood education services and schools that draw their children/students from communities with the greatest socio-economic disadvantage have the worst rates for participation, numeracy and literacy, and qualification attainment. Similarly, Māori and Pasifika students often have worse results than their peers, which mirror the over-representation of Māori and Pasifika in socio-economically disadvantaged communities.

Over recent years Māori and Pasifika students and students from low socio-economic communities have tended to improve at relatively higher rates than other groups, for early childhood education participation, numeracy and literacy, and schooling qualifications, implying disparities are reducing.



Introduction

State of Education is an annual publication series. *State of Education in New Zealand: 2007* is the second issue in the series, with most of the data relating to the previous year 2006. It provides a system-wide assessment of key aspects of the education system and of trends.

Our aim is to provide a composite picture of the education sector, in sufficient detail that analysis and conclusions can be tracked back to base data. There are limitations in the picture that we can provide at this time, mainly because of a lack of base data in specific areas. As an important example, there is still a lack of system wide information on how well the sector is meeting the needs of students with special education needs.

This publication provides an overall picture of the education sector and how that sector is meeting the needs of particular population groups. This report does not attempt to assess and compare performance across particular providers.

State of Education pulls together existing education indicators on participation, achievement, effective teaching, labour market outcomes and resourcing across the early childhood, schooling and tertiary sectors. The indicators presented in State of Education are available from the *Education Counts* website [www.educationcounts.govt.nz], where greater detail may be available. Much of the other reference material is also available on *Education Counts*, and to assist the reader to find this information each chapter ends with a small graphic showing where information can be found.



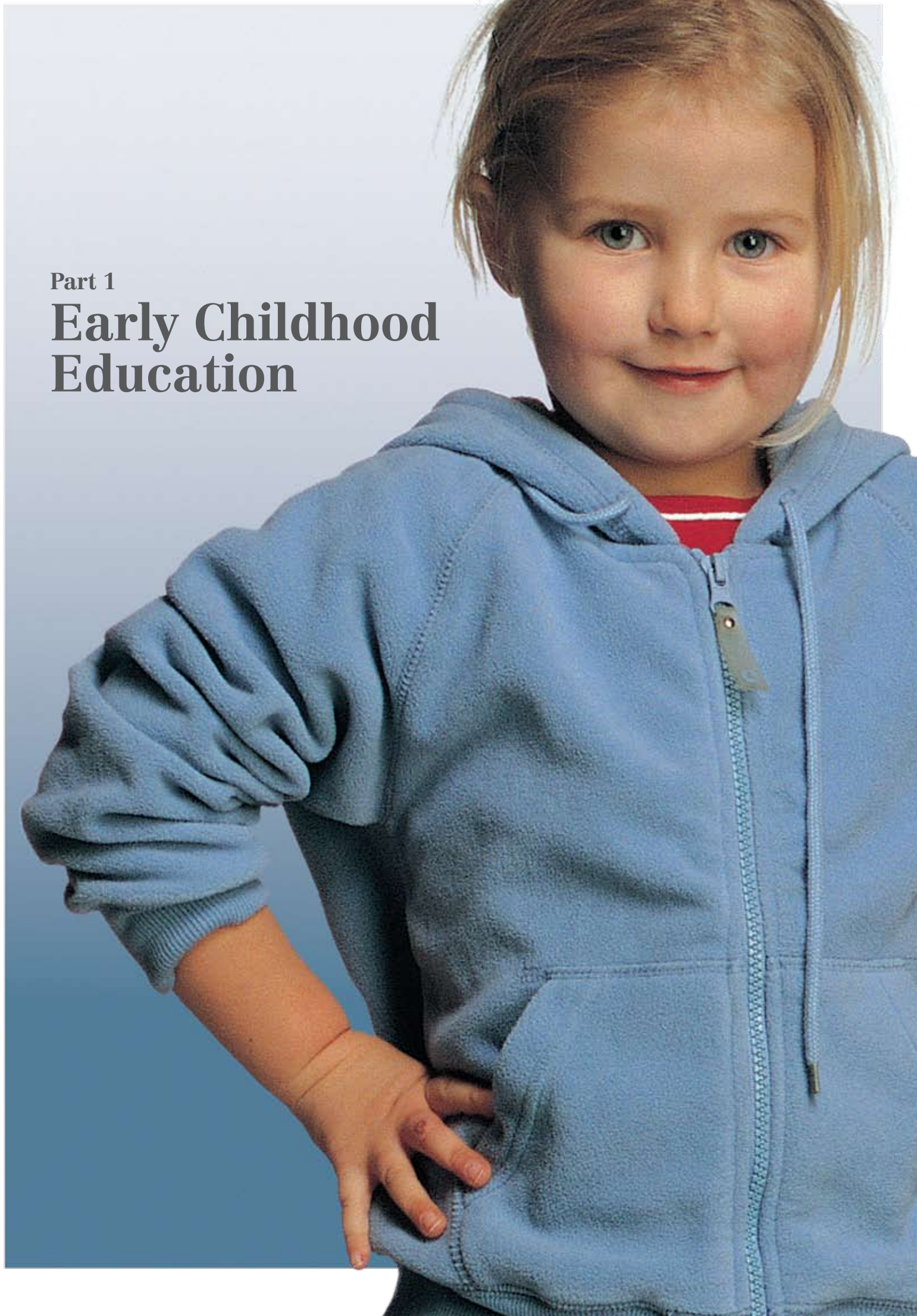
Readers are encouraged to access *Education Counts* to obtain updated information since the release of the publication, more detailed information complementing that in the publication, and related information that may be of interest.





Part 1

Early Childhood Education



Participation in Early Childhood Education (ECE) contributes to a child's later development. Quality early childhood education programmes can help narrow the achievement gap between children from lower-income families and more advantaged children.

All families should have access to quality early childhood education services that are responsive to their needs. Current sector-wide activities to achieve this are focused on: assisting early childhood teachers to meet and maintain the same professional standards as school teachers; supporting parents providing early childhood education to deliver quality services; and improving access to early childhood education services that meet family needs. These activities are underpinned by more collaborative relationships between services and programmes for young people.

Areas examined in this chapter are participation, accessibility, sustainability and teaching. Indicators of the quality of early childhood education services are not yet available; instead we have indicators for a subset of structural factors that underpin, but do not guarantee quality.



1. Participation

What we have found

The number of children attending early childhood education services has been increasing, for children of all ages, over the past 16 years. The rate of increase has been greatest for young children aged one, two and three years. Over this same time period the labour market has strengthened, resulting in more parents of young children likely to be in work.

In 2006 over 94 percent of children had received some form of early childhood education before starting school. Participation in early childhood education has increased since 2002 for children from all communities, although the increase is greater for children from lower socio-economic backgrounds and Māori and Pasifika communities. However, over the last year Māori participation has not changed, while participation for Pasifika and lower socio-economic early childhood education services have fallen slightly. Overall children from these communities have lower levels of participation in early childhood education.

The time children spend in services reflects the changes in the type of service (all-day or sessional) parents are choosing to enrol their children in. The weekly average hours of attendance for a child attending an education and care service or a home-based network service has increased over the past five years; there have only been small increases in the average weekly hours of attendance at kindergartens over the same time.





Why this is important

Children who attend a quality early childhood education service gain benefits that last through to their early years in school and beyond.¹ These children in their early years of school show higher cognitive skills and more advanced social skills than children who have not attended early childhood education prior to starting school.² Although the research cannot say how long each day a child should attend to gain these benefits, attending from an early age and on a regular basis is beneficial, and children from disadvantaged families often gain more benefit.³

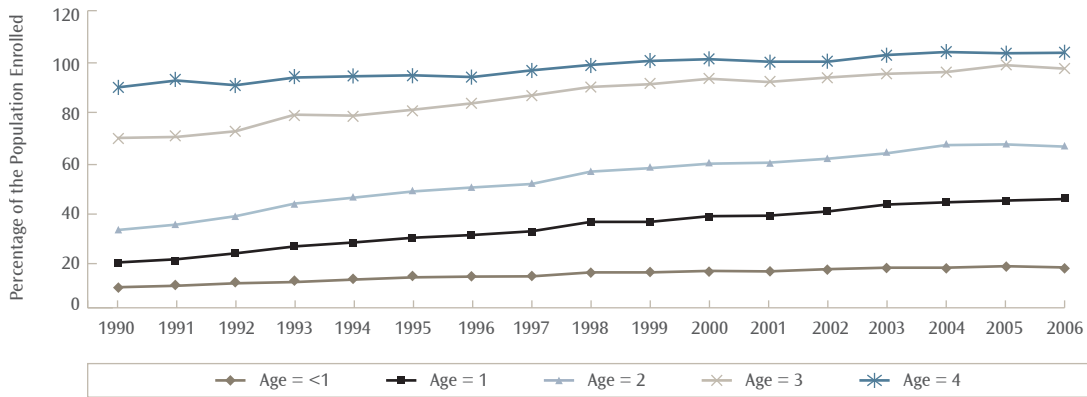
How we are going

Enrolments and time spent in early childhood education

Over the past 16 years the number of enrolments in early childhood education services has grown for all ages. The growth is most noticeable for children aged one, two and three years. The data show:

- between 1990 and 2006 there has been an increase in enrolments across all ages, however in the last year there has been a slight drop off in enrolments of two year-olds, and three year-olds (see Figure 1.1)
- there has been a change in the type of service parents prefer to use: in 1998 enrolments in all-day services made up 42 percent of all enrolments; in 2006 this figure had risen to 60 percent. This change towards all-day services most likely reflects the growing number of employed parents
- in line with the increase in enrolments at all-day services, the average number of hours children are enrolled in education and care services and home-based services has increased. Education and care services and home-based services have experienced the highest increases since 2000, while the growth in the average number of hours children are enrolled in kindergartens has slowed over the last two years (see Figure 1.2).

Figure 1.1: Apparent participation rates in early childhood education by age (1990 to 2006)



Source: Ministry of Education (2006a)

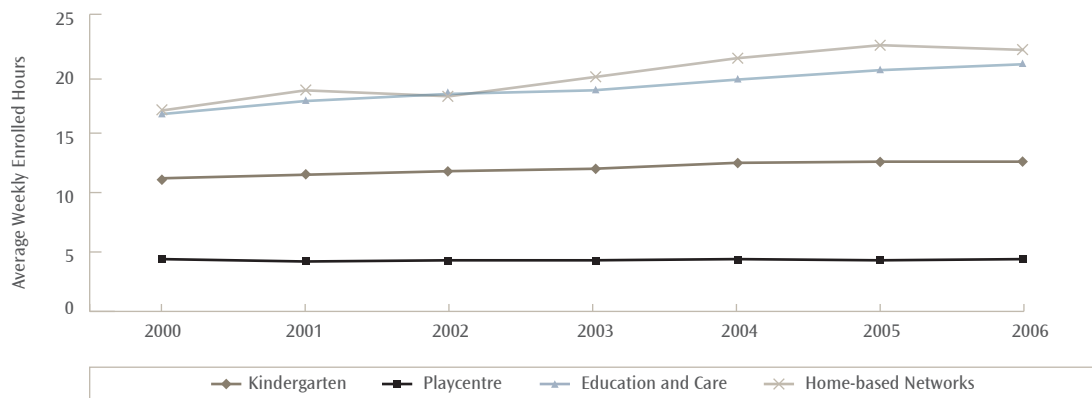
1. Excludes children aged five years.

2. Children can enrol at more than one service so double counting of enrolments will occur, causing the apparent participation rate to be greater than 100 percent for some age groups.

¹ Wylie, C., Hodgen, E., Ferral, H., & Thompson, J. (2006). *Contributions of early childhood education to age-14 performance: evidence from the competent children, competent learners project*. Wellington: Ministry of Education & New Zealand Council for Educational Research (NZCER).

² NICHD Early Childcare Research Network. (2006). *Child-care effect sizes for the NICHD study of early child care and youth development*. *American Psychologist*, 61(2), 99-116.

³ Leseman, P. P. M. (2002). *Early childhood education and care for children from low-income or minority backgrounds*. Paris: OECD.

Figure 1.2: Average weekly enrolled hours in early childhood education by service type (2000 to 2006)

Source: Ministry of Education (2006b)

1. Excludes Te Kōhanga Reo services as weekly enrolled hours are not collected (most children are estimated to be attending between 27 and 30 hours a week).

Participation in early childhood education by socio-economic background

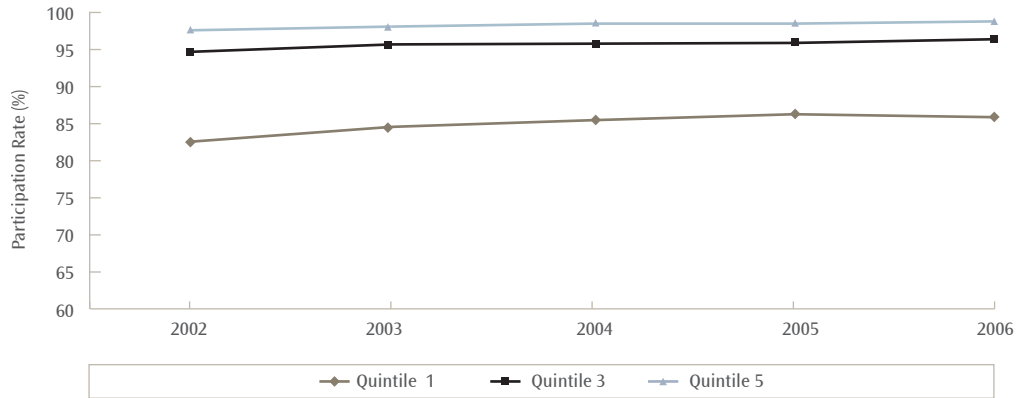
The extent to which children participate in early childhood education differs between different socio-economic backgrounds. Schools' deciles⁴ can be used to identify differences in prior participation in early childhood education by socio-economic background. The data show:

- over the last five years participation in early childhood education has increased across all socio-economic backgrounds (see Figure 1.3)
- in 2006, 86 percent of children who attended a school from quintile 1 (deciles 1 and 2) attended an early childhood education service before starting school, compared with 99 percent of children who attended a school from quintile 5 (deciles 9 and 10)
- this growth in participation has fallen slightly between 2005 and 2006 for children attending quintile 1 schools (see Figure 1.3).

⁴ A school's decile indicates the extent to which the school draws its students from low socio-economic communities. Quintile 1 schools (deciles 1 and 2) are the 20 percent of schools with the highest proportion of students from low socio-economic communities, whereas quintile 5 schools (deciles 9 and 10) are the 20 percent of schools with the lowest proportion of these students. A school's decile represents a proxy of the overall socio-economic mix of the students in the school.



Figure 1.3: Prior participation rates in early childhood education for children starting school by quintile (2002 to 2006)



Source: Ministry of Education (2006c)

1. Excludes the Correspondence School ECE, Health Camps, New Zealand Agency for International Development⁵ (NZ Aid) and foreign fee-paying students.
2. The number of students with unknown attendance has been excluded when calculating participation rates.
3. Students who attend a school that does not have a decile rating, mostly private schools, are not included.

Participation in early childhood education by different ethnic groups

The extent to which children have participated in early childhood education before starting school differs between the major ethnic groups, but all groups have increased their participation over the last five years, particularly Māori and Pasifika. The data show:

- in 2006 over 94 percent of children had participated in some form of early childhood education before starting school

- growth in participation is beginning to slow with a total increase of 0.2 percentage points between 2005 and 2006 (see Table 1.1)
- Pasifika participation rates have slowed, with a decrease of 0.5 percentage points since 2004.

⁵ A student on a scholarship from the New Zealand Agency for International Development. Prior to 2004 this was known as a Ministry of Foreign Affairs and Trade (MFAT) scholarship.



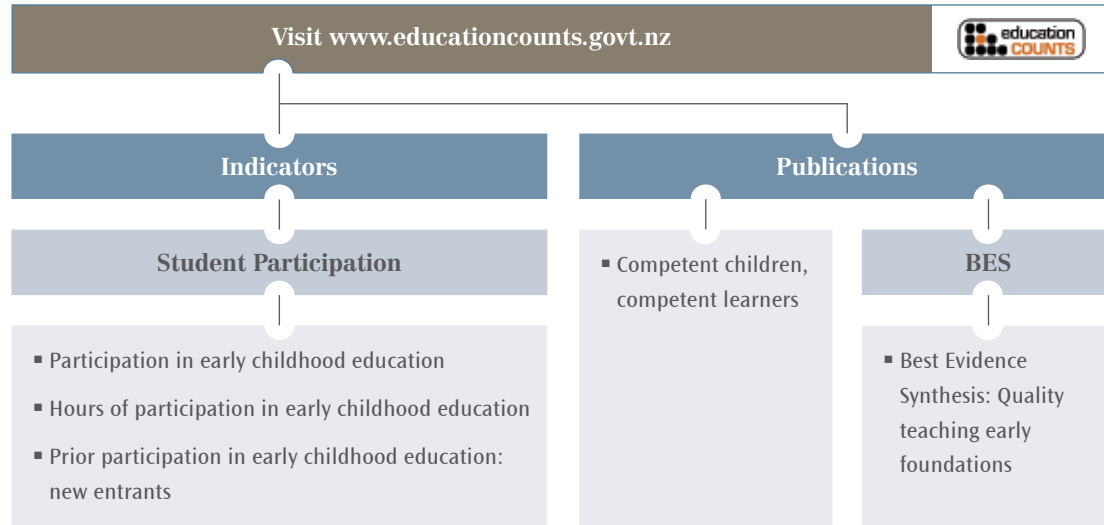
Table 1.1: Prior participation rates in early childhood education for children starting school by ethnic group (2002 to 2006)

Ethnic Group	ECE Prior Participation Rate (%)				
	2002	2003	2004	2005	2006
Māori	86.5	88.4	89.3	89.9	89.9
Pasifika	79.4	83.4	84.7	84.5	84.2
Asian	92.1	92.4	94.1	95.1	96.0
Other	86.6	88.9	89.4	89.9	91.7
European/Pākehā	96.6	97.4	97.6	97.7	98.0
Total	92.3	93.6	94.1	94.3	94.5

Source: Ministry of Education (2006c)

1. Excludes the Correspondence School ECE, Health Camps, New Zealand Agency for International Development (NZAID) and foreign fee-paying students.
2. The number of students with unknown attendance has been excluded when calculating participation rates.
3. European/Pākehā refers to people who affiliate as New Zealand European, other European or European (not further defined). For example this includes and is not limited to people who consider themselves as Australian (not including Australian Aborigines), British and Irish, American, Spanish, Ukrainian and Czech. (See 'ethnicity' under technical notes for more information).

Where to find out more



2. Accessibility

What we have found

Access to early childhood education services is a precondition for children being able to participate in early childhood education and gain its benefits. Despite rising demand for early childhood education services, most areas have a service that is able to take on new enrolments. However, in 2006 14 percent and 17 percent of licensed services had waiting times of more than six months for one and two year-olds, and three and four year-olds respectively.

The rise in early childhood education fees was lower than the increase in average income over the two years to the June 2007 quarter suggesting that, overall, early childhood education became more affordable. Total fees relative to changes in average income fell by six percent over that period.

Why this is important

Participation in quality early childhood education benefits both children and their families. Various factors must be present for a child to access an early childhood education service. These are factors that the child must be able to get to the service, there must be a place for the child, the service must be acceptable to the parents and child, including its culture and philosophy, and the service must be affordable.

How we are going

Physical access

For a child to have physical access to a service, it has to be sufficiently close to the child's home or some other convenient location for the family, such as a parent's place of work or a sibling's school. If the family relies on public transport, then bus and train services need to be close to both their home and the service. If private transport is used, then safe parking is important. Children who require additional support to access early childhood education, such as those who use wheelchairs, have to be catered for if they are to access the service. The data show:

- of the population aged zero to four years, 97.9 percent have at least one licensed early childhood education service within 10 kilometres of their home. Only 10.7 percent have three or fewer services within 10 kilometres of their home
- of those children who attended licensed early childhood education services, an estimated 75 percent lived 3.6 kilometres or less from the service they attended. The 75th percentile figures were 2.8 kilometres for children living in urban areas and 13 kilometres for those living in rural areas^{6,7}
- in most regions, less than five percent of the zero to four year-old population had only three or fewer early childhood education services within 25 kilometres of their home. Limited access to early childhood education services for children aged zero to four years is an issue for rural regions in the South Island, particularly in the West Coast (24.7 percent), Southland (14 percent) and Marlborough (13.1 percent).

Families unable to attend licensed services are able to use distance learning through the Correspondence School. They can also attend licence-exempt early childhood groups.

⁶ These conclusions are based on a sample of 80 percent of licensed community-based early childhood education services. The sample was from services that provided information for the calculation of the Equity Funding index and hence is biased towards lower socio-economic communities.

⁷ 'Home' is defined as the census area unit where the children live.



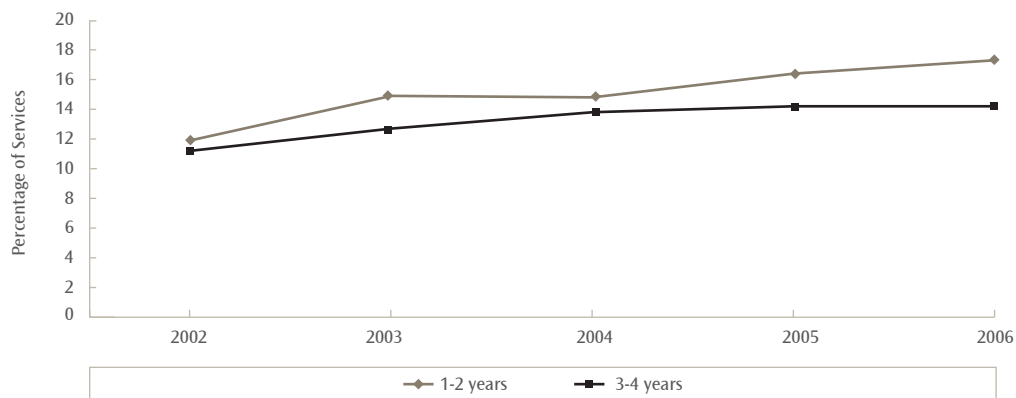
Availability of places

For a service to be accessible there must be a place available at a suitable time for the child to be enrolled. If children have to wait for a place, the wait should be short.

Most areas with early childhood education services have sufficient space to take on new enrolments. The data show:

- ninety-one percent of licensed early childhood education services' catchment areas have adequate capacity, with adequate capacity being defined as having at least five percent of the hours on offer in the area unused and hence available for children to enrol⁸
- seventeen percent and 14 percent of licensed early childhood education services have waiting times longer than six months for one to two year-olds and three to four year-olds respectively. For both age groups, the proportions have increased over time, although the waiting times for three to four year-olds flattened out between 2005 and 2006. These rises are a reflection of increasing demand for early childhood education, as indicated by rising participation rates (see Figure 2.1).

Figure 2.1: Percentage of licensed early childhood education services with a waiting time of six months or longer by age (2002 to 2006)



Source: Ministry of Education

1. Excludes casual education and care services as these services have casual rolls and therefore waiting times are not collected.
2. Excludes playcentres and Te Kōhanga Reo as waiting times are not collected.
3. The one to two year-old age group excludes kindergartens, as few kindergartens offer services for children aged one to two years.

⁸ The 'hours on offer' figure takes account of the fact that services tend to operate below their maximum capacities.



Affordability

Families must be able to afford an early childhood education service. Whether a family considers early childhood education to be affordable is dependent on three factors: the cost of the service, the family's income, and the importance the family attaches to early childhood education relative to other ways their income can be spent.

The Ministry of Education provides financial assistance directly to early childhood education services as a per-hour subsidy for each child who attends. The rates depend on the age of the child, whether the service is all day or sessional, the proportion of qualified teachers, and the type and quality of the service. From 1 July 2007 the government has provided up to 20 hours a week of free early childhood education to children aged three and four years old who attend teacher-led services. Assistance with fees is also provided by the Ministry of Social Development to those eligible for the Childcare Subsidy.

Information on fees paid for early childhood education services is collected as part of Statistics New Zealand's Consumer Price Index (CPI). This shows that the price that families pay for early childhood education services has

risen over time. However, the increase in fees has tended to be matched by income growth, which means that affordability has therefore improved. The data show:

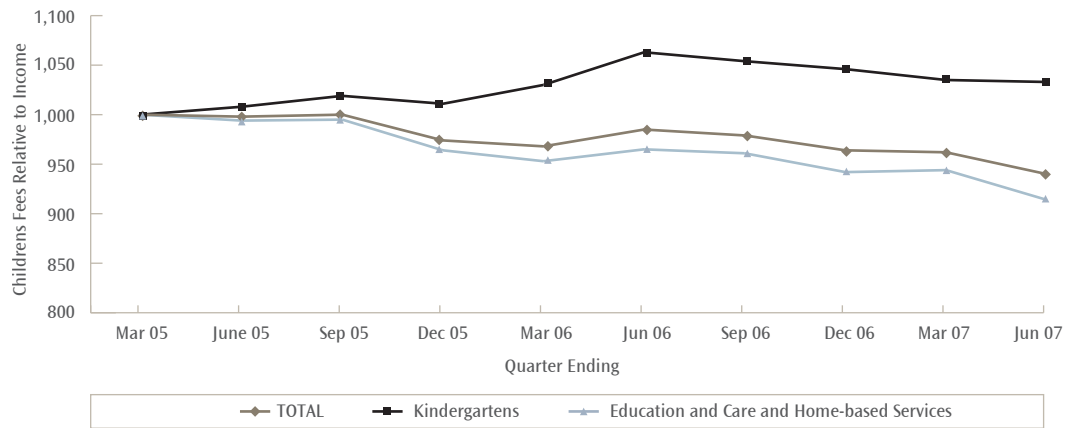
- the price paid by families for early childhood education services rose three percent in the two years to the June 2007 quarter⁹
- changes in fees vary according to the service type, with kindergarten fees rising 11 percent and fees for education and care and home-based services remaining unchanged. The increase in kindergarten fees and donations has been from a low base and hence does not contribute as much to the overall rise
- after taking account of the general CPI rise, fees for all early childhood education services decreased by three percent, made up of a five percent increase for kindergartens and a six percent decrease for education and care and home-based services
- total fees relative to changes in average income¹⁰ decreased by six percent. This was the result of kindergartens experiencing a two percent increase and education and care, and home-based services experiencing an eight percent decrease. (see Figure 2.2).

⁹ Since the December 2005 quarter, the index for the education and care and home-based services has also reflected changes to the level and threshold of the Childcare Subsidy. The index for kindergartens does not; it reflects the pre-subsidy fee.

¹⁰ Average hourly ordinary-time earnings (from Statistics New Zealand's Quarterly Employment Survey) are used as a proxy for income.



Figure 2.2: Index of childcare fees relative to income by quarter (March 2005 to June 2007)



Source: Statistics New Zealand, manipulated by Ministry of Education

1. Index = Consumer Price Index (CPI) components divided by the Quarterly Employment Survey (QES) hourly ordinary-time earnings.
2. Product re-based in March 2005 to equal 1,000.

Where to find out more

Visit www.educationcounts.govt.nz

Publications

BES

▪ Best Evidence Synthesis: Quality teaching early foundations



3. Sustainability

What we have found

The indicators suggest that sustainability has improved within the early childhood education sector.

Occupancy rates have increased, so fewer services are therefore likely to be exposed to the financial risk of having an insufficient number of children.

Profitability has improved compared with a few years ago, and the proportion of services with a high deficit has fallen.

While the rate of teacher loss from the sector has declined, the level of teacher turnover within services has increased back to its 2002 level. Services with a high rate of teacher turnover have tended to have a greater risk of closing.

A significantly lower proportion of services are now closing, indicating a trend of improved sustainability.

Why this is important

Participation in early childhood education brings important benefits to children. If children are to continue participating then early childhood education services must remain sustainable. This does not mean that individual services should not open or close in response to population changes and the changing requirements of families. However, the sector as a whole needs to remain viable enough to continue providing quality services for children into the future.

How we are going

Occupancy rate

Occupancy rates give an indication of how full a service is in terms of the number of children or child-hours it can accommodate. Services operating well below capacity are likely to have difficulty sustaining their operations. Analysis shows that in the year before they closed, closed services tended to have lower occupancy rates than open services. The data show:

- occupancy rates¹¹ have increased since 2002. The average rate was 73.5 percent in 2006, up from 72.6 percent in 2002¹²
- occupancy rates vary considerably by service type, with different service types able to operate at different levels of capacity. Most service types have had stable or rising rates over the last few years (see Figure 3.1)
- the proportion of services deemed to have low occupancy rates has fallen from 9.6 percent in 2003 to 8.7 percent in 2006.¹³

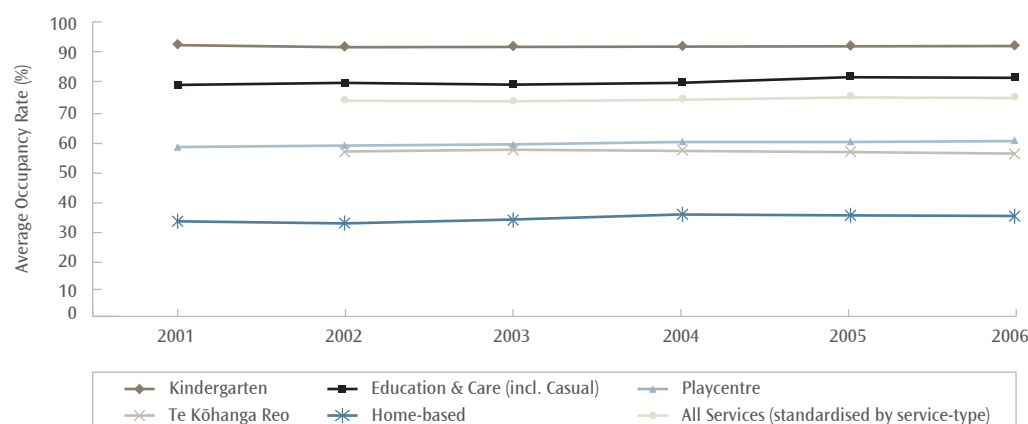
Rising occupancy rates and falling rates of low occupancy suggest that sustainability within the sector has been improving. These changes are consistent with an increasing number of children participating in early childhood education.

¹¹ Occupancy rate, as calculated here, refers to funded child hours or maximum funded child hours. Funded child hours are the number of hours that children are enrolled to attend and that Ministry of Education provides funding for. Maximum funded child hours are the maximum number of enrolled hours the Ministry of Education will provide funding for. Not included in the calculation are hours beyond the hours funded by the Ministry. In the period covered, the maximum number of funded hours per day was six hours per licensed place and the maximum per week was 30 hours per licensed place.

¹² These are standardised rates weighted by service type as at 2006.

¹³ The level at which an occupancy rate is deemed to be low is service-type specific and is set in the bottom half of the occupancy rates that closed services have had prior to closure. The proportions used in the main text are standardised rates weighted by service type as at 2006.



Figure 3.1: Average occupancy rate of early childhood education services by service type (2001 to 2006)

Source: Ministry of Education

Operating balance

Over time, income must more than cover expenses if services are to remain financially viable. Services with a higher level of expenses than income are said to have an operating deficit. The data show:

- the proportion of community-based services with an operating deficit has fallen from 40 percent in 2001 to 34 percent in 2005
- the proportion of community-based services with an operating deficit greater than 10 percent of their

operating income has fallen from 16 percent in 2001 to 14 percent in 2005

- six percent of community-based services in 2003 had an operating deficit for three consecutive years, but by 2005 this figure had fallen to five percent (see Table 3.1).

Although operating balances fluctuate from year to year, the data suggest no deterioration in financial sustainability. If anything, sustainability has improved.

Table 3.1: Proportion of community-based kindergartens, education and care services and playcentres by extent of operating deficit (2001 to 2005)

	Operating Deficit	Operating Deficit Over 10 Percent	Operating Deficit for Three Consecutive Years
2001	40.2	16.2	
2002	38.8	14.6	
2003	39.0	13.7	5.9
2004	39.6	16.5	5.1
2005	34.4	13.9	4.8

Source: Ministry of Education

1. Data was first collected in 2001, therefore the proportion of community-based services having an operating deficit for three consecutive years starts in 2003.





Teacher turnover

Services with a higher turnover of teachers tend to have a greater likelihood of closing. One reason is that they risk jeopardising their licence by having fewer than the required number of registered teachers. Higher turnover may also reflect fundamental problems in the service that result in teachers leaving and may also make the service less attractive to parents, resulting in declining rolls and reduced sustainability. The data show:

- after falling between 2002 and 2004, teacher turnover in teacher-led services has increased back to its 2002 level of 20 percent
- in 2006, 4.7 percent of services had teacher turnover that was higher than two-thirds and 19.8 percent had a turnover greater than one-third
- the proportion of teachers leaving the sector has fallen over the last few years. In 2006, 7.9 percent of teachers left their jobs without getting employment in other early childhood education jobs in New Zealand, down from 9.6 percent in 2003.

The lower loss of teachers from the sector is positive for sector sustainability, but turnover within services has increased in the last couple of years.

Service closures

The number of closures is an indication of how well the sector is sustaining its operations. The data show:

- in 2006 57 services closed and 143 services opened
- over the last five years the rate of services closing has declined. In 2000, 2.3 percent of services closed, while in 2006 only 1.6 percent of services closed
- the rate of services opening has dropped off slightly, from 4.3 percent of services in 2000 to 3.9 percent of services in 2006
- in 2006 the total number of services rose by 2.4 percent.

The lower rate of closures suggests that sustainability in the sector has improved.

4. Teaching

What we have found

Since 2002 when the Ministry of Education's *Early Childhood Education Strategic Plan* was first implemented, the proportion of teachers in early childhood education who are qualified and/or registered has increased, with over half of early childhood teachers registered or qualified in 2006. Most of this growth has been in education and care services, which account for more than 60 percent of enrolments in all teacher-led early childhood education services. The number of registered teachers is not evenly distributed around the country. Auckland, which has a large number of services, has a low proportion of teachers who are qualified.

In 2006, 45 percent of all unqualified teachers employed in the early childhood education sector were enrolled in tertiary education courses leading to teacher registration. Māori and Pasifika teachers are less likely to hold qualifications that lead to teacher registration than European/Pākehā¹⁴ teachers. However, the number of enrolments in tertiary education courses leading to registration as early childhood education teachers for Māori and Pasifika has increased in the last two years.

Why this is important

Children benefit from participation in quality early childhood education services. Quality is achieved through a number of interacting factors such as the interaction of the ratio of trained adults to children, the number of children (or group size) and the qualification levels of teachers.¹⁵

One of the ways to improve the quality of early childhood education is to increase the number of qualified and registered early childhood education teachers. Teacher registration ensures the quality of teachers because it

shows that newly graduated teachers have completed suitable teacher education programmes and are supervised and supported through an advice and guidance programme. Gaining full registration and maintaining practice certificates assures currency of professional knowledge and practice. The *Early Childhood Strategic Plan* has the target that, by 2012, all regulated staff in teacher-led early childhood education services must be registered or enrolled in approved early childhood teacher education programmes.

¹⁴ European/Pākehā refers to people who affiliate as New Zealand European, other European or European (not further defined). For example this includes and is not limited to people who consider themselves as Australian (not including Australian Aborigines), British and Irish, American, Spanish, Ukrainian and Czech. (See 'ethnicity' under technical notes for more information).

¹⁵ Farquhar, S. E. (2003). *Quality Teaching Early Foundations: Best Evidence Synthesis*. Wellington: Ministry of Education.





How we are going

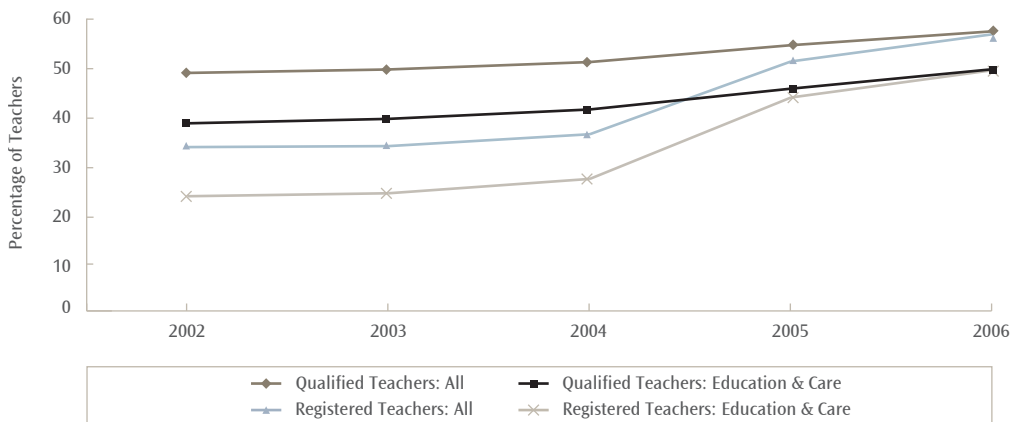
Registered and qualified teachers

Before teachers can become registered with the New Zealand Teachers' Council (NZTC), they must hold a qualification approved by the Council. Once qualified, teachers can then apply for provisional registration with the NZTC, as long as they are of good character and are fit to be teachers.

The proportion of early childhood teachers who are qualified and registered with the NZTC has increased since 2002. The data show:

- fifty-seven percent of early childhood teachers held a qualification that met NZTC teacher registration requirements in 2006. This has increased from 49 percent in 2002 (see Figure 4.1)
- in 2006 the percentages of Māori (46 percent) and Pasifika (47 percent) qualified teachers were lower than for European/Pākehā (61 percent). However, qualification rates for Pasifika are increasing at twice the rate of other ethnic groups (see Figure 4.2)
- Auckland has a lower proportion of qualified teachers (49 percent) and a large number of services (892).
- fifty-six percent of early childhood teachers were registered with the NZTC in 2006. This has increased from 35 percent in 2002 (see Figure 4.1)
- fifty percent of early childhood teachers in education and care services were registered with the NZTC in 2006. This has increased from 24 percent in 2002 (see Figure 4.1)¹⁶

Figure 4.1: Qualification and registration status of early childhood teachers in teacher-led services by service type (2002 to 2006)

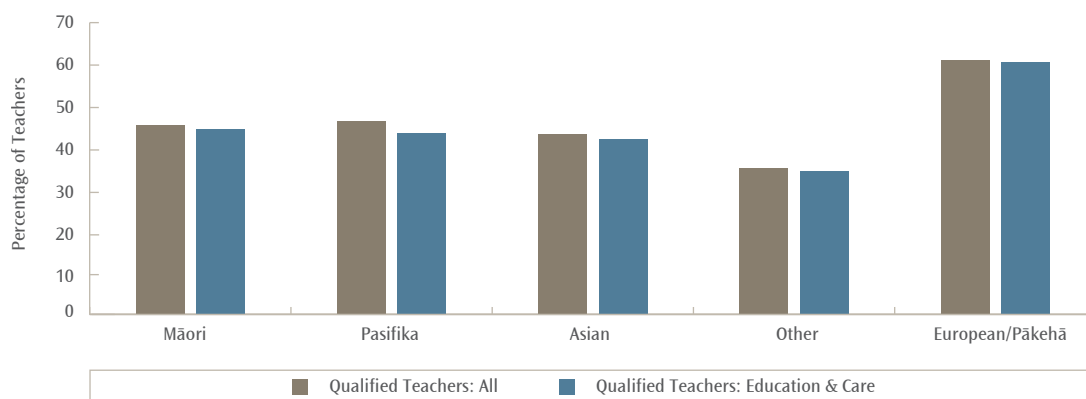


Source: Ministry of Education

1. Excludes caregivers in home-based networks.

2. Excludes adults on duty in parent-led services including playcentres and Te Kōhanga Reo.

¹⁶ Person(s) responsible regulations and changes to the funding of services provided incentives for existing qualified teachers to become registered in 2005. As a result, there was a large increase in the percentage of teachers registered over 2004. This increase is largely due to existing qualified teachers becoming registered and is not expected to continue at this level in the coming years.

Figure 4.2: Qualification and registration status of early childhood teachers by ethnic group (2006)

Source: Ministry of Education

1. Excludes caregivers in home-based networks.
2. Excludes adults on duty in parent-led services including playcentres and Te Kōhanga Reo.
3. European/Pākehā includes teachers of Other European ethnicity.

Enrolments and graduates from NZTC-approved ECE tertiary courses

The number of enrolments in tertiary courses leading to qualifications that meet NZTC registration requirements and the number of completed qualifications from these courses have both increased since 2002. The data show:

- the number of enrolments in tertiary courses that can lead to teacher registration increased by 57 percent

between 2002 and 2005. The number of completions increased by 51 percent between 2002 and 2005 (see Table 4.1)

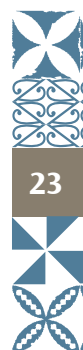
- the growth in enrolments of Māori students (77 percent) since 2002 is greater than that of non-Māori students (54 percent). The growth in enrolments of Pasifika students (78 percent) since 2002 is greater than that of non-Pasifika students (54 percent).

Table 4.1: Enrolments and completions from tertiary early childhood education courses leading to teacher registration (2002 to 2005)

	2002	2003	2004	2005
Enrolments	3,860	4,450	5,100	6,060
Completions	780	910	1,030	1,180

Source: Ministry of Education

1. Data may differ from that published previously owing to changes in methodology.



Teachers in study

In order to meet the goal of all regulated staff in teacher-led early childhood education services being qualified and registered or enrolled in an approved early childhood teacher education programme by 2012, existing

unqualified teachers need to be in study for NZTC-approved qualifications. The data show:

- over 2,800 unqualified teachers (45 percent of all unqualified teachers) were in study in 2006 for qualifications approved by the NZTC (see Table 4.2)

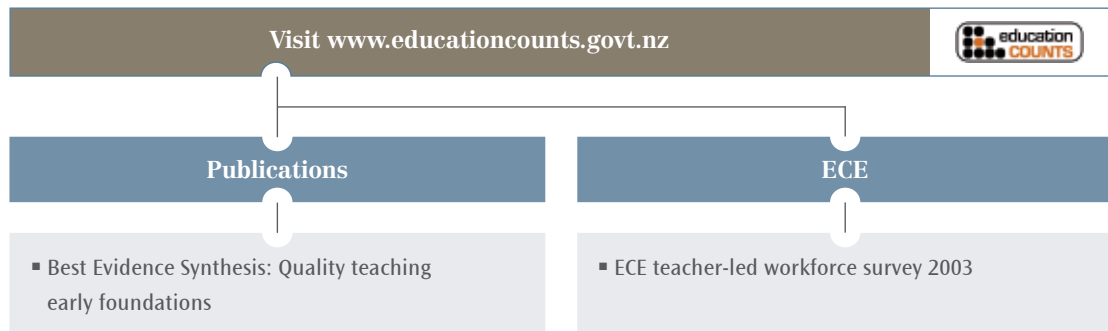
Table 4.2: Number of unqualified early childhood teachers in study for a qualification approved by the NZTC, by service type and expected year of graduation (2006)

	Total Unqualified	Unqualified Enrolled in Approved Study		Expected Year of Graduation		
		%	Total	2006	2007	2008 or later
Kindergartens	79	27.8	22	3	6	13
Home-based	4	75.0	3	1	2	0
Education and Care Services	6,084	45.6	2,777	703	932	1,142
Total	6,167	45.4	2,802	707	940	1,155

Source: Ministry of Education

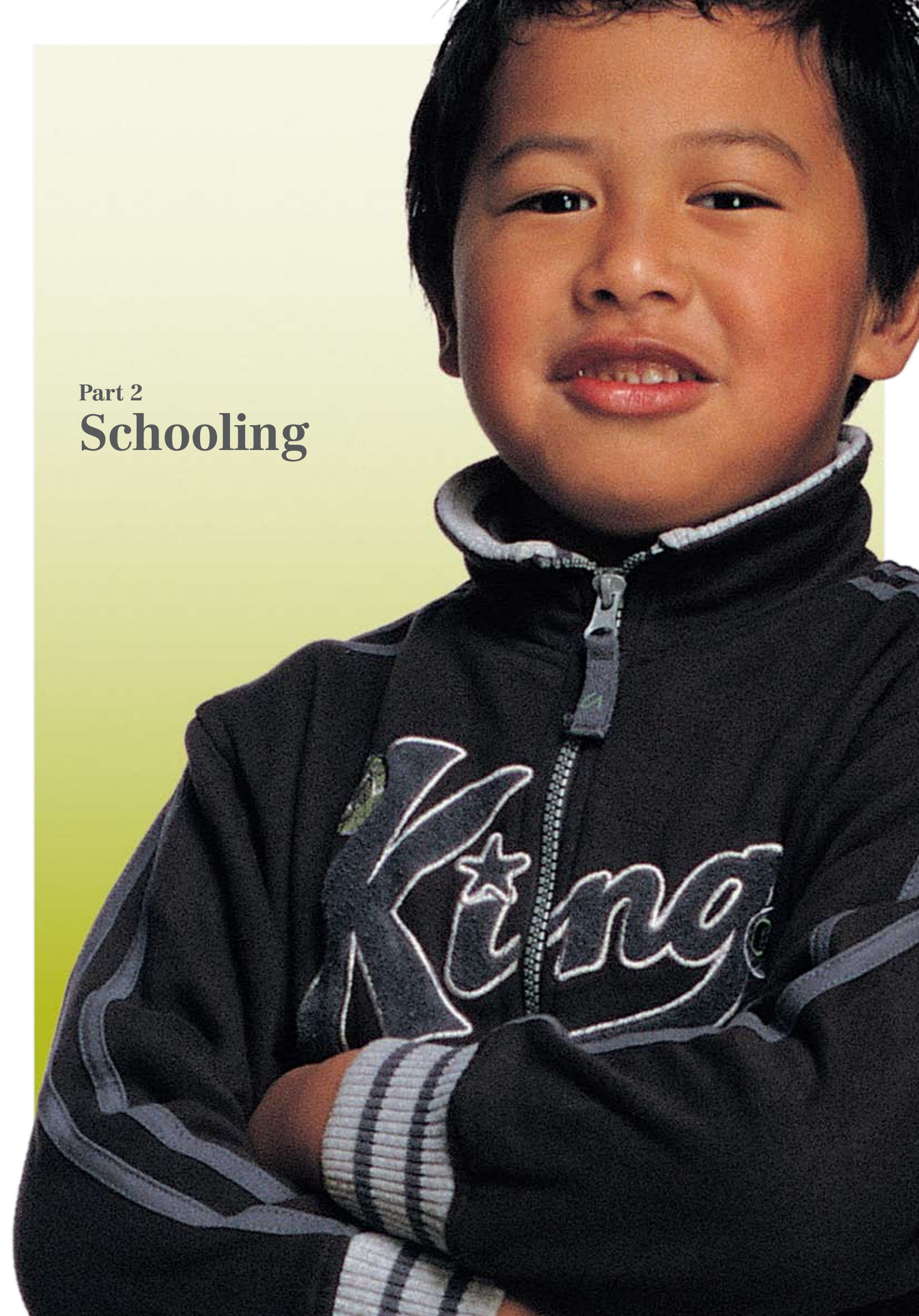
1. Education and care services include casual education and care services.

Where to find out more



Part 2

Schooling



A good level of numeracy and literacy obtained from schooling is vital in the workplace and in everyday life, and for establishing foundations needed for lifelong learning. Students who obtain qualifications at school tend to have more options for tertiary education and for future employment. Those who leave school early and/or without qualifications have a greater risk of unemployment and low incomes.

All students should achieve their potential. This means improving opportunities and outcomes for students currently underachieving, while continuing to improve outcomes for high and average achievers. Current sector-wide activities focus on those factors that make the biggest difference for student learning, namely:

- ensuring teachers use and develop effective teaching practices, maintain high expectations of all students, and judge their success by the academic and social outcomes of their students
- ensuring families have high expectations for the ongoing learning of their children, and receive the information and support to nurture their child's learning.

Areas examined in this chapter are: foundation knowledge (primary), student engagement, teaching education, knowledge (secondary), school leaver qualifications and school leaver transition to tertiary education.

There is a considerable amount of information on international comparisons and on trends in our schooling system, but gaps include:

- international comparison studies are carried out only periodically (typically with gaps of several years) and the information even at the point of release can be quite dated
- system-wide information collected from schools has historically been aggregate and paper-based and has not enabled sophisticated, longitudinal tracking of student performance.



5. Foundation Knowledge

What we have found

The latest available international studies show that New Zealand Year 5 students on average perform significantly above the international mean in reading and science, and around the international mean in mathematics. Between 1994 and 2002 there was a significant improvement in the mean mathematics and science scores of New Zealand Year 5 students.¹⁷

Year 5 girls significantly outperformed boys in reading on average, and tend to score higher than them in science. In mathematics, the mean scores for girls and boys are similar.

European/Pākehā and Asian Year 5 students typically achieve higher scores than their Māori and Pasifika counterparts in reading, mathematics and science. However, there have been reductions in the disparities between ethnic groups for mathematics and science.¹⁸

Why this is important

The primary schooling years, Year 1 to Year 8, build on the beginning concepts gained in early childhood. Successful learning at a young age increases the likelihood of positive engagement in later schooling years and assists students with becoming lifelong learners.

Evidence shows that effective teaching makes a difference to New Zealand's diverse range of learners. Teachers establish supportive learning environments by identifying students' learning needs and make decisions on what to teach and how to teach it. Student learning is also enhanced when it is encouraged and assisted by the school, family, friends and the local community.

How we are going

Reading literacy achievement

In 2005/06, the second cycle of the Progress in International Reading Literacy Study (PIRLS) found New Zealand Year 5 students on average performed significantly higher than the international mean. The data show:

- there was no significant change in New Zealand students' mean score between 2001 and 2005/06
- the performance of many New Zealand Year 5 students was relatively strong compared with their international

counterparts in 2005/06. Approximately 13 percent of New Zealand students achieved scores above 625 (Advanced International Benchmark). This was the ninth highest proportion internationally and nearly double the international median of seven percent (see Figure 5.1)

- eight percent of New Zealand students did not reach the low international benchmark of 400 (compared with the international median six percent) in 2005/06. In comparison to many other higher-achieving countries, the spread in achievement between the weakest performing and the strongest performing New Zealand students (the 5th and 95th percentiles) was high at 290 points (see Figure 5.1)
- as was the case in 2001, there continues to be a relatively large gap between the highest and lowest achieving New Zealand Year 5 students' in 2005/06. This gap is larger than most other higher-performing countries
- in 2005/06, girls generally achieved significantly higher reading literacy scores than boys in all but two of the forty participating countries. The average difference observed between New Zealand Year 5 girls and boys was one of the largest to be observed internationally.

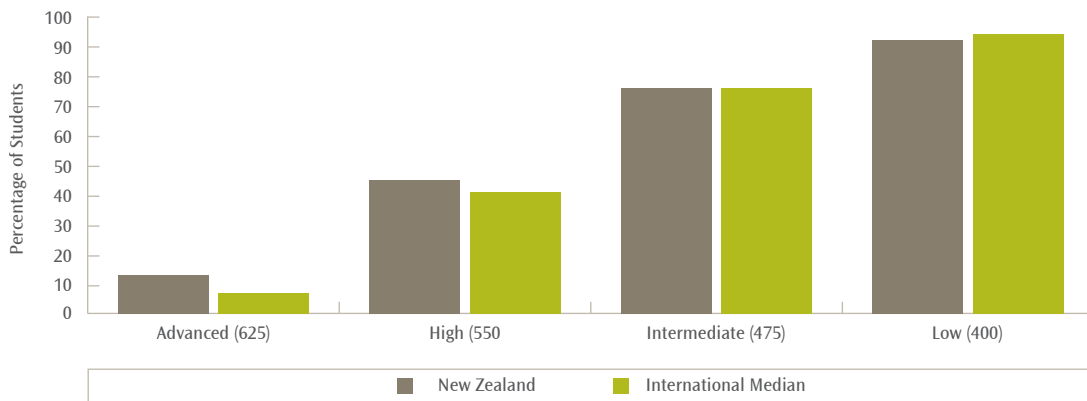
¹⁷ The fourth cycle of TIMSS was administered in New Zealand in late 2006. Mathematics and science achievement data was collected for Year 5 and will be reported on in December 2007. Year 9 students did not take part in this cycle of TIMSS.

¹⁸ Ethnic data for reading literacy will not be available until 2008.





Figure 5.1: Percentage of New Zealand Year 5 students reaching the PIRLS-05/06 international benchmarks



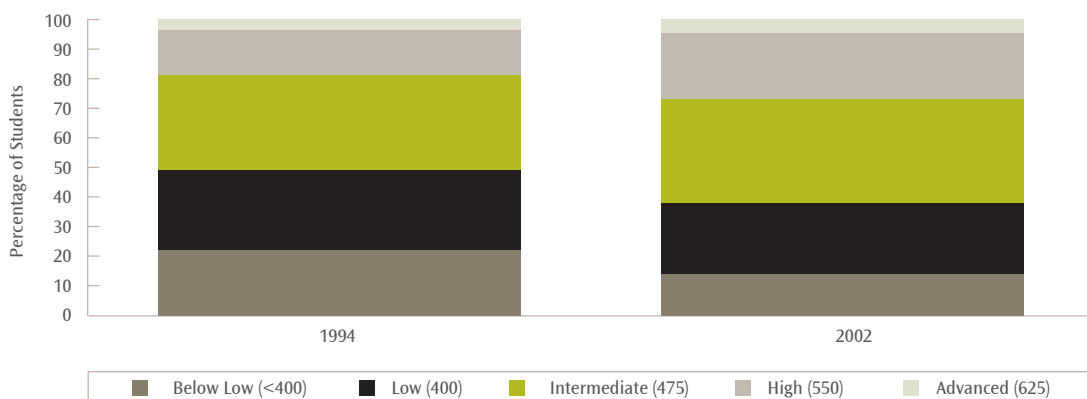
Source: Chamberlain, M (2007)

Mathematics achievement

The Trends in International Mathematics and Science Study (TIMSS) showed that in 2002 New Zealand Year 5 students generally performed around the international mean. Furthermore, there was significant improvement in the mean score of New Zealand Year 5 students between 1994 and 2002. The range of scores between the highest and lowest-performing groups of students reduced between 1994 and 2002; largely owing to the increase in scores of students in the lowest-performing group. The data show:

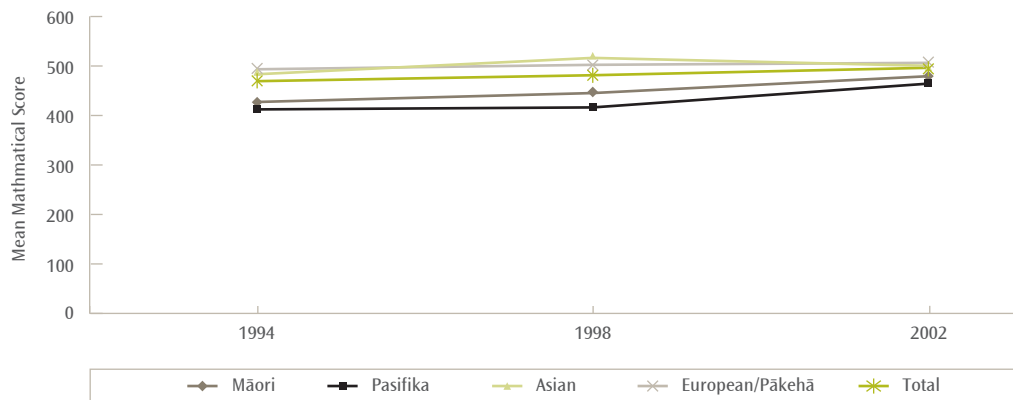
- proportionately more New Zealand Year 5 students achieved at or above the intermediate, high or advanced mathematics benchmarks in TIMSS in 2002 than in 1994 (see Figure 5.2)
- the proportion of New Zealand Year 5 students who did not reach the low mathematics benchmark in TIMSS in 2002 was 8 percentage points less than in 1994 (see Figure 5.2)
- girls and boys generally score similarly in mathematics in New Zealand
- Māori and Pasifika students had the largest increases in mean achievement scores between 1994 and 2002 in TIMSS (see Figure 5.3)
- NEMP also showed a moderate reduction in the disparity between European/Pākehā, and Māori and Pasifika students, between the 2001 and 2005 cycles.

Figure 5.2: Trends in the proportions of New Zealand Year 5 students achieving at or above the international mathematics benchmarks in TIMSS (1994 and 2002)



Source: Ministry of Education (2004a)

Figure 5.3: Mean mathematics achievement for New Zealand Year 5 students in TIMSS, by ethnic group (1994, 1998 and 2002)



Source: Ministry of Education (2004a)

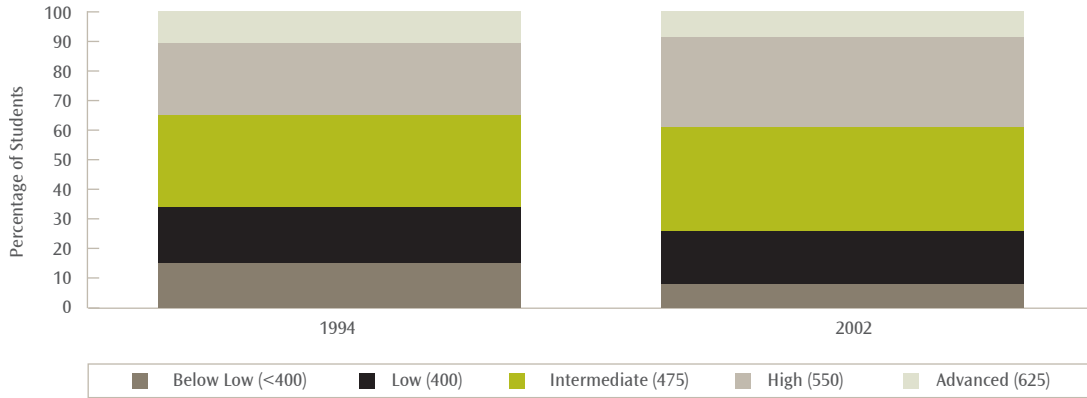
1. Because results are rounded to the nearest whole number, some differences may appear to be inconsistent.
2. The 1998 assessment was a national study only and not part of the international TIMSS-98/99.
3. Since 2002 was the first year in which New Zealand assessed in two languages, for trend purposes, the mean scores shown here are for those of students assessed in English.

Science achievement

Between 1994 and 2002, the average science performance of New Zealand Year 5 students improved significantly as measured by TIMSS. In 2002 the mean performance of Year 5 students was significantly higher than the international mean across 25 participating countries. The distribution of scores has narrowed since 1994, largely due to the increase in scores of students in the lowest performing group. The data show:

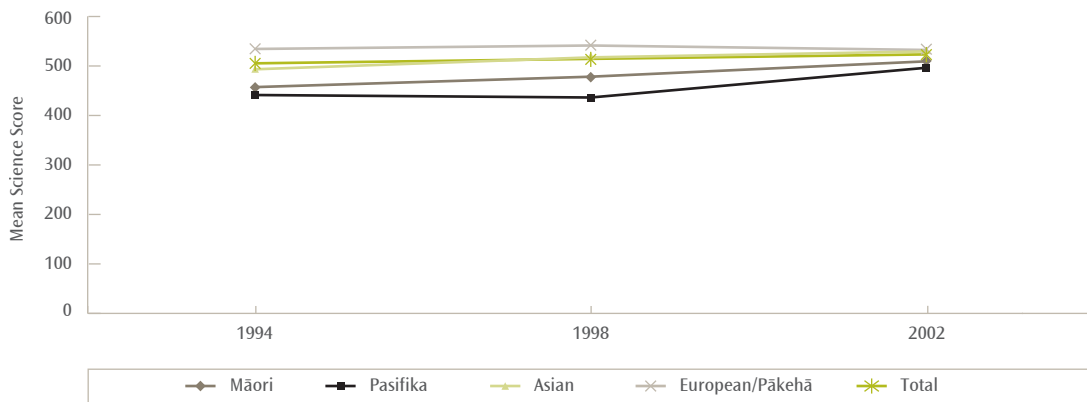
- proportionately more New Zealand Year 5 students achieved at or above the intermediate or high international science benchmarks in 2002 than in 1994 (see Figure 5.4)
- the proportion of students who did not reach the low science benchmark in 2002 nearly halved from 1994 (from 15 percent to 8 percent) (see Figure 5.4)
- girls and boys have both shown significant improvement in their mean science achievement scores in TIMSS over the eight-year period from 1994 to 2002. While girls in 2002 were found to achieve on average slightly higher scores than boys, the average difference was not significant
- there have been significant increases in the mean science scores of Māori, Pasifika and Asian students between 1994 and 2002, reducing the disparity between these groups and European/Pākehā students (see Figure 5.5).

Figure 5.4: Trends in the proportions of Year 5 students achieving at or above the international science benchmarks (1994 and 2002)



Source: Ministry of Education (2004a)

Figure 5.5: Mean science achievement for New Zealand Year 5 students in TIMSS by ethnic group (1994, 1998 and 2002)

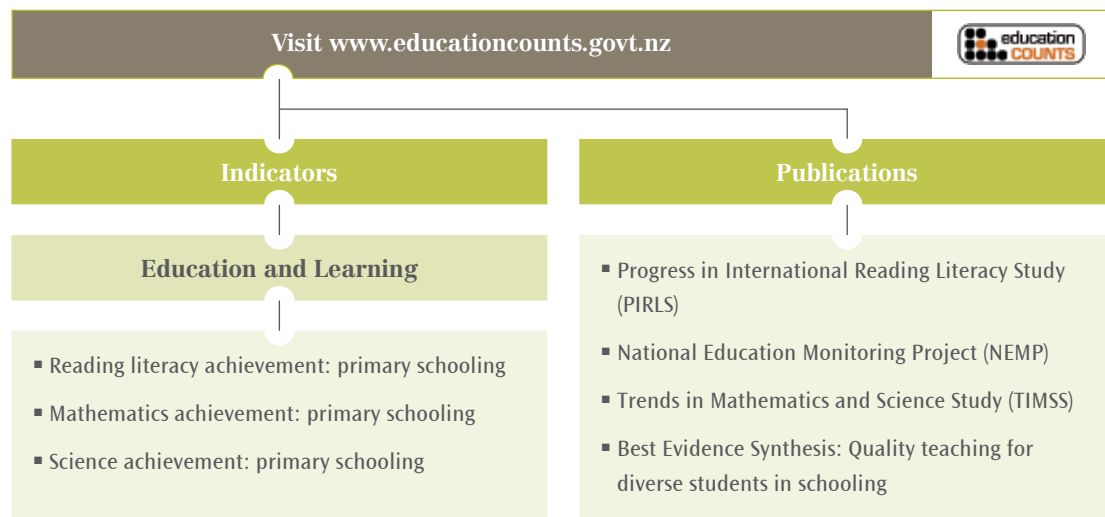


Source: Ministry of Education (2004a)

1. Because results are rounded to the nearest whole number, some differences may appear to be inconsistent.
2. The 1998 assessment was a national study only and not part of the international TIMSS-98/99.
3. Since 2002 was the first year in which New Zealand assessed in two languages, for trend purposes, the mean scores shown here are for those of students assessed in English.



Where to find out more



6. Student Engagement

What we have found

The rates of stand-downs have increased over the last seven years, while the rates of suspensions, exclusions and expulsions have decreased. This implies that schools are minimising the removal of students from school through the more severe interventions by using stand-downs instead allowing a more rapid re-integration into the learning environment.

Male students are 2.5 times more likely to be stood-down or suspended, three times more likely to receive an exclusion and four times more likely to be expelled than female students. There is little variation between the number of male and female 'frequent' truants.

Māori and Pasifika students are four and three times, respectively, more likely to be suspended and excluded, while Pasifika students are seven times more likely to be expelled than European/Pākehā students. The likelihood of a Māori or Pasifika student being a 'frequent' truant is three to five times higher than for Asian and European/Pākehā students.

Students from schools in the lowest two deciles are between two and five times more likely to be stood down, suspended, excluded or expelled as students from schools in the highest two deciles, while also being six times more likely to be a 'frequent' truant.

The Student Engagement Initiative (SEI), which started in 2001 as the Suspension Reduction Initiative, has led to a significant decrease in the suspension rate of Māori students in the original 63 SEI schools. These SEI schools are also recording reductions in the number of suspensions for non-Māori students, indicating that the strategies being put in place are beneficial for all students.

Why this is important

Engagement in education means the extent to which young people participate and become involved in their schooling. It encompasses attendance at school, a sense of belonging, being happy at school, and enjoying the subjects being studied.

Positive student engagement, which is potential 'opportunity to learn', is an essential part of helping students to reach their educational potential, and obtain the prerequisites for higher education and training, or for many entry-level jobs.

Student disengagement leads to higher risks of negative youth behaviours such as drug and alcohol abuse, and violence. It also causes disruptive behaviour that affects others in the schooling community.

There are clear signals when a student is disengaging from school. These include a decline in academic performance, behavioural problems and non-attendance. If the underlying reasons are not identified and tackled, disengagement could lead to stand-downs and suspensions, or in the more serious cases, exclusion or expulsion of the student.



How we are going

Suspensions

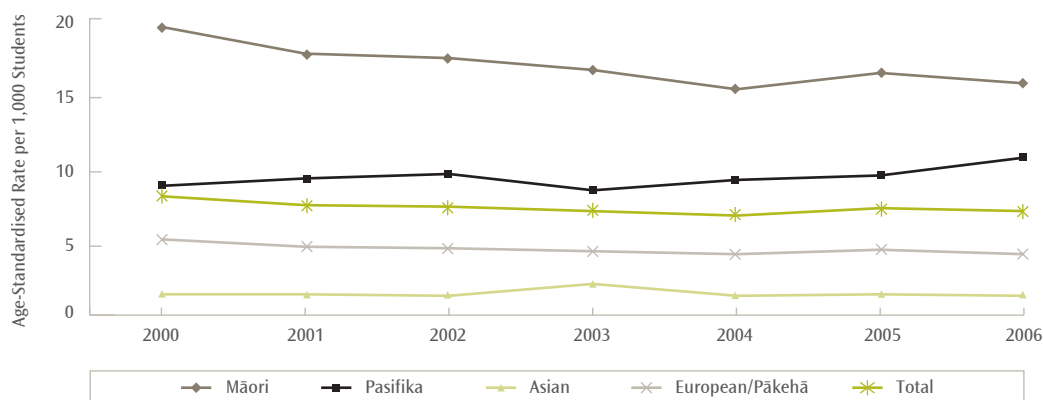
The rate of stand-downs increased by 20 percent between 2000 and 2006. However, over the same period the rate of suspensions decreased by 12 percent. This implies that schools are minimising the removal of students from school through the more severe interventions by using stand-downs instead. Stand-downs allow a more rapid re-integration into the learning environment than suspensions do. In 2006 a student given a stand-down lost an average of 2.5 school days. Conversely, a suspended student lost an average of 19 school days. This trend has been the same since 2000. In 2006, 31 students per 1,000 were given stand-downs, while 7 students per 1,000 were given suspensions. The data show:

- in 2006, the suspension rate was over 2.5 times greater for males (10 students per 1,000) than for females (3.8 students per 1,000)
- in 2006, Māori students (16 students per 1,000) and

European/Pākehā students (4.1 students per 1,000) had the greatest proportionate reductions in suspension rate since 2000, reducing by 20 and 19 percent respectively

- In 2006, Māori students had the highest suspension rate. Asian students had the lowest suspension rate with 1.3 students per 1,000 respectively (see Figure 6.1)
- the Pasifika suspension rate (11 students per 1,000) has increased by 22 percent since 2000; this is the largest increase of all the ethnic groups (see Figure 6.1)
- students from schools that have the highest proportion of students from low socio-economic communities (schools that are decile 1 or 2) had a suspension rate of 12 students per 1,000, and were almost five times more likely to receive a suspension than students from schools that have the lowest proportion of students from low socio-economic communities (schools that are decile 9 or 10), where only 2.4 students per 1,000 received a suspension.

Figure 6.1: Age-standardised suspension rates by ethnic group (2000 to 2006)



Source: Ministry of Education (2007a)

1. New Zealand Agency for International (NZAI) students, foreign fee-paying students, the Correspondence School students, adult students (age > 19) and private students are excluded.

2. A series for students of 'Other' ethnicity is not represented; however, they are included in the total series.





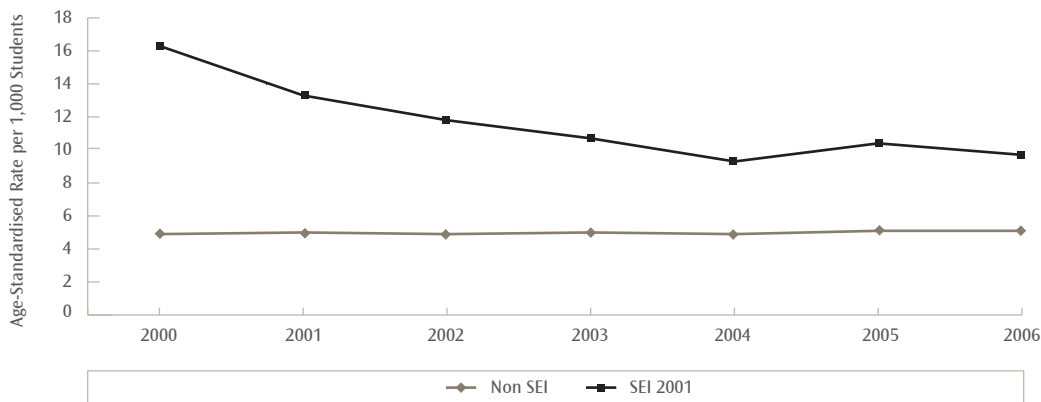
The Student Engagement Initiative (SEI) which was formerly known as the Suspension Reduction Initiative was established in 2001 to reduce the disproportionately high number of Māori suspensions. The 63 secondary schools that joined the programme in the first year were the schools with the highest rates of suspensions, truancy and early leaving exemptions. The data show:

- between 2000 and 2006 the suspension rate for SEI schools who joined in 2001 (9.7 per 1,000 students) decreased by 40 percent, while the suspension rate

for secondary schools that have never joined the SEI programme (5.1 per 1,000 students) increased by five percent (see Figure 6.2)

- the Māori suspension rate for SEI schools who joined in 2001 (17 per 1,000 students) has decreased by 52 percent between 2000 and 2006 compared to a six percent increase in the Māori suspension rate for schools that have never joined the SEI programme (12 per 1,000 students).

Figure 6.2: Age-standardised suspension rates for secondary schools, by Student Engagement Initiative (SEI) status (2000 to 2006)



Source: Ministry of Education

1. New Zealand Agency for International (NZAI) students, foreign fee-paying students, the Correspondence School students, adult students (age > 19) and private students are excluded.

Exclusions and expulsions

In cases where a student is suspended it becomes the decision of the board of trustees as to whether the student is excluded or expelled from the school. Both the rate of exclusions and expulsions have decreased over the last seven years indicating that less severe forms of discipline are being used. The data show:

- from 2000 to 2006 the exclusion rate decreased 10 percent from 2.7 to 2.5 students per 1,000, and the expulsion rate fell 29 percent from 2.5 to 1.9 students per 1,000 (see Figures 6.3 and 6.4)
- male students account for 76 percent of exclusions and 81 percent of expulsions

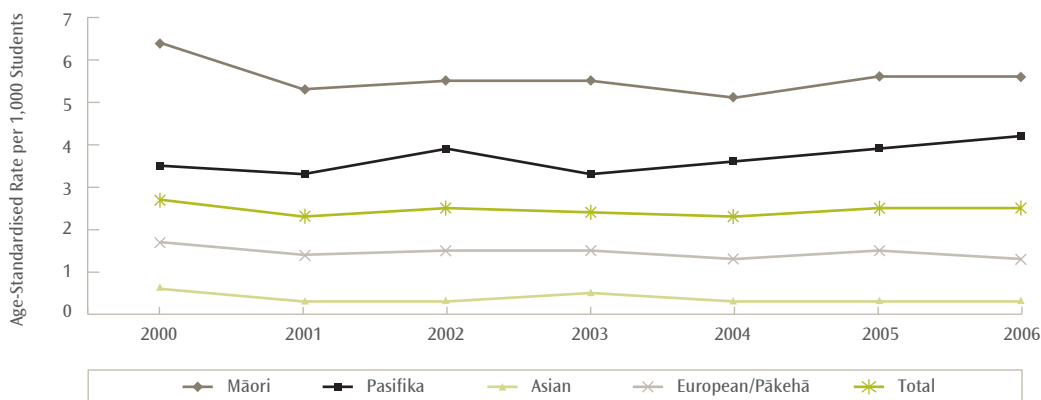
- Māori students had the highest exclusion rate of 5.6 students per 1,000, while European/Pākehā students had an exclusion rate of 1.3 students per 1,000. Both these rates were a decrease from 2000 with the Māori rate decreasing by 13 percent and the European/Pākehā rate decreasing by 23 percent (see Figure 6.3)

- Māori students (2.3 students per 1,000 in 2006) and European/Pākehā students (1.0 students per 1,000 in 2006) had the greatest reductions in expulsion rates since 2000 reducing by 56 and 44 percent respectively (see Figure 6.4)

- Pasifika students had the highest expulsion rate, at 7.0 students per 1,000. Proportionately, the Pasifika exclusion rate (4.2 students per 1,000) and expulsion rate have increased more than the other ethnic group categories since 2000, with increases of 17 percent and 48 percent respectively (see Figures 6.3 and 6.4)
- Asian students had the lowest exclusion and expulsion rates with 0.3 students per 1,000 and 0.8 students per 1,000 respectively (see Figures 6.3 and 6.4)
- students from schools that have the highest proportion of students from low socio-economic

communities (schools that are decile 1 or 2) had an exclusion rate of 4.3 students per 1,000 and an expulsion rate of 2.2 students per 1,000. This compares to an exclusion rate of 0.8 students per 1,000 and an expulsion rate of 1.2 students per 1,000 for schools that have the lowest proportion of students from low socio-economic communities (schools that are decile 9 or 10). This means that in 2006, a student from a decile 1 or 2 school was over five times more likely to receive an exclusion and almost twice as likely to receive an expulsion as a student from a decile 9 or 10 school.

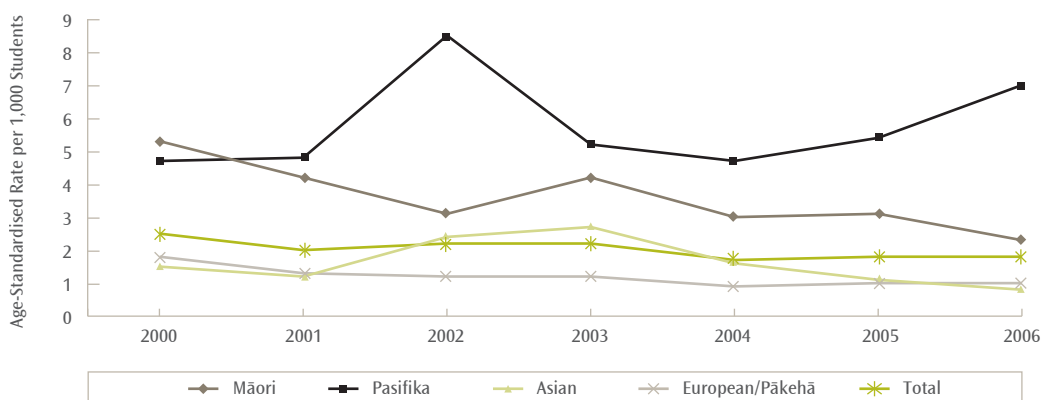
Figure 6.3: Age-standardised exclusion rates by ethnic group (2000 to 2006)



Source: Ministry of Education (2007b)

1. New Zealand Agency for International (NZAI) students, foreign fee-paying students, the Correspondence School students, adult students (age > 19) and private students are excluded.
2. A series for students of 'Other' ethnicity is not represented; they are included in the total series.

Figure 6.4: Age-standardised expulsion rates by ethnic group (2000 to 2006)



Source: Ministry of Education (2007b)

1. New Zealand Agency for International (NZAI) students, foreign fee-paying students, the Correspondence School students, adult students (age > 19) and private students are excluded.
2. A series for students of 'Other' ethnicity is not represented; they are included in the total series.





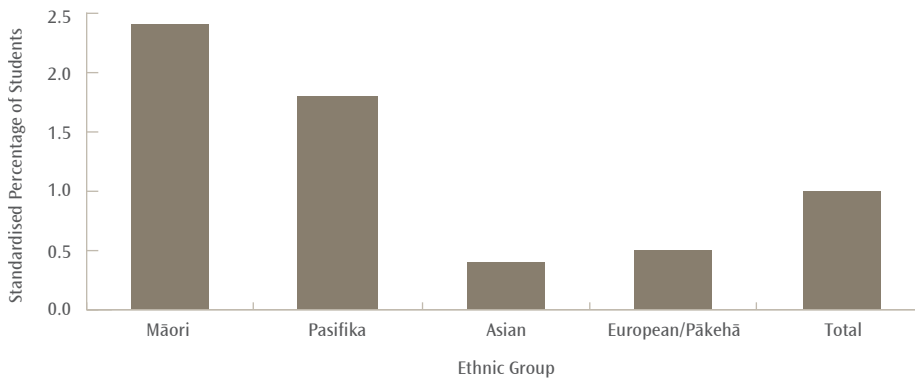
Truancy

An attendance survey is carried out every two years in New Zealand by the Ministry of Education. This survey estimates truancy rates, which are the percentage of students who have absences that cannot be explained or that are not satisfactorily explained. This can range from an intermittent absence for part of the day (includes arriving late at school, skipping classes and tardiness in attending classes) to an unjustified absence for the whole day. Students who are unjustifiably absent for three or more days during the week of the survey are identified as ‘frequent truants’. The data show:

- no considerable differences between the numbers of male and female frequent truants

- Māori students had the highest proportion of ‘frequent’ truants (2.4 percent), 30 percent greater than Pasifika students (1.8 percent) and was almost five and six times greater than the European/Pākehā (0.5 percent) and Asian (0.4 percent) proportions respectively (see Figure 6.5)
- students from schools that have the highest proportion of students from low socio-economic communities (schools that are decile 1 or 2) had a proportion of ‘frequent’ truants of 2.5 percent and were over six times more likely to be ‘frequent’ truants than students from schools that have the lowest proportion of students from low socio-economic communities (schools that are decile 9 or 10), where the proportion of ‘frequent’ truants was only 0.4 percent (see Figure 6.6).

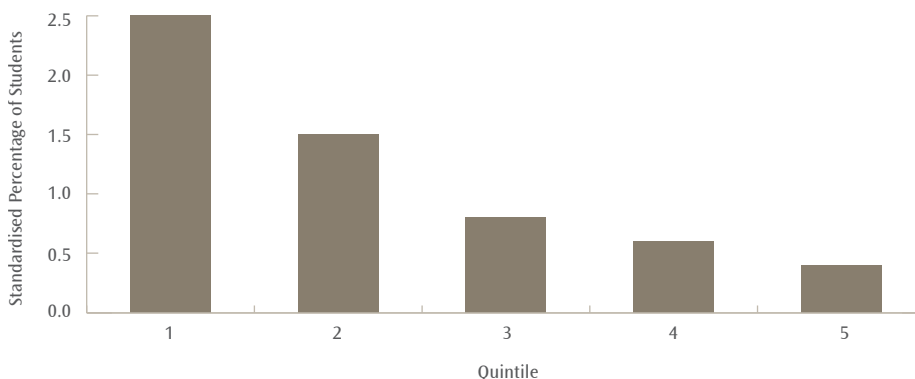
Figure 6.5: Standardised percentage of ‘frequent’ truancy by ethnic group (2006)



Source: Ministry of Education (2006e)

1. Age was not provided in the Attendance Survey data, so truancy percentages have been standardised by Year Level.
2. Total includes the ‘Other’ ethnic group.

Figure 6.6: Standardised percentage of ‘frequent’ truancy by quintile (2006)



Source: Ministry of Education (2006e)

1. Age was not provided in the Attendance Survey data, so truancy percentages have been standardised by Year Level.

Case study:

Golden Bay High school and keeping Year 10s engaged

Year 10 can be a difficult year for some students. It is often when students have the biggest behavioural issues. It can also be a year that students experience a lack of focus.

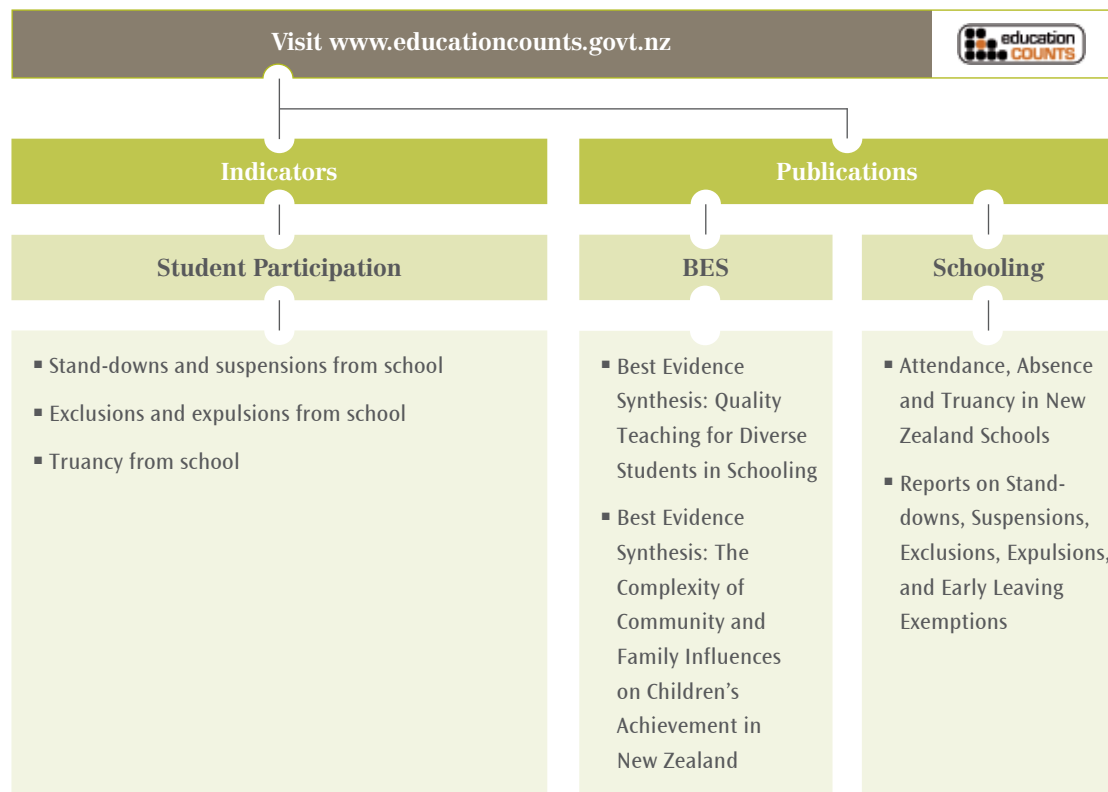
Staff at Golden Bay High School decided to introduce their own diploma programme to minimise the effect that behaviour issues and lack of focus can have on student engagement, particularly at the Year 10 level when students are moving from the junior to senior secondary school. The diploma programme is made up of organisational skills, work and study skills and relationship-building. The programme is integrated into all curriculum areas. All students are expected to reach a benchmark and if a student fails to do so they may be held back at the start of the following year. The

school also rewards the top achievers and biggest improvers in this diploma programme.

Golden Bay High School is also ensuring more constructive parent-teacher communication. Parent-teacher meetings have been transformed into goal setting meetings which also involve the student. These goals are then monitored by the teacher during the year. These parent-teacher meetings are now scheduled soon after mid-year reports go out. Golden Bay High School believes the change of emphasis on parent-teacher meetings has resulted in a parent turnout of at least four times greater than before the changes.

Golden Bay High School believes it is achieving its aims with these new initiatives. Behaviour referrals are down and its truancy rate was 1.3 percent in 2006, compared to the national average for secondary schools of 8.3 percent.

Where to find out more



7. Participation

What we have found

Retention and early leaving exemption rates have not changed considerably since 2000. Between 2000 and 2006 the percentage of students staying at school until age 16.5 decreased slightly by 2.4 percent while the percentage of students staying at school until age 17.5 increased by 0.8 percent. During this time the early leaving exemption rate increased by 2.8 percent.

Māori students are over 2.7 times more likely to be granted an early leaving exemption compared to other ethnic groups. Māori students are also less likely than any other ethnic group to stay at school until the ages of 16.5 and 17.5. Male students are more likely to be granted an early leaving exemption and less likely to stay at school until the ages of 16.5 and 17.5 than female students.

Students from low deciles schools (deciles 1 and 2) are almost five times more likely to be granted an early leaving exemption than students from high decile schools (deciles 9 and 10). Students from low decile schools are also less likely to stay at school until the ages of 16.5 and 17.5 than students from high decile schools.

Why this is important

Staying at school is vital for students to achieve. Students who leave school early, many with little or no formal qualifications, are less likely to participate in further training and/or employment, and are more likely to have lower incomes or be dependent on income support. The positive effect of each additional year of schooling on incomes has been estimated to range from 5 to 10 percent (see Figure 7.1).

Students must be focused and engaged in learning to achieve the necessary qualifications that prepare them for lifelong learning. Students must therefore be encouraged to participate and offered support through the schooling community, parents and family.

How we are going

Early leaving exemptions

Under section 22 of the Education Act 1989, early leaving exemptions may be granted only where the student's educational problems and conduct and an assessment of the likely benefit of the student staying at school make it 'sensible' to provide an exemption. These factors are interdependent, not optional, and all must be met before the Ministry of Education can approve an exemption application. The data show:

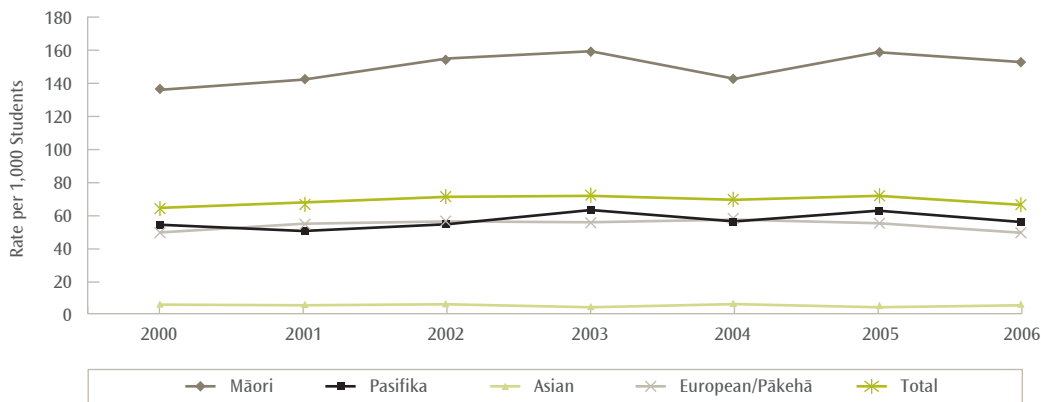
- since 2000 the rate of early leaving exemptions has increased by 2.8 percent from 64 per 1,000 15 year-old students to 66 per 1,000 15 year-old students in 2006¹⁹ (see Figure 7.1)
- males have a higher rate of early leaving exemptions than their female counterparts with rates of 80 and 52 per 1,000 15 year-old students respectively

¹⁹ During 2006 the ministry became concerned about the continuing high rate of early leaving exemptions. In 2007 the ministry has revised its procedures and is working with parents and schools to ensure that the best possible decision is made in the interest of students and their learning. The latest figures show early leaving exemptions have halved in 2007 when compared to 2006.



- Māori students (152 per 1,000 15 year-old students) were 2.7 and 3.1 times more likely to be granted an early leaving exemption in 2006 than Pasifika (56 per 1,000 15 year-old students) and European/Pākehā students (49 per 1,000 15 year-old students) respectively (see Figure 7.1)
 - Asian students had a much lower early leaving exemption rate than any other ethnic group, with 5.1 per 1,000 15 year-old students (see Figure 7.1)
 - students from schools that have the highest proportion of students from low socio-economic communities (schools that are decile 1 or 2) had an early leaving exemption rate of 110 per 1,000 15 year-old students.
- They were almost five times as likely to be granted an early leaving exemption than a student from a school with the lowest proportion of students from low socio-economic communities (schools that are decile 9 or 10), where only 23 per 1,000 15 year-old students were granted an early leaving exemption (see Figure 7.2)
- in 2006, of the students who were granted an early leaving exemption, 76 percent went onto a training provider course, 19 percent went onto full-time employment and the remaining five percent went onto polytechnic and university courses. However, around one-fifth of these early leavers pull out of the training provider courses.

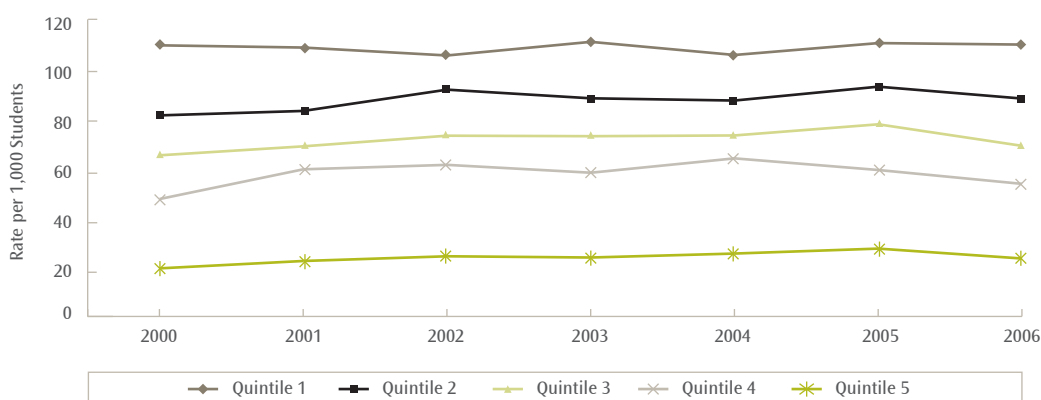
Figure 7.1: Early leaving exemption rates per 1,000 15 year-old students by ethnic group (2000 to 2006)



Source: Ministry of Education (2007c)

1. New Zealand Agency for International Development (NZ Aid) students and foreign fee-paying students are excluded.
2. 'Other' school leavers are not shown as a separate series but are included under Total.

Figure 7.2: Early leaving exemption rates per 1,000 15 year-old students by quintile (2000 to 2006)



Source: Ministry of Education (2007c)

1. New Zealand Agency for International Development (NZ Aid) students and Foreign fee-paying students are excluded.





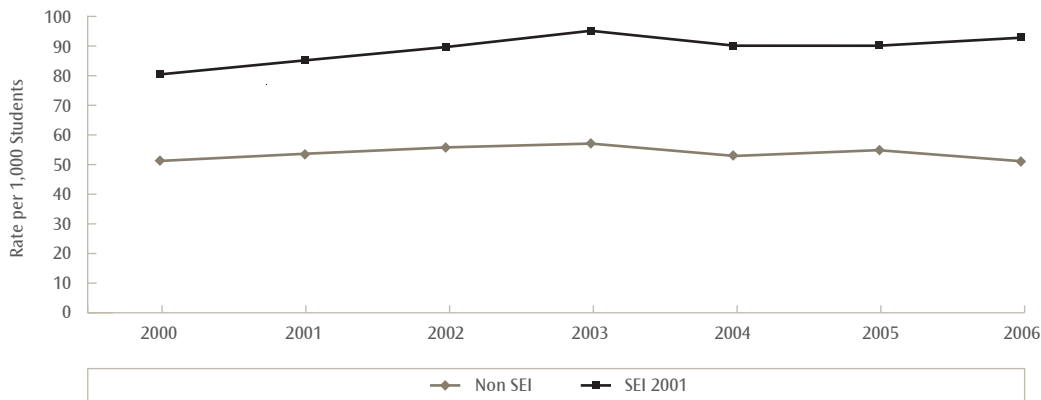
As mentioned in the Student Engagement chapter (chapter 6) the Student Engagement Initiative (formerly known as the Suspension Reduction Initiative) was established in 2001 to reduce the disproportionately high number of Māori suspensions, truancies and early leaving exemptions. The sixty-three secondary schools that joined the programme in the first year were the schools with the highest suspension rates. The data show:

- between 2000 and 2006 the rate of early leaving exemptions for SEI schools who joined in 2001 (93 per

1,000 15 year-old students) increased by 15 percent, while the early leaving exemption rate for schools that have never joined the SEI programme has not changed from 51 per 1,000 15 year-old students (see Figure 7.3)

- the Māori rate of early leaving exemptions for SEI schools who joined in 2001 has increased by 12 percent between 2000 and 2006 compared to an 18 percent increase in the Māori rate of early leaving exemptions for schools that have never joined the SEI programme.

Figure 7.3: Early leaving exemption rates per 1,000 15 year-old students by Student Engagement Initiative (SEI) status (2000 to 2006)



Source: Ministry of Education

Retention at senior secondary school

Trend data indicate that retention rates were highest in the early 1990s before rising again in the late 1990s and decreasing over the next few years. The retention rates at ages 16.5, and 17.5 in 2006 were similar to those in 2000 (see Figures 7.4 and 7.5).

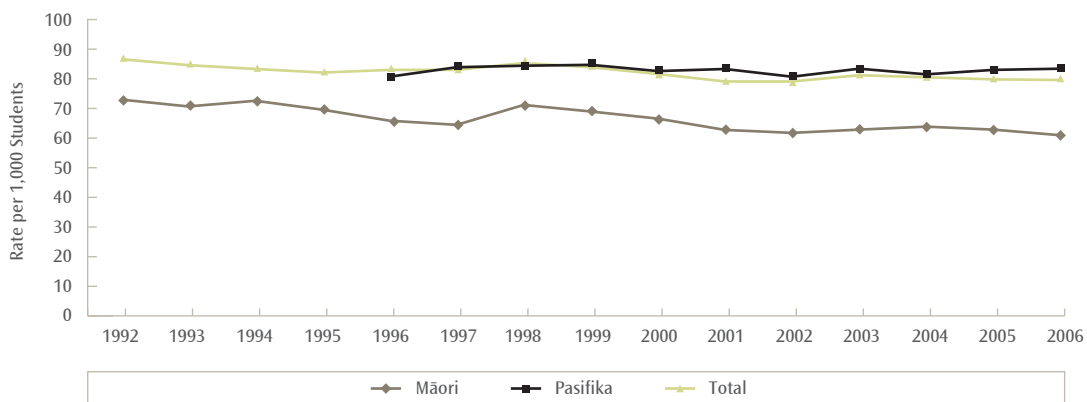
The rise in retention rates in the late 1990s also coincided with an increase in unemployment rates over the same period, particularly for those who had no qualifications. From 1996 to 1998 there was an increase of 34 percent in unemployment rates.

Students who are least likely to stay at school are Māori, male, and attend a low decile school (decile 1 or 2). The data show:

- in 2006, 84 percent and 65 percent of girls stayed at school to ages 16.5 and 17.5 respectively, compared to 77 percent and 56 percent of boys respectively. This means that girls were 8.7 percent and 16 percent more likely to stay at school to ages 16.5 and 17.5 respectively
- Pasifika students were 38 and 73 percent more likely to stay at school to ages 16.5 and 17.5 respectively, than Māori students in 2006 (see Figure 7.4 and 7.5)

- in 2006, schools that have the highest proportion of students from low socio-economic communities (schools that are decile 1 or 2) had 67 percent and 45 percent of their students stay at school to ages 16.5 and 17.5 respectively. This compares to 89 percent and 72 percent of students staying at school to ages 16.5 and 17.5 respectively, for schools that have the lowest proportion of students from low socio-economic communities (schools that are decile 9 or 10). This means that in 2006, students from a decile 9 or 10 school were 34 percent more likely to stay to age 16.5 and 60 percent more likely to stay to age 17.5 than students from a decile 1 or 2 school.

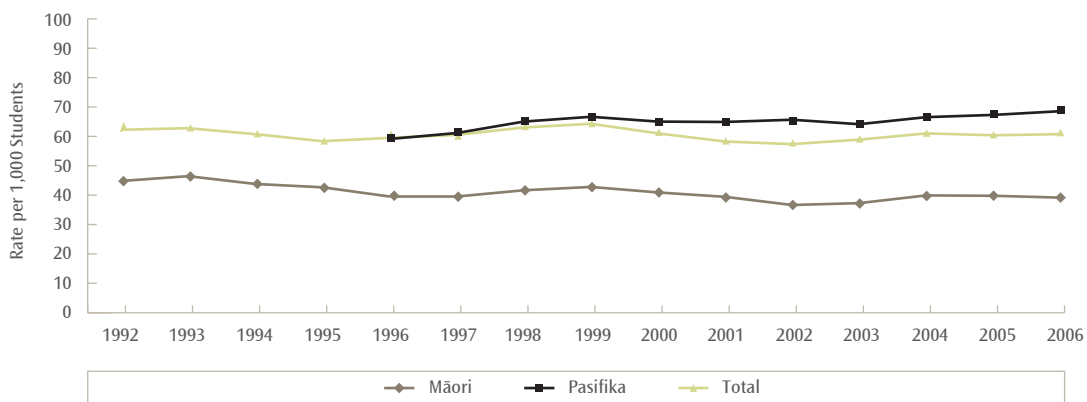
Figure 7.4: Estimated percentage of students staying on at school to age 16.5 by ethnic group (1992 to 2006)



Source: Ministry of Education (2006f)

1. New Zealand Agency for International Development (NZAID) students and foreign fee-paying students are excluded.
2. This graph represents the proportion of 14.5 year-olds, as at 1 July, still enrolled at school two years later.

Figure 7.5: Estimated percentage of students staying on at school to age 17.5 by ethnic group (1992 to 2006)

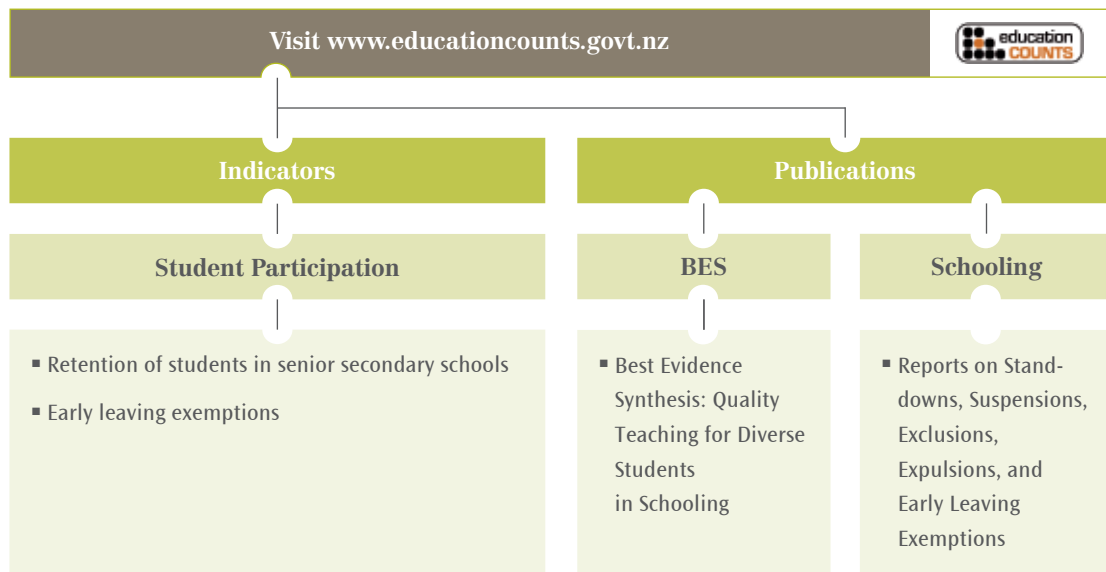


Source: Ministry of Education (2006f)

1. New Zealand Agency for International Development (NZAID) students and foreign fee-paying students are excluded.
2. This graph represents the proportion of 14.5 year olds, as at 1 July, still enrolled at school three years later.



Where to find out more



8. Teacher Education and Entry into Teaching

What we have found

Teacher education graduates are important in meeting the sector's requirement for extra teachers.

Declining roll growth over the past few years in primary schools and a slowing of growth in secondary schools has contributed to a decline in teacher education enrolments.

However, changes in government policy have offset the decline in demand for teachers. The proportion of graduates obtaining work as teachers has remained steady over the past few years, as has the proportion of schools employing beginning teachers.

The proportion of new graduates gaining employment as teachers, and the proportion of schools employing new teachers has remained relatively steady over the past few years.

Why this is important

There are several factors that affect the demand for teachers in schools. Growth in student rolls, teacher resignations and retirements, and changes in government policy (for example, classroom release time and reducing class sizes) all increase the demand for teachers. On the other hand, reductions in student rolls decrease demand. A school's preference or need for more experienced teachers also influences the demand for new teachers. The data show:

- student rolls have been in decline in primary schools since 2003. In secondary schools student rolls peaked in 2007 and are projected to slowly decline over the next 10 years²⁰ before growing strongly again
- teacher loss rates for both sectors have been between 10 and 11 percent for the past few years.²¹

While changes in loss rates and student rolls are relatively gradual, government policy can have a more direct impact on teacher demand. With teacher qualifications taking three to four years with full time study, the supply of teachers from teacher education programmes cannot respond immediately to changes in demand.

How we are going

Teacher education enrolments

Teacher education enrolments for both primary and secondary school sectors had been increasing until a few years ago (see Figure 8.1).²² Primary teacher education enrolments peaked in 2000, while secondary teacher education enrolments peaked in 2003. The absolute numbers of enrolments are much higher for primary education students.

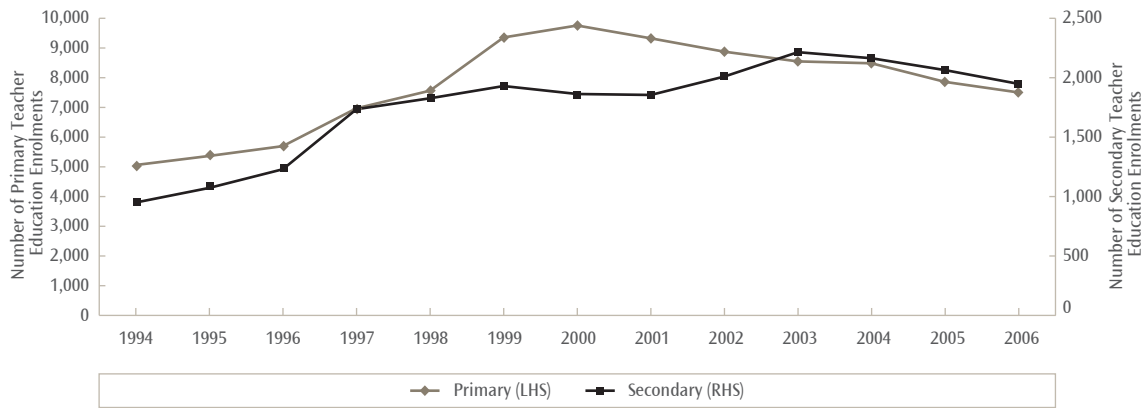
²⁰ Source: *Teacher supply and demand projections*, January 2007 update. Internal report, Ministry of Education.

²¹ Source: *Ibid.*

²² Source: *Ibid.*



Figure 8.1: Teacher education enrolments (1994 to 2006)



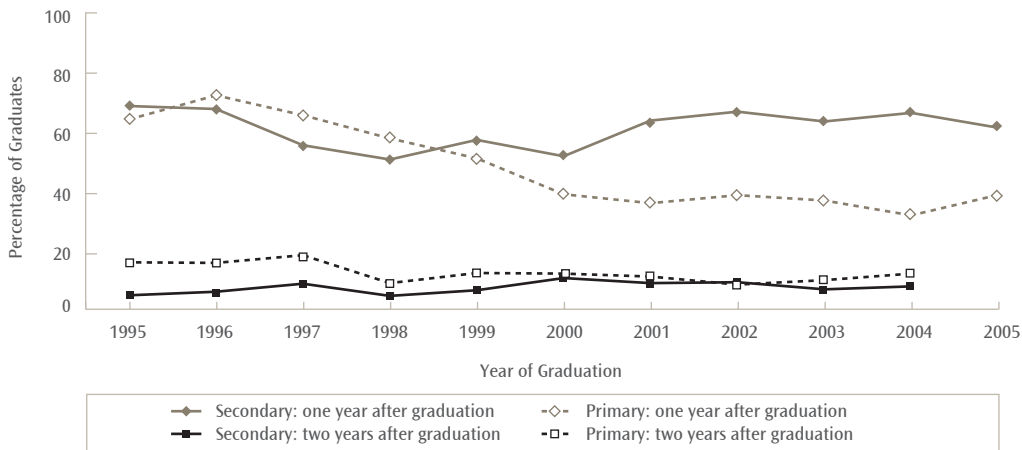
Source: Ministry of Education

New teacher take up rates

Over the past few years, 30 to 40 percent of primary teacher education graduates obtain teaching positions in New Zealand one year after graduation, compared with 60 to 70 percent of secondary teacher education graduates (see Figure 8.2).²³ Over the longer term, this rate has remained relatively steady for secondary teachers, while for primary teachers it represents a sharp decline from 10 years ago.

For new teachers two years after graduation the rates of first time employment in primary and secondary schools are similar, being about 10 percent over the past seven years. For secondary teachers this represents a slight rise over the past 11 years, and for primary teachers a slight fall.

Figure 8.2: Teacher education graduates gaining first time employment as teachers (1995 to 2005)



Source: Ministry of Education

²³ Source: *Teacher supply and demand projections*, January 2007 update. Internal report, Ministry of Education.



9. Knowledge – Secondary Years

What we have found

In 2006 New Zealand 15 year-old students achieved significantly higher mean scores than the international mean for reading, mathematics and science. Of the 30 OECD countries who participated in Programme for International Student Assessment (PISA): two OECD countries achieved a significantly better mean reading literacy score than New Zealand, three OECD countries achieved a significantly better mean mathematical literacy score than New Zealand, and one OECD country achieved a significantly better mean scientific literacy score than New Zealand.

Fifteen year-old girls scored higher than boys in reading, boys scored higher than girls in mathematics, while the scores for science were similar.

European/Pākehā and Asian 15 year-old students achieved higher levels than their Māori and Pasifika counterparts in reading, mathematics and science.

Why this is important

Knowledge gained at secondary level contributes to students' likelihood of successful participation in tertiary education and/or future employment. Achievement at secondary level contributes to a students' well-being and their ability to participate as responsible and informed members of today's knowledge-based society.

Achievement in reading, mathematics and science gives students the knowledge and skills to deal with every-day life and provide a basis for further study. Skills developed during secondary education (including time management, budgeting, problem-solving, and thinking logically and creatively) prepare students for everyday situations such as flatting, studying and working.

How we are going

Reading achievement

The Programme for International Student Assessment (PISA) study looks at the ability of 15 year-olds (predominantly Year 11 students) to apply their learning in these areas to authentic (real life) situations. In 2006, PISA found New Zealand 15 year-old students had a mean reading achievement score significantly above the Organisation for Economic Co-operation and Development (OECD) mean. The data show:

- New Zealand performed highly in 2006 and only two OECD countries (Korea and Finland) achieved a mean

score that was significantly better. Hong Kong-China also achieved a significantly higher mean score

- between 2000 and 2006 there has been no significant change in New Zealand's average 15 year-old student performance
- more New Zealand 15 year-old students achieved at the top proficiency levels in reading: level 4 and above (40 percent) and level 5 (16 percent) than the OECD average, 29 and 9 percent respectively (see Figure 9.1)
- fifteen percent of New Zealand 15 year-old students did not reach beyond the lowest level of reading literacy (level 1), and this was statistically similar to Australia (13 percent), and a statistically smaller proportion than the average across the OECD countries (20 percent)
- fifteen year-old girls achieved a significantly higher mean score than boys. This gender difference is common to all PISA participants
- Māori and Pasifika 15 year-old students achieved significantly lower mean reading literacy scores than European/Pākehā and Asian 15 year-old students. Asian 15 year-old students achieved a significantly lower mean reading literacy score than their European/Pākehā counterparts.



Figure 9.1: Percentage of New Zealand 15 year-old students reaching the PISA reading literacy proficiency levels (2006)



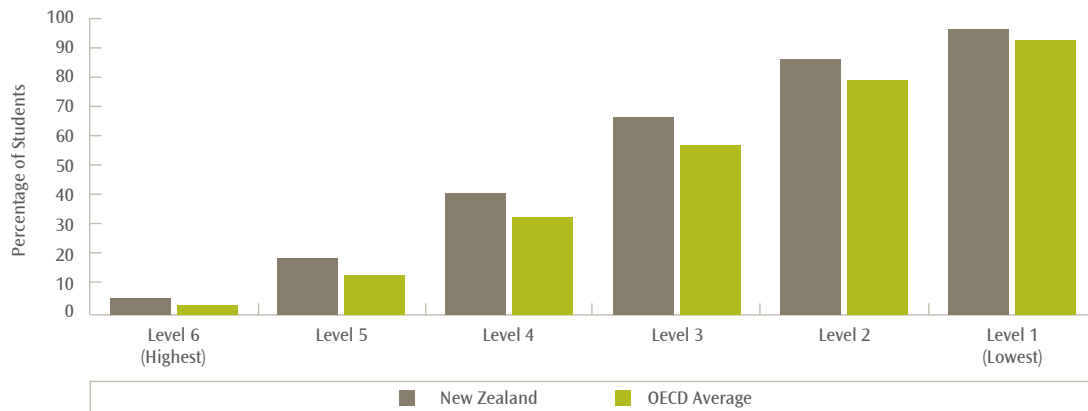
Source: OECD (2007)

Mathematics achievement

In 2006, PISA found New Zealand 15 year-old students had a mean mathematics score significantly above the OECD average. It was also found that there was no significant change in this mean between 2003 and 2006. The data show:

- New Zealand performed highly in 2006 and only three OECD countries (Korea, the Netherlands and Finland) achieved a mean score that was significantly better. Chinese-Taipei and Hong Kong-China also achieved a significantly higher mean
- in 2006, 15 year-old boys scored significantly higher than girls, which is common to the majority of OECD countries
- in 2006, the mean scores for 15 year-old Asian and European/Pākehā students were significantly higher in PISA mathematics than Māori and Pasifika students
- significantly more New Zealand 15 year-old students (19 percent) achieved at the top proficiency levels (level 5 or above) in mathematical literacy than the OECD average (13 percent). Fourteen percent of New Zealand students did not reach beyond the lowest level of mathematical literacy (level 1), and this proportion was statistically similar to Australia (13 percent), and statistically smaller than the average across the OECD countries (21 percent).

Figure 9.2: Percentage of New Zealand 15 year-old students reaching the PISA mathematical literacy proficiency levels (2006)



Source: OECD (2007)

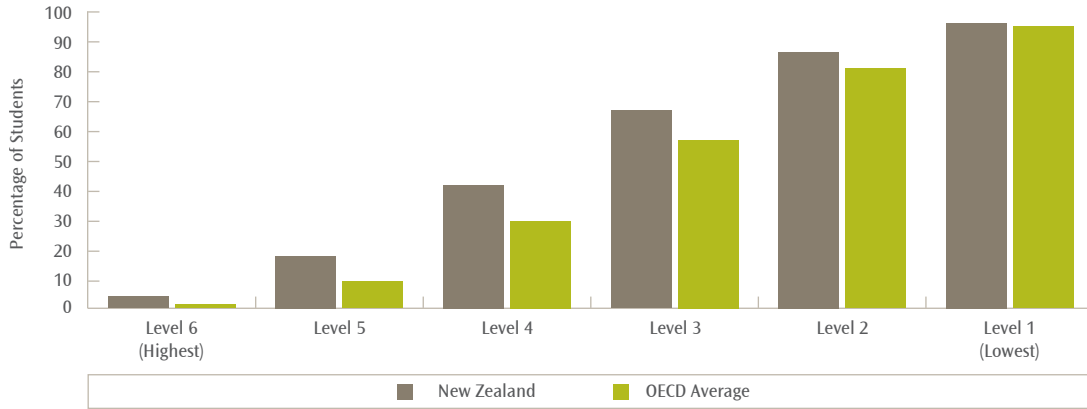
Science achievement

In 2006, PISA found New Zealand 15 year-old students had a mean science score significantly above the OECD average. The data show:

- New Zealand performed highly in 2006 and only one OECD country (Finland) achieved a mean score that was significantly better. Hong Kong-China also achieved a significantly higher mean
- in 2006, there was no significant difference between the mean science scores of 15 year-old boys and girls
- Māori and Pasifika 15 year-old students achieved significantly lower mean science literacy scores than European/Pākehā and Asian 15 year-old students. Asian 15 year-old students achieved a significantly lower mean science literacy score than their European/Pākehā counterparts
- New Zealand and Finland achieved the largest proportion of students achieving the highest proficiency levels in scientific literacy, with 18 percent reaching level 5 or above. Fourteen percent of New Zealand 15 year-old students did not reach beyond the lowest level of scientific literacy (level 1), a proportion which was significantly smaller than the average across the OECD countries
- New Zealand 15 year-old students, like their international peers reported science as being less important than mathematics and English. However, a much higher percentage of New Zealand 15 year-old students reported spending four or more hours a week studying science and agreed that science will be useful to them in the future than the average percentage of their OECD counterparts. They were also as likely to report an intention to pursue science in the future as their OECD peers.

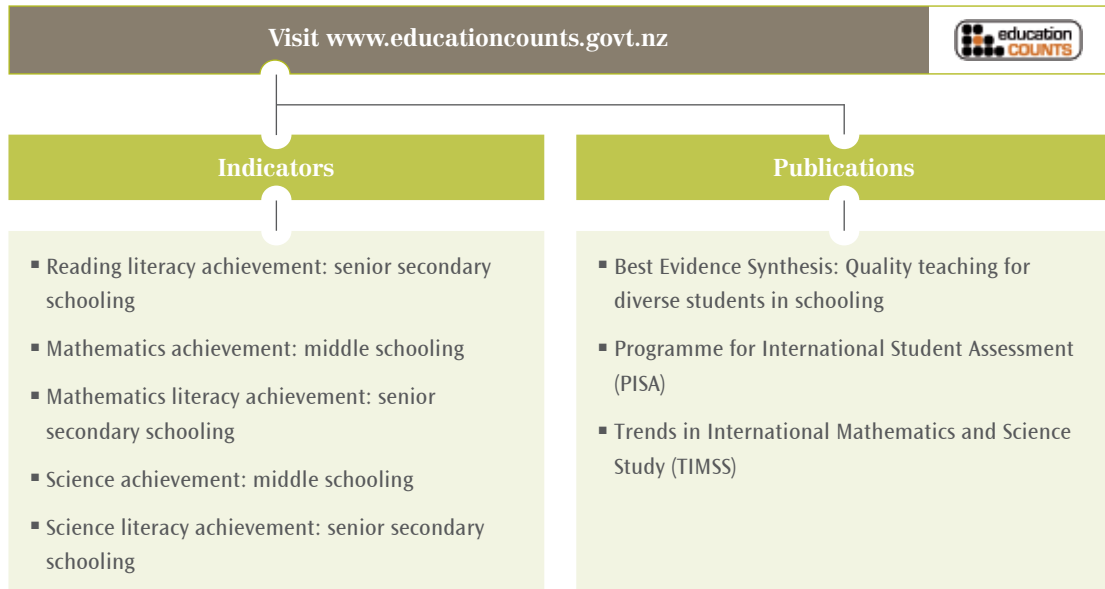


Figure 9.3: Percentage of New Zealand 15 year-old students reaching the PISA scientific literacy proficiency levels (2006)



Source: OECD (2007)

Where to find out more



10. School Leavers – Qualifications

What we have found

In recent years, since the introduction of the National Certificate of Educational Achievement (NCEA), proportionately more students have left school with qualifications than in previous years. NCEA Level 1 was introduced in 2002, Level 2 in 2003 and Level 3 in 2004. Over the last four years there has been a 39 percent decrease in the proportion of students leaving school with little or no formal attainment. In the past three years there has been a 14 percent increase in the proportion of students leaving with NCEA Level 2 or above. In just the last two years there has been a 13 percent increase in the proportion of school leavers attaining a university entrance standard qualification. In all these qualifications, over the same time periods, the gap between Māori achievement and the achievement of all other ethnic groups has closed.

The flexibility of the new qualifications system means that students can take longer to achieve qualifications, and courses can be tailored to meet their needs. In the past, students who may have achieved in some aspects of learning may not have had their achievements formally recognised; now they do.

Why this is important

School leaver data provide a way of measuring the cumulative performance of students. It shows the overall success of schools in ensuring that students are adequately equipped to participate in society, the labour market and further education. A formal school qualification is a measure of the extent to which young adults have completed a basic prerequisite for higher education and training or for many entry-level jobs.

How we are going

The overall picture for 2006 school leavers is positive, with the evidence showing raised levels of achievement. Key indicators suggest that the introduction of NCEA has had a positive impact, with a greater proportion of school leavers attaining a university entrance standard qualification and fewer leaving with little or no formal attainment since its introduction (see Table 10.1).

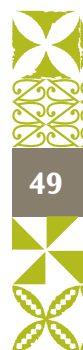


Table 10.1: Highest attainment of school leavers (2006)

Highest Attainment	Percentage of Students					
	Māori	Pasifika	Asian	Other	European/ Pākehā	All School Leavers
UE, Level 3 qualification or higher	14.8	16.8	63.0	40.7	41.3	36.3
Halfway to Level 3 qualification ¹	7.4	13.9	10.0	9.2	7.6	8.3
Level 2 qualification	14.5	18.9	9.1	13.6	16.5	15.6
Halfway to Level 2 qualification ²	10.8	13.5	6.0	11.7	7.4	8.5
Level 1 qualification	8.5	4.7	2.3	3.8	7.0	6.6
Halfway to Level 1 qualification ³	12.6	11.9	2.8	7.3	7.2	8.2
Less than halfway to Level 1 qualification ⁴	9.5	8.1	2.1	4.7	4.2	5.3
Little or no formal attainment ⁵	21.8	12.2	4.5	9.0	8.8	11.1
Total	100	100	100	100	100	100

Source: Ministry of Education (2007d)

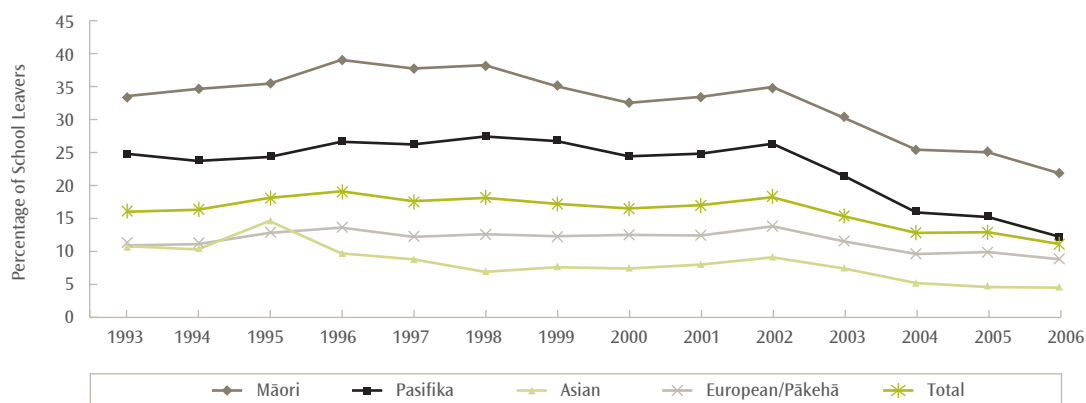
¹ 30+ credits at Level 3 or above² 30+ credits at Level 2 or above³ 40+ credits at Level 1 or above⁴ 14–39 credits at Level 1 or above⁵ 0 credits or 1–13 at Level 1, 2 or 3**School leavers with little or no formal attainment**

In 2006, 11 percent of all school leavers left school with little or no formal attainment.²⁴ Since the introduction of NCEA in 2002, all ethnic groups have seen considerable reductions in the proportion of students leaving with little or no formal attainment (see Figure 10.1).

Some of these school leavers are likely to continue their learning through tertiary education providers in preference to pursuing secondary school qualifications. However, a number will attempt to become part of the workforce. These individuals may experience difficulties both in gaining employment and in sustaining this over the long term. The data show:

- between 2002 and 2006 the proportion of school leavers with little or no formal attainment decreased from 18 percent to 11 percent. This indicates that there has been a 39 percent decrease in the proportion of school leavers with little or no formal attainment between 2005 and 2006 (see Figure 10.1)
- slightly more boys than girls left school in 2006 with little or no formal attainment, with 12 and 10 percent respectively
- approximately one in every five Māori students left school with little or no formal attainment in 2006. This is an improvement from 2002 when approximately one in every three Māori students left school with little or no formal attainment. In 2002 Māori school leavers were 2.5 times more likely to leave school with little or no formal attainment than European/Pākehā school leavers and this gap has not changed in 2006 (see Figure 10.1)
- since 2002, the proportions of Pasifika and Asian students leaving school with little or no formal attainment has halved. In 2006, approximately one in every eight Pasifika school leavers and less than one in every 20 Asian school leavers left school with little or no formal attainment (see Figure 10.1)
- school leavers from schools that have the highest proportion of students from low socio-economic communities (schools that are decile 1 or 2) had 19 percent of their school leavers leave with little or no formal attainment. They were 4.5 times more likely to leave school with little or no formal attainment than a school leaver from a school with the lowest proportion of students from low socio-economic communities (schools that are decile 9 or 10), where only 4.2 percent of school leavers leave with little or no formal attainment.

²⁴ Little or no formal attainment is equivalent of 0 credits or 1–13 credits at Level 1, 2 or 3.

Figure 10.1: Percentage of school leavers with little or no formal attainment by ethnic group (1993 to 2006)

Source: Ministry of Education (2007d)

Notes: 1993-2001: No formal attainment or less than 12 credits at National Certificate.

2002-2004: No formal attainment or 1-13 credits at NCEA level 1.

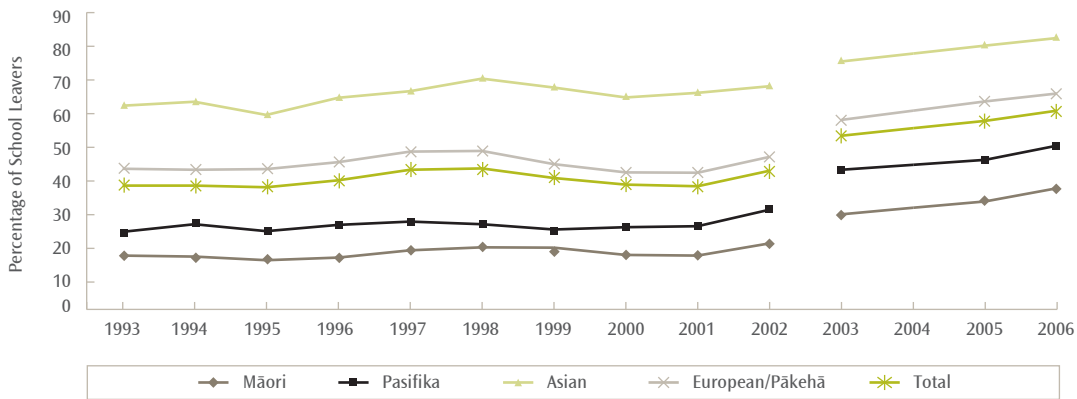
2005-2006: No formal attainment or 1-13 credits at any NCEA level.

School leavers with NCEA level 2 or above

In 2006, 60 percent of school leavers achieved at least an NCEA Level 2 qualification; a 14 percent increase from 2003 (53 percent). Since 2003, all ethnic groups have had an increase in the proportion of school leavers attaining at least an NCEA Level 2 qualification. Māori school leavers have had the largest proportional increase. The data show:

- although the performance gap between girls and boys has narrowed since 2003, in 2006 girls still outperformed boys with 65 percent of girls achieving at least an NCEA Level 2 qualification compared to 56 percent of boys
- in 2006 Asian school leavers were the most likely to leave school with at least an NCEA Level 2 qualification (82 percent), 26 percent more likely than European/Pākehā school leavers (65 percent) (see Figure 10.2)
- between 2003 and 2006 the proportion of Māori school leavers achieving at least an NCEA Level 2 qualification increased by 27 percent, from 29 to 37 percent. During the same period the proportion of European/Pākehā school leavers achieving at least an NCEA Level 2 qualification increased by 14 percent, from 57 to 65 percent. The gap in this achievement level is closing, as proportionally Māori NCEA Level 2 or above achievement has increased almost twice as much as that for European/Pākehā (see Figure 10.2)
- there is a substantial gap between Pasifika (50 percent) and Māori (37 percent) students in attaining at least an NCEA Level 2 qualification. Some of this difference is due to the higher retention rates for Pasifika. Eighty-eight percent of Pasifika school leavers in 2006 stayed in school until at least Year 12 compared with only 75 percent of Māori (see Figure 10.2)
- schools that have the highest proportion of students from low socio-economic communities (schools that are decile 1 or 2) had 41 percent of their school leavers leave with at least an NCEA Level 2 qualification. This compares to 78 percent of school leavers from schools that have the lowest proportion of students from low socio-economic communities (schools that are decile 9 or 10) leaving with at least an NCEA Level 2 qualification. This means that in 2006, if a school leaver was from a decile 9 or 10 school, they were almost twice as likely to leave school with an NCEA Level 2 qualification or above, as a school leaver from a decile 1 or 2 school.

Figure 10.2: Percentage of school leavers with NCEA level 2 or above by ethnic group (1993 to 2006)



Source: Ministry of Education (2007e)

1. Due to methodological changes in the allocation of attainment levels in 2004, for leavers achieving a qualification between little or no formal attainment and UE standard, the percentages of leavers with at least NCEA Level 2 in 2004 is not comparable with other years and has been omitted.
2. A direct comparison can not be made between rates up to and including 2002 with rates for 2003 on, due to the change in qualification structure.

School leavers achieving a university entrance standard

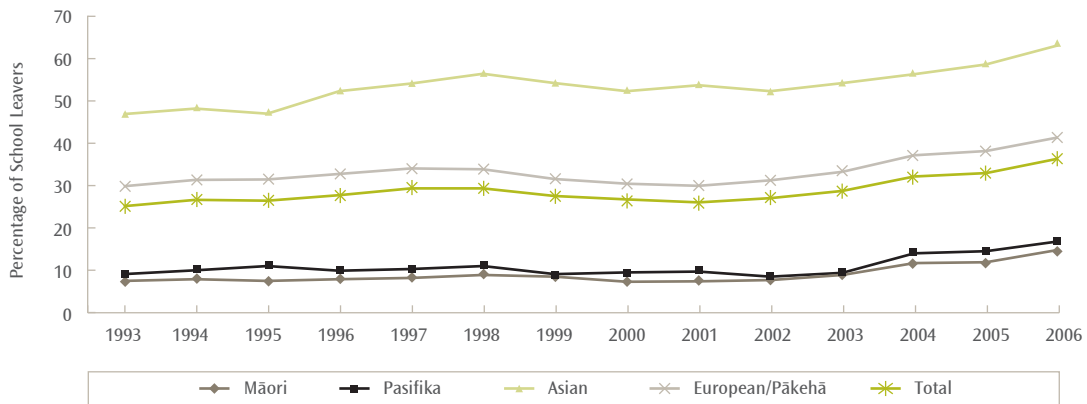
Students achieving a university entrance standard are able to enter directly into degree-level study. In 2006, 36 percent of school leavers achieved a university entrance standard. This is a 13 percent increase on 2004, when 32 percent of school leavers achieved a university entrance standard. The data show:

- in 2006, girls achieved at a much higher rate than boys, with 41 percent achieving a university entrance standard compared to 31 percent of males
- Asian students had the highest proportion of school leavers achieving a university entrance standard in 2006, with 63 percent. This proportion is over 50 percent higher than the proportion of European/Pākehā school leavers who achieved a university entrance standard, which was 41 percent (see Figure 10.3)

- between 2004 and 2006, the proportions of Māori and Pasifika school leavers achieving a university entrance qualification have increased by 27 and 20 percent respectively. However, compared to other ethnic groups, Māori and Pasifika school leavers were less likely to achieve a university entrance standard in 2006, with 15 and 17 percent respectively (see Figure 10.3)
- school leavers from schools that have the lowest proportion of students from low socio-economic communities (schools that are decile 9 or 10) were almost four times more likely to leave school with university entrance qualification as a school leaver from a school that has the highest proportion of students from low socio-economic communities (schools that are decile 1 or 2).

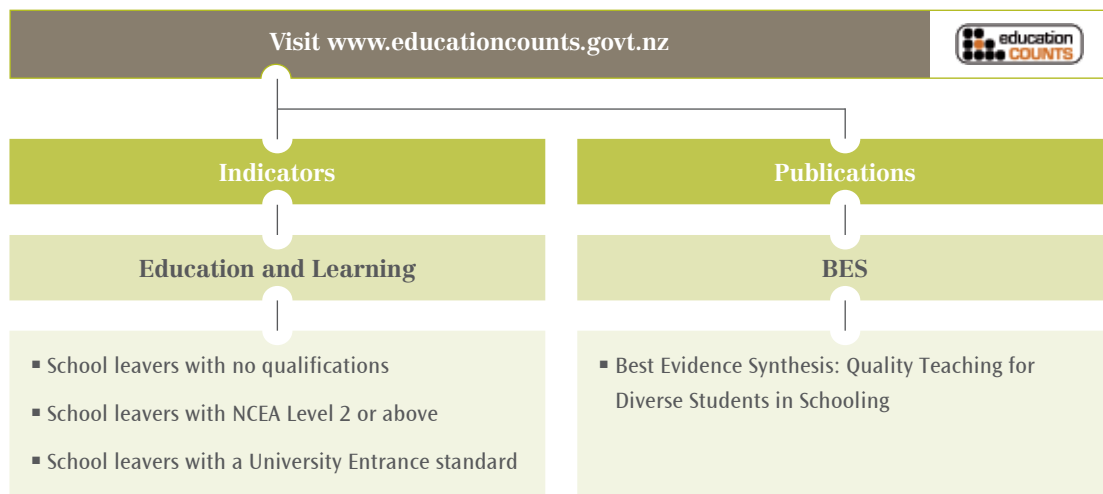


Figure 10.3: Percentage of school leavers with a university entrance qualification by ethnic group (1993 to 2006)



Source: Ministry of Education (2007f)

Where to find out more



11. School Leavers – Transition to Tertiary

What we have found

The proportion of school leavers who make a direct transition into tertiary education has been increasing steadily since 1998.

The proportion of Māori and Pasifika school leavers directly transitioning into tertiary education has increased considerably since 1998 and are now similar to European/Pākehā, although well short of Asian rates.

Māori and Pasifika school leavers are more likely to directly transition to certificate level study, while Asian and European/Pākehā students have considerably high proportions directly transitioning to degree-level study. However, of school leavers who obtained a university entrance standard, larger proportions of Māori or Pasifika students transitioned directly into degree level study compared to their European/Pākehā counter parts.

Why this is important

To contribute in today's society, individuals must be skilled and knowledgeable. Tertiary education provides a means to develop these skills and individuals can participate at any age, from leaving school through to adulthood.

Tertiary education offers a range of courses to suit the background of each learner, from low level certificate courses through to undergraduate degrees and advanced research-based postgraduate degrees.

Qualifications are the desired outcome of tertiary education; those individuals gaining them have greater labour force participation, and, on average, earn higher

incomes.²⁴ The benefits for students enrolling directly from school are even greater. School leavers are more likely to complete their studies and more likely to progress on to higher levels of study.

To receive these benefits, clear pathways to assist young people to make the direct transition from school to tertiary level study must be developed and maintained. Encouraging students to stay at school and the use of effective teaching through providing appropriate, timely and useful careers guidance and advice about different learning programmes and pathways better prepares students for tertiary education.



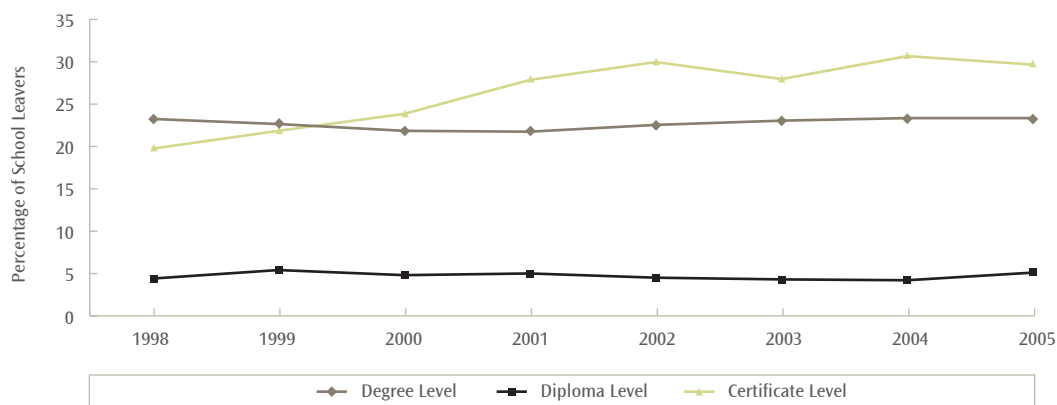
²⁴ Loader & Dalgety. (2006).

How we are going

A student is regarded as making a direct transition to tertiary education when they start tertiary study by the end of the calendar year following the year they leave school. The number of students making a direct transition to tertiary education has been increasing since the late 1990s. Between 1998 and 2005 the number of students directly transitioning has increased by 36 percent. The data show:

- over half (58 percent) of all school leavers from 2005 transitioned directly into tertiary education, an increase of 23 percent from 1998. The increase is largely due to school leavers enrolling in lower level certificate courses
- thirty percent of school leavers from 2005 enrolled in certificate-level courses, 5.1 percent enrolled in diploma-level courses, and 23 percent enrolled in degree-level courses (see Figure 11.1).

Figure 11.1: Percentage of school leavers making a direct transition to tertiary education by award level and year left school (1998 to 2005)



Source: Ministry of Education (2007g)

1. Excludes New Zealand Agency for International Development (NZ Aid) and foreign fee paying students.

School leavers who make a direct transition to tertiary education are most likely to be female, Asian and from a decile 9 or 10 school. The data show:

- just under 75 percent of Asian school leavers from 2005 made a direct transition into tertiary study compared to 56 percent of European/Pākehā school leavers; an increase of over 12 percent between 1998 and 2005 for both of these ethnic groups (see Figure 11.2)
- between 1998 and 2005, the numbers of Māori school leavers (51 percent of all school leavers) and Pasifika school leavers (55 percent) directly transitioning into tertiary education increased by 65 percent and 59 percent respectively (see Figure 11.2)
- in 2005 Pasifika school leavers had the highest proportion of students enrolling in certificate-level study (40 percent), while Māori school leavers had the second highest proportion of students enrolling in certificate-level study (38 percent). In contrast 18 percent of Asian school leavers enrolled in certificate-level study
- approximately one in every ten Māori school leavers and Pasifika school leavers in 2005 enrolled in degree-level study. In contrast, one in every four European/Pākehā school leavers and half of Asian school leavers in 2005 enrolled in degree-level study

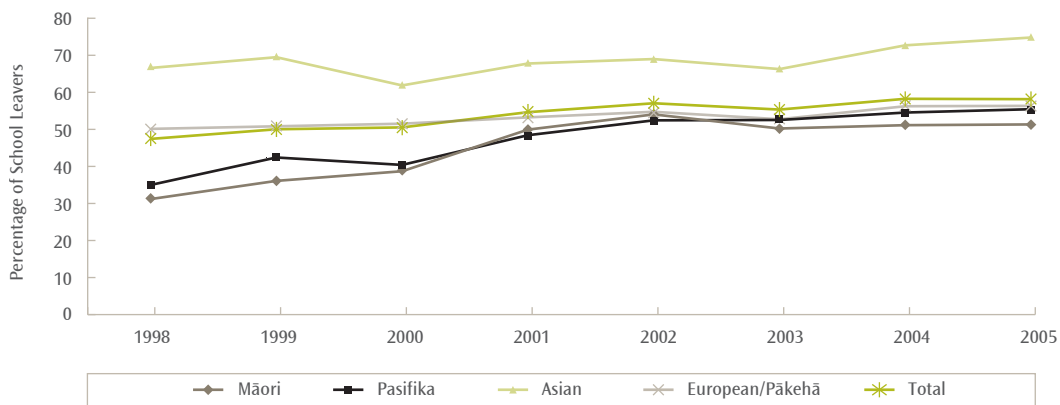




- of the 2005 school leavers who obtained a university entrance standard, 70 percent of Māori, 66 percent of Pasifika, 71 percent of Asian and 59 percent of European/Pākehā students enrolled in degree-level study
- schools that have the highest proportion of students from low socio-economic communities (schools that are decile 1 or 2) had 50 percent of 2005 school leavers directly transitioning into tertiary education. This

compares to 69 percent of 2005 school leavers directly transitioning into tertiary education for schools that have the lowest proportion of students from low socio-economic communities (schools that are decile 9 or 10). This means that a 2005 school leaver from a decile 9 or 10 school was 38 percent more likely to make a direct transition into tertiary education than a 2005 school leaver from a decile 1 or 2 school.

Figure 11.2: Percentage of school leavers making a direct transition to tertiary education by ethnic group and year left school (1998 to 2005)



Source: Ministry of Education (2007g)

1. Excludes New Zealand Agency for International Development (NZ Aid) and foreign fee paying students.
2. 'Other' school leavers are not shown as a separate series but are included under Total.

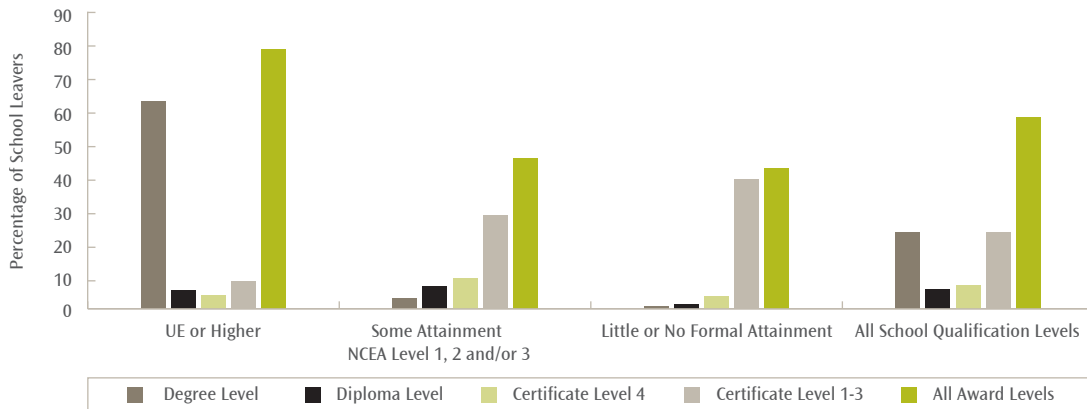
School leavers can be placed into three groups relative to their highest attainment, those with: university entrance (or equivalent), some attainment at NCEA Level 1, 2 and/or 3, and little or no formal attainment. Since 2000 the number of students leaving with university entrance has increased, while the number with little or no formal attainment has decreased. The data show:

- seventy-nine percent of 2005 school leavers who obtained a university entrance standard enrolled for tertiary education, compared to just 46 percent of 2005 school leavers with some attainment at NCEA Level 1, 2 and/or 3, and 43 percent for 2005 school leavers with little or no formal attainment respectively (see Figure 11.3)

- of the 2005 school leavers who obtained a university entrance standard and directly transitioned into tertiary education, 80 percent enrolled in degree-level study, 14 percent enrolled in certificate-level study, and six percent enrolled in diploma-level study²⁶ (see Figure 11.3)
- of the 2005 school leavers with some attainment at NCEA Level 1, 2 and/or 3 who directly transitioned into tertiary education, 81 percent enrolled in certificate-level study, 13 percent enrolled in diploma-level study, and six percent enrolled in degree-level study. Of the 2005 school leavers with little or no formal attainment who directly transitioned into tertiary education, 98.4 percent enrolled in certificate-level study, 1.4 percent enrolled in diploma-level study, and 0.2 percent enrolled in degree-level study (see Figure 11.3).

²⁶ Previously, the measure of a students' attainment was taken from their first enrolment form at tertiary. However, the ministry is now able to match individual student enrolments with their attainment history on the NQF while at school, providing a more reliable assessment of a student's attainment at school. As a result, previous figures have underestimated the number of school leavers attaining a university entrance standard transitioning directly to tertiary students and have overestimated the number of school leavers with little or no formal attainment transitioning directly to tertiary study.

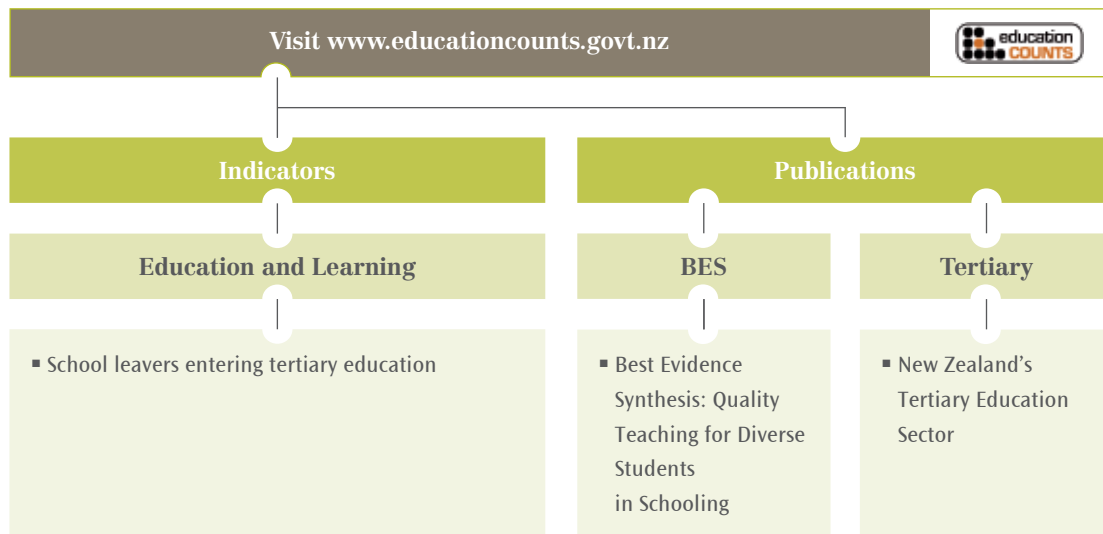
Figure 11.3: Percentage of school leavers making a direct transition to tertiary education by tertiary award level and highest school qualification (2005)



Source: Ministry of Education (2007g)

1. Excludes New Zealand Agency for International Development (NZ Aid) and foreign fee paying students.

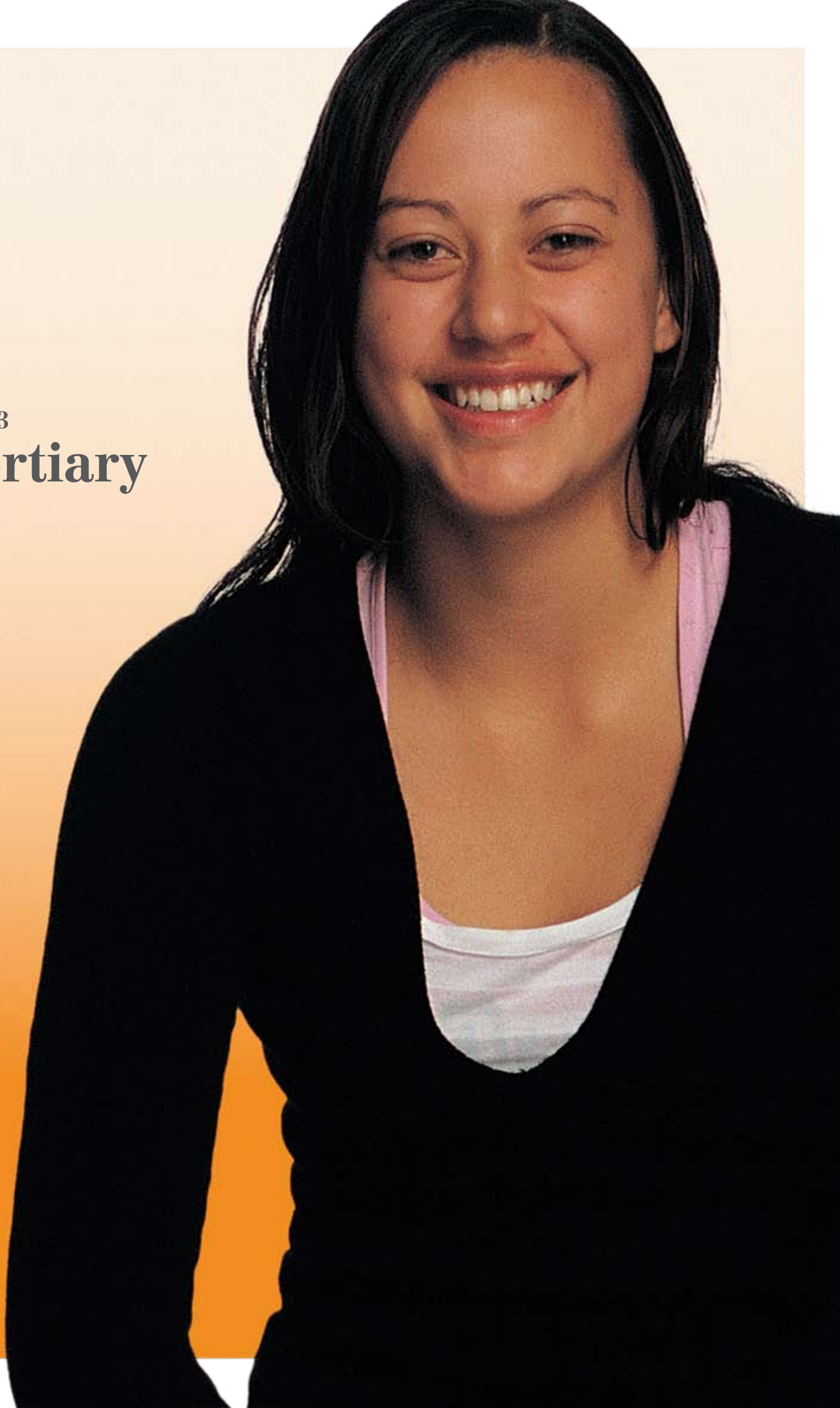
Where to find out more





Part 3

Tertiary



Participation in tertiary education opens up career opportunities and enables people to gain the skills required for the knowledge-based society. It is also associated with a range of other positive outcomes, including better income and standards of living, and improved health.

Tertiary education is very broad. It ranges from foundation education and training, which bridges people into further education and training or work, through to world-class doctoral studies. It also includes learning that happens at work through studies at universities and research institutes.

Tertiary education must be accessible, of excellent quality and relevant for all who participate.

Areas examined in this chapter are: participation, achievement, international education and research quality.

There is an increasing amount of information on international comparisons and on trends in tertiary education, but there are still some gaps including information on the quality of teaching.



12. Participation

What we have found

After substantial increases in the number and proportion of people enrolled in formal tertiary education over the last decade, there was a decrease in 2006. Much of the decrease has been from a drop in international students, and enrolments falling at lower qualification levels in response to the government's moves to strengthen the quality and relevance of tertiary education. Between 2000 and 2006, the number of students enrolled in formal tertiary education increased by 42 percent, from 315,000 to 448,000.²⁷ The main increase over this period was in enrolments at certificate level.

Māori participate in formal tertiary education at a higher rate than other ethnic groups, primarily because Māori have substantially higher participation rates at non-degree levels.

New Zealand's lifelong approach to tertiary learning, relatively open access to enrolment and easy access to student loans have tended to increase the number of students focusing on part-time course-based study and those trying to combine work with study. Learning in the workplace has experienced a substantial increase in numbers. The number of industry trainees (including Modern Apprenticeships) increased by 84 percent between 2001 and 2006.

Why this is important

Participation in tertiary education is an important indicator in that it measures how well the population is accessing learning opportunities after compulsory schooling. Success in tertiary education provides benefits to the individual and to society, not only in terms of increased employment opportunities and income, but also in terms of wellbeing and social capital.

Being part of a knowledge society and economy includes the continued participation of people in learning and education over their lifetimes. With rapid changes in society, the economy and technology, skills can quickly become outdated. It is important that people continue to access education after they have completed their initial education.

How we are going

Tertiary participation rates

Participation rates show what proportion of the population, or sub-group of the population, is participating in tertiary education. After substantial increases in the number and proportion of people enrolled in formal tertiary education over the last decade, there was a decrease in 2006, largely as a result of reductions in certificate-level tertiary education. In 2006, 448,000 students were enrolled in tertiary education. The data show:

- over 13.7 percent of the population aged 15 and over participated in some form of formal tertiary education during 2006. This is an increase of 2.4 percentage points from 11.3 percent in 2001, but down from a peak of 14.1 percent in 2005

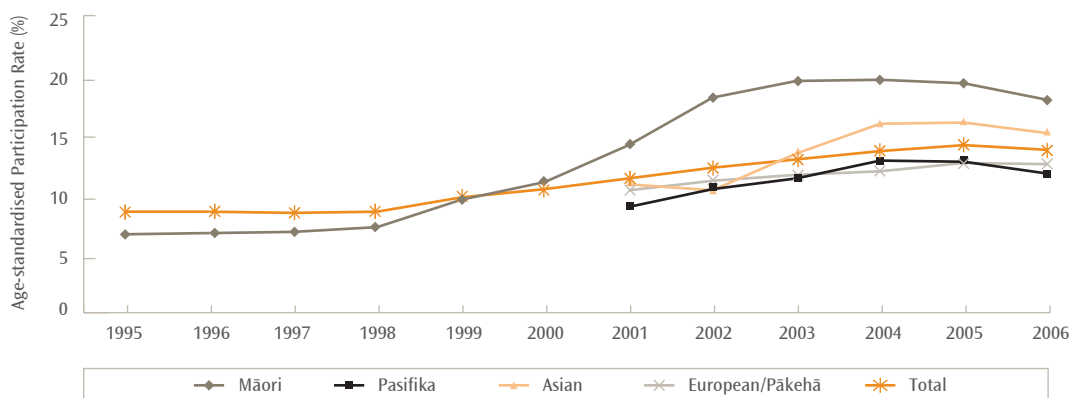
²⁷ This figure may differ from other ministry publications due to the exclusion of international students.





- the main increase in participation over the last six years has been at the certificate level. From 2001 to 2006, the number of students enrolling in certificates increased by 68 percent from 159,000 to 266,000. The participation rate in certificates fell from 8.3 percent in 2005 to 7.8 percent in 2006. However, the 2006 figure still represented an increase from 5.1 percent of the population aged 15 and over in 2001
- participation in bachelors degrees has fallen slightly since 2003 as a result of the decreasing numbers of people aged 25 years and over. The participation rate in bachelors degrees for people aged under 25 years has remained relatively unchanged over the last five years
- since 1999, participation in tertiary education by Māori has grown at more than twice the rate of non-Māori, resulting in more than 18 percent of Māori aged 15 years and over participating in some form of tertiary education in 2006 (see Figure 12.1)
- although Māori have substantially higher participation rates at sub-degree level, Asian and European/Pākehā participation rates are highest at the degree level and above
- the participation rate in tertiary education by females is 2.3 percentage points higher than that for males, but the gap has closed over the last two years.

Figure 12.1: Age-standardised participation rates in tertiary education of the population aged 15 years and over by ethnic group (1995 to 2006)



Source: Ministry of Education (2007h)

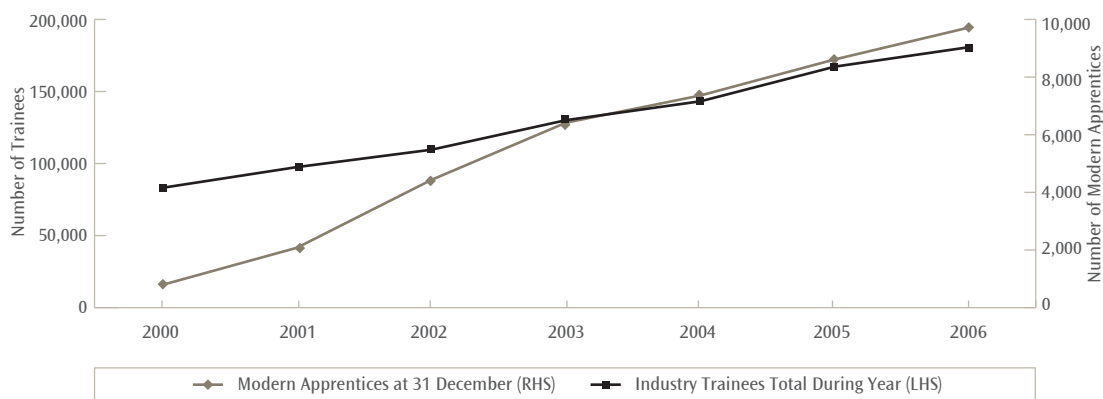
1. Participation rates are not available for the Other ethnic group.
2. Separate participation rates are not available for Pasifika, Asian and European/Pākehā ethnic groups prior to 2001.
3. Total includes students whose ethnic group was unknown.

Participation in industry training

The substantial increase in learners in industry training is one of the most notable features of the tertiary education system in recent years. The data show:

- the number of industry trainees (including Modern Apprenticeships) increased by over 80 percent between 2001 and 2006 (see Figure 12.2)
- the 176,000 industry trainees in 2006 now account for over a quarter of all people in formal tertiary education
- the 9,470 apprentices as at 31 December 2006 represent an increase of 13 percent over the previous year
- in 2006, 8.4 percent of all employed people in the labour force were undertaking workplace learning through industry training, up from 5.2 percent in 2001.

Figure 12.2: Number of trainees in industry training and modern apprenticeships (2000 to 2006)



Source: Ministry of Education (2007i)

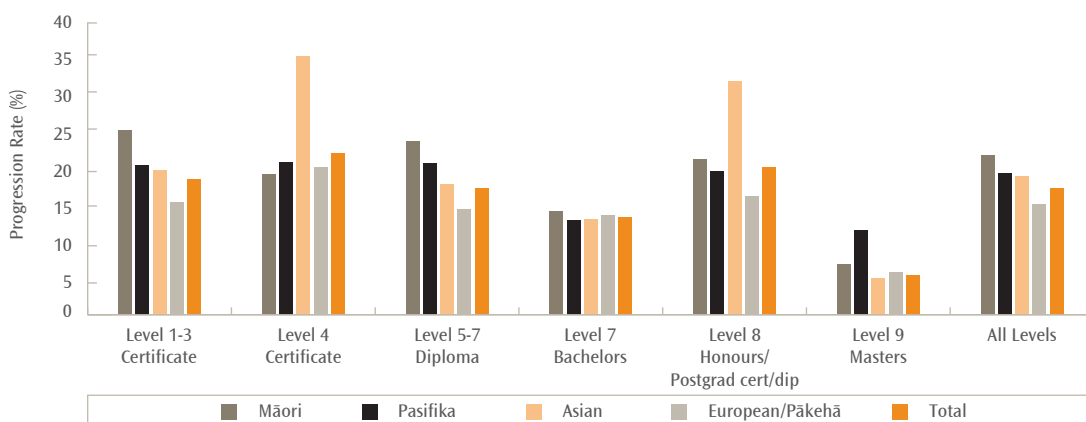
Tertiary student progression

Progression refers to the proportion of students continuing tertiary study in the year after completing tertiary qualifications. Progression is classified into three types: students who progress to higher qualification levels; students who continue their study at the same level as the qualification they have completed; and students who continue to study at lower levels of qualifications. The data show:

- of those students who completed a tertiary qualification in 2005, 35 percent went on to further study in 2006
- of those students who completed a tertiary qualification in 2005, 17 percent went on to study at a higher level in 2006

- progression to higher level qualifications was highest for students completing certificates and generally reduces with increasing level of qualification completed
- Māori students have the highest rate of progression to higher levels of study while European/Pākehā students have the lowest rate (see Figure 12.3)
- female students have slightly higher progression rates to higher level study, 18 percent compared with 15 percent for male students. Also progression rates by qualification level differ by gender.

Figure 12.3: Higher level progression rates for domestic students completing a tertiary qualification by ethnic group and qualification level (2005)



Source: Ministry of Education (2007j)

1. All rates are estimates.



Affordability of tertiary education

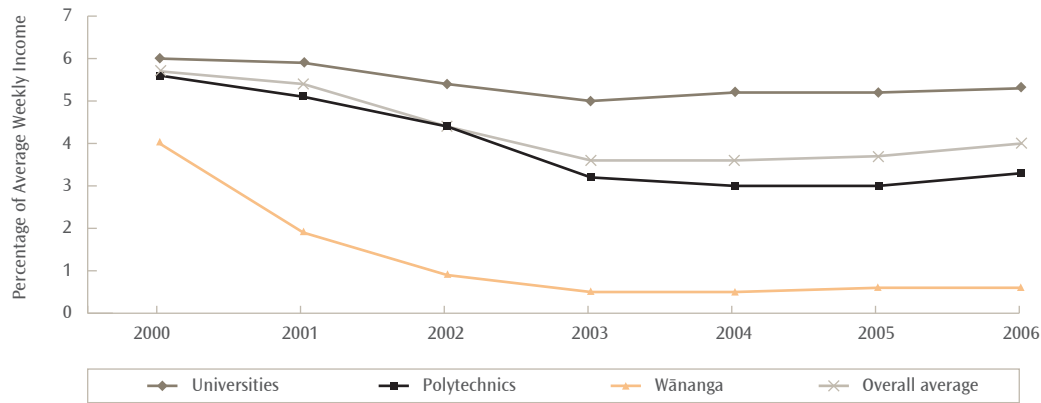
A full understanding of affordability needs to take account of the availability of student financial support arrangements that mitigate direct costs and also the wages people forego by taking time out from work to study. This is particularly important given the increased number of older students, part-time study and students combining work and study. Here we consider the affordability of tertiary education by examining the costs of enrolling in tertiary education in relation to family income, as well as the average amount borrowed by students and the average loan balance for people holding a student loan. The data show:

- in 2001, the average full-year, full-time tuition fee at a tertiary education institution (TEI) was equivalent to 5.4 weeks' gross earnings at the average weekly wage.

By 2006 it was equivalent to 4.0 weeks. This reflects the changing course mix over this period, with more lower-cost certificate-level provision, and more providers offering courses with discounted or zero fees

- from 2003 to 2006, the average cost of fees as a proportion of average family income increased in all sub-sectors, after decreasing across all sectors from 2000 to 2003 (see Figure 12.4). This increase reflected the transition from the fee stabilisation scheme to policies which allowed limited increases in fees. It also reflects the fact that the proportion of students in low or zero fee courses is now reducing after increasing significantly between 2000 and 2003
- the average amount borrowed through the student loan scheme has increased by 3.2 percent, from \$6,408 in 2005 to \$6,610 in 2006.

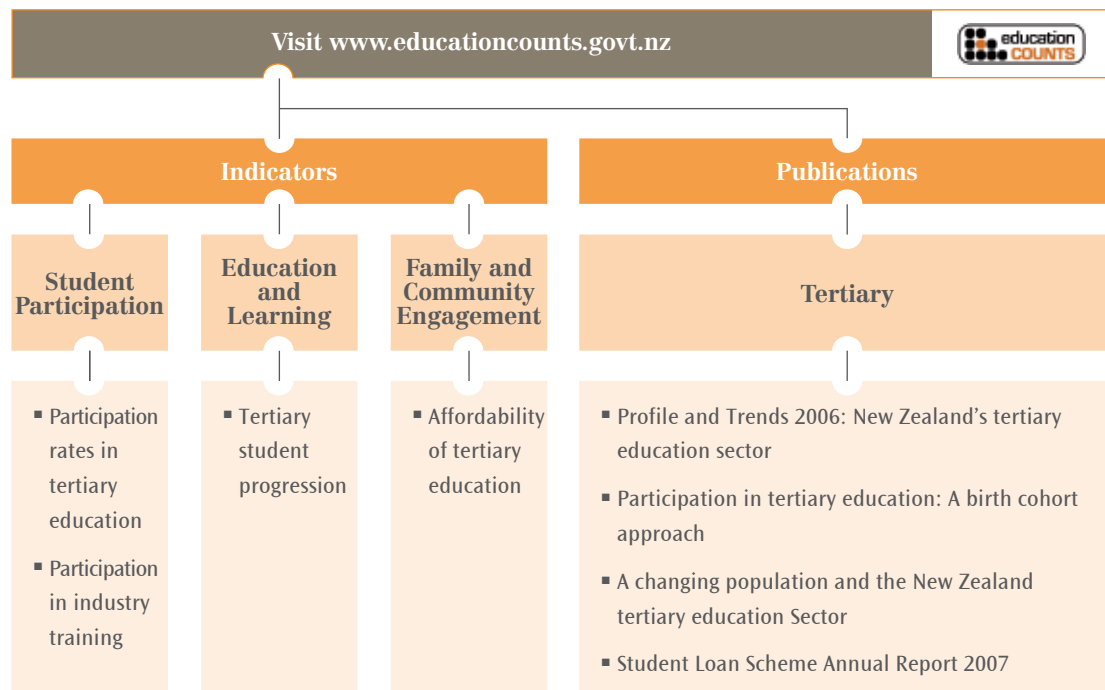
Figure 12.4: Average domestic fee at tertiary institutions as a percentage of average weekly income by sub-sector (2000 to 2006)



Source: Ministry of Education (2007k)



Where to find out more



13. Achievement

What we have found

Fifty percent of students starting bachelors degree qualifications have successfully completed their study after five years. Sixty-four percent of those starting at postgraduate level have completed after five years, while 41 percent of those starting at sub-degree level have completed at this level after five years. Rates of qualification completion have been increasing marginally in the last two years, driven largely by increases in rates of completion at sub-degree level.

Full-time students are more likely to complete a qualification than part-time students. Internal students are more likely to complete a qualification than those studying extramurally. Students who are combining work with study are less likely to complete than those coming directly from school.

Demographic characteristics also make a difference to tertiary completion. These differences persist even after adjusting for differences in types of study. Qualification completion rates are higher for women, but the gap reduces at higher levels. Asian students have the highest rates of completion, while rates are lower for Pasifika and Māori students (in particular at postgraduate level). Younger students are more likely to complete than older students at bachelors level, but older students have a higher completion rate after adjusting for study differences (for example, older students are more likely to be studying part-time or combining study with work).

Why this is important

Completion is important as a measure of the rate of production of qualifications from New Zealand's tertiary education system, and hence as an indicator for the rate of the country's skills acquisition. High tertiary completion rates indicate that we are developing or maintaining a highly skilled workforce.

Completion also provides an indicator of the internal efficiency or quality of the tertiary education system. However, there are many factors outside the tertiary education system that have an impact on outcomes: concepts of retention and completion are not always good markers of quality, and need to be read in the context of other indicators.

How we are going

Completion of tertiary education qualifications

Forty-six percent of all students starting qualifications in 2002 had completed by 2006. The data show:

- fifty percent of students starting bachelors degree qualifications have completed them after five years. Another nine percent are still studying. Eventually an estimated 55 to 60 percent of students are expected to complete their bachelors degree
- forty-one percent of students starting a certificate or diploma have completed a qualification at this level after five years. This includes those who start a certificate and complete a diploma, and vice versa



- fifty-eight percent of students starting their masters degrees have completed their study after five years. Sixty-four percent of students studying any postgraduate qualification have completed after five years. This includes those who complete different postgraduate qualification to the one they started
- while just 33 percent of doctorate students have completed their qualification after five years, over 60 percent have completed it 10 years after first starting
- full-time students have significantly higher qualification completion rates than part-time students. Around two-thirds of bachelors degree students studying full-time on a full year basis complete within six years, compared with less than 30 percent of students studying under half of an equivalent full-time student year
- the completion rate of internal (or intramural) students (65 percent) is higher than that of extramural students (47 percent)
- over all tertiary levels, Asians have the highest rate of five-year qualification completion, while Māori and Pasifika have the lowest. However, there are considerable differences to this pattern at specific levels of study (see Table 13.1)
- while younger students have higher degree completion rates than older students, once differences are adjusted for (such as older students being more likely to be studying part-time and extramurally) older students have a higher completion rate
- females complete qualifications at a higher rate than males, across all levels except masters (see Figure 13.1)
- international students are more likely to achieve qualifications than domestic students. For example, 48 percent of domestic students who began their bachelors degrees in 2002 had completed after five years, compared with 58 percent for the corresponding cohort of international students. Domestic students are more likely to be studying part-time, but even after 10 years, a higher percentage of international students have completed.

Table 13.1: Five-year qualification completion rates for students starting qualifications in 2002 by qualification level and ethnic group

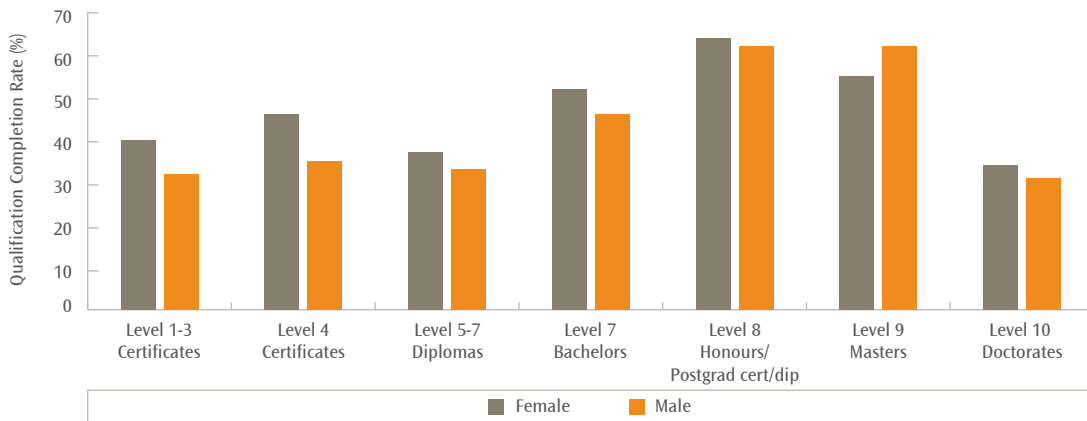
Level of Study	Five Year Qualification Completion Rate (%)				
	Māori	Pasifika	Asian	European/Pākehā	Total
Levels 1-3 Certificates	41	35	41	33	36
Level 4 Certificate	47	39	39	38	41
Levels 5-7 Diplomas	33	29	45	33	35
Total Sub-degree-level Qualifications	46	38	49	33	37
Level 7 Bachelors	36	34	58	50	50
Level 8 Honours/Postgraduate Certificate/Diploma	57	55	63	65	63
Level 9 Masters	41	48	74	55	58
Level 10 Doctorates	23	32	34	35	32
Total Postgraduate-level Qualifications	53	50	72	65	65
Total	47	39	57	43	46

Source: Ministry of Education (2007)

1. The qualification completion rate refers to the percentage of students starting qualifications in 2002 who have completed qualifications at that same level (but not necessarily the same qualification) by the end of 2006.
2. A student starting a postgraduate diploma but completing a masters degree would not be counted under either postgraduate diploma or masters degree, but would be counted under total postgraduate level. Similarly, a student starting a certificate but completing a diploma would not be counted under either certificate or diploma, but would be counted under total sub-degree level. Hence both sub-degree and postgraduate total completion rates can be higher than the rates for each individual level.



Figure 13.1: Five year qualification completion rates for students starting a qualification in 2002, by qualification level and gender



Source: Ministry of Education (2007)

1. The qualification completion rate refers to the percentage of students starting qualifications in 2002 who have completed a qualification (not necessarily the one they started) by the end of 2006.

Of all students who leave without completing, around two-thirds do so in their first calendar year of study. Over 77 percent of people who leave without completing qualifications leave after one year or less of equivalent full-time study. The data show:

- forty-two percent of bachelors degree students leave without completing their degrees. Just under 25 percent of these students leave in their first year
- for sub-degree level certificates and diplomas, around 60 percent of students will eventually leave without gaining the qualification they started, with 38 percent leaving in their first year
- around 30 percent of certificate non-completers leave in the first three to four weeks
- New Zealand's lifelong approach to tertiary learning, relatively open access to enrolment, easy access to student loans, and recent high demands for labour have tended to increase the number of students focusing on part-time course-based study and those combining work with study. These factors are associated with reduced rates of qualification completion

- the relatively high level of part-time study in New Zealand leads to lower completion rates when compared with other countries with more full-time students. When only full-time bachelors degree students are considered, New Zealand's rates become comparable with rates in Australia, the United States and the United Kingdom.

Completion of tertiary education courses

Course completion rates will generally be much higher than qualification completion rates, as most qualifications will require the successful completion of a number of courses. The data show:

- course completion rates in New Zealand are over 80 percent for degree-level courses, 66 percent for certificate-level courses and 73 percent for diploma-level courses
- course completion rates are highest for universities (82 percent) and lower for polytechnics (70 percent), private training establishments (69 percent), and wānanga (64 percent) (see Table 13.2)



- students successfully complete courses at a much higher rate than they complete qualifications, and many leave study (in particular, in times of higher employment) with only one or two courses left to complete for their qualifications. Other students will enrol for qualifications but abandon them once they have met their objectives, which may be passing only two or three courses. Such people will have acquired skills and knowledge useful in the workforce or in the community, even if no qualification was gained. Around 29 percent of all students starting a qualification have passed every course they enrolled in after five years, but have gained no qualification.²⁸

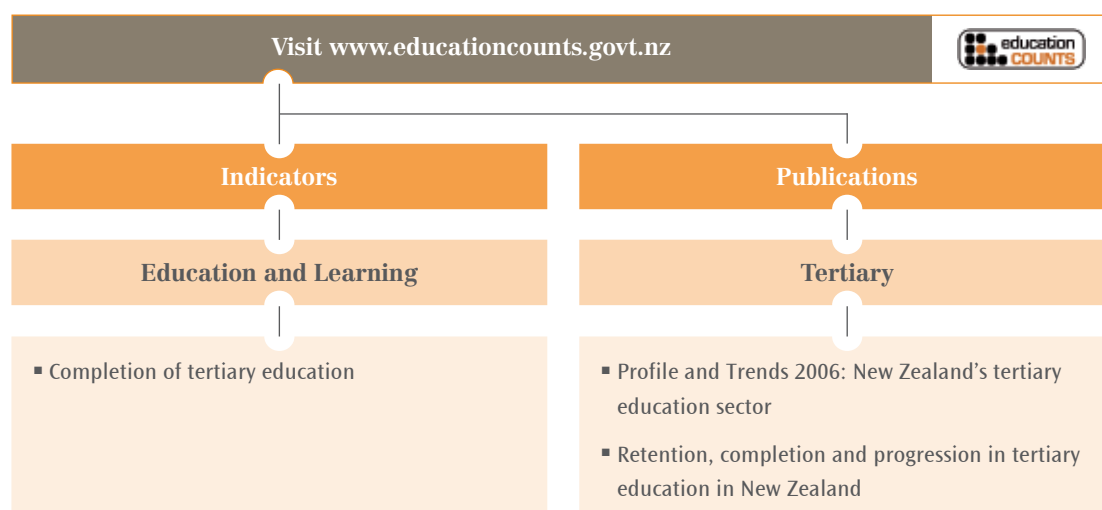
Table 13.2: Course and qualification completion rates by sub-sector (2006)

Sub-Sector	Course Completion Rate Estimate (%)	Qualification Completion Rate Estimate (%)
Universities	82	53
Institutes of Technology & Polytechnics	70	32
Wānanga	64	47
Private Training Establishments	69	39
Total	73	46

Source: Ministry of Education

1. The qualification completion rate refers to the percentage of students starting qualifications in 2002 who have completed a qualification (not necessarily the one they started) by the end of 2006.
2. The course completion rate estimates the percentage of students starting courses in 2006 who have completed that course by the end of 2006.
3. Universities include former Colleges of Education.

Where to find out more



²⁸ Scott. D (2006) Passing Course, Wellington: Ministry of Education, pages 8-9.



14. International Education

What we have found

While there was a substantial increase in the number of international students between 1999 and 2004, numbers have been declining for the last two years. International students now make up nine percent of all tertiary students. Almost half of all international students enrolled in formal tertiary education come from China.

International students contributed \$371 million in fees to the revenue of public tertiary education institutions in 2006 (11 percent of their total revenue).

Why this is important

The presence of international students in New Zealand adds an international perspective to the teaching, learning and research of tertiary education organisations and has cultural as well as educational benefits.

In addition, the enrolment of international students has a financial dimension. Eleven percent of revenue of public tertiary education institutions came from international students in 2006. Export education (the term used to describe marketing New Zealand education) is estimated to be worth \$2 billion annually, making it the country's fourth largest export earner.

How we are going

International students enrolled in formal tertiary education

The substantial increase in international students since 1998 is one of the most notable features of the tertiary education system in recent years. The data show:

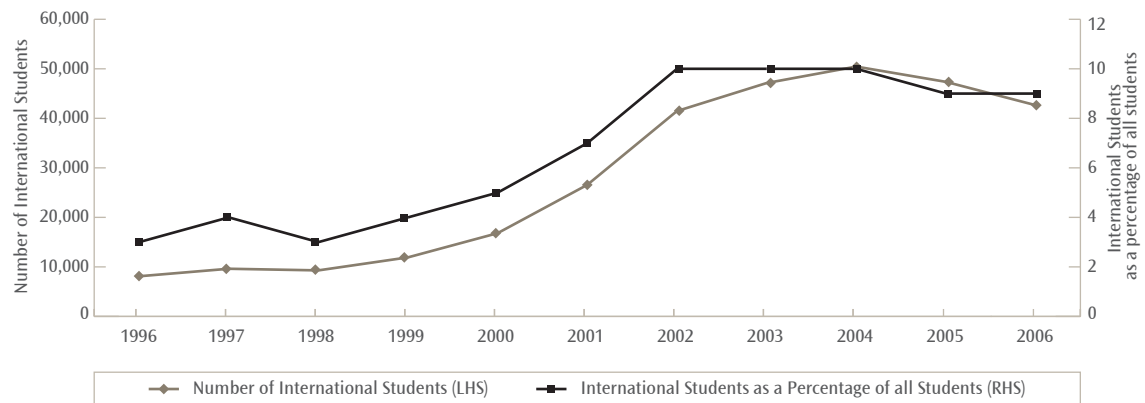
- during 2006 there were 42,700 international students enrolled in formal tertiary education in New Zealand
- nearly one in ten students enrolled in formal tertiary education were international students during 2006, an increase from one in twenty students during 2000

- in 2006, for the second consecutive year, the number of international students studying in formal tertiary education in New Zealand declined, after strong growth from 1998 to 2004 (see Figure 14.1)
- in 2006 77 percent of international students in New Zealand were from Asia, with 49 percent of international students coming from China
- during 2006 62 percent of international students enrolled in formal tertiary education in New Zealand were studying at degree level or above, compared with 42 percent during 2001 (see Figure 14.2)
- most international students studying at a tertiary level during 2006 were at tertiary education institutions (61 percent were at universities and 23 percent at polytechnic's).

A considerable number of international students study at English language schools. These are private training establishments which specialise in the delivery of English language training. There were around 37,000 international students enrolled in English language schools in March 2007, making up around 47 percent of international students studying in New Zealand.

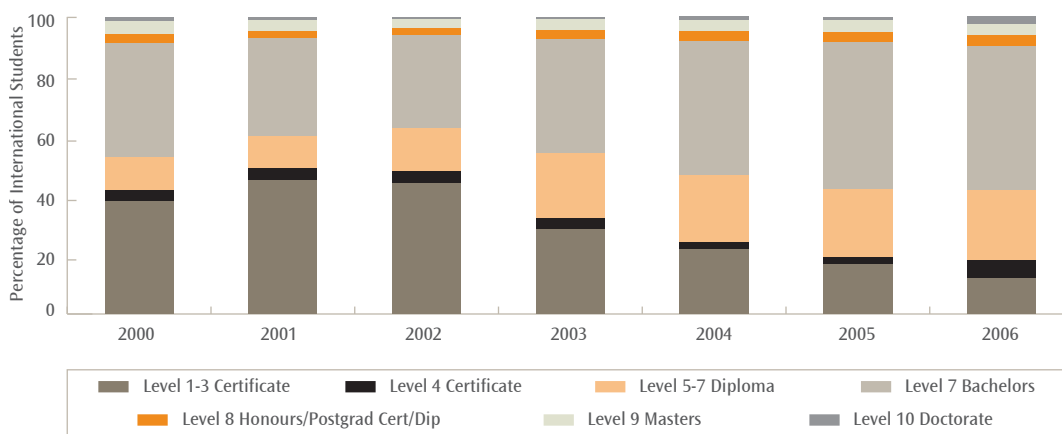


Figure 14.1: International student numbers enrolled in formal tertiary education (1996 to 2006)



Source: Ministry of Education (2007m)

Figure 14.2: Distribution of formal international students by qualification level (2000 to 2006)



Source: Ministry of Education (2007m)

Revenue from international students

Revenue from international students for tertiary providers and export education in general are of considerable importance. The data show:

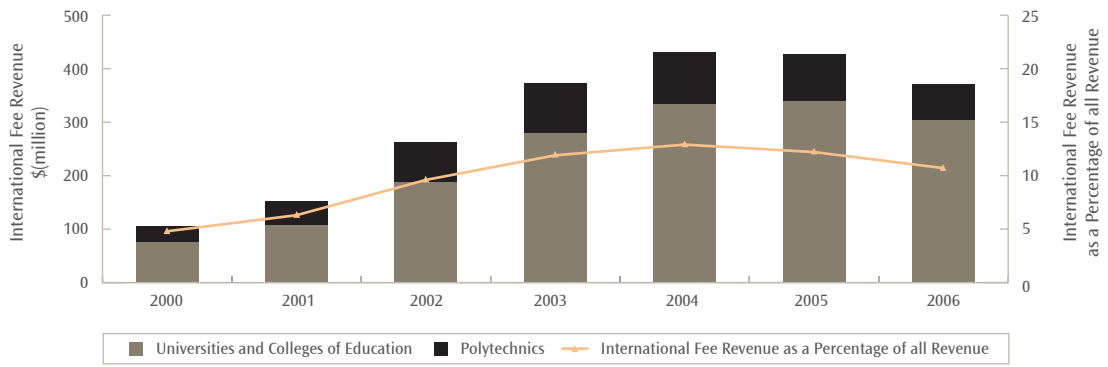
- international students contributed \$371 million (exclusive of GST) in fees to the revenue of public tertiary education institutions in 2006. This equated to 11 percent of the total revenue of public tertiary education institutions
- the annual fees charged to international students have increased substantially on an equivalent full-time

student basis. Between 2002 and 2006, the average international tuition fee per equivalent full-time student in tertiary education institutions increased by 22 percent, from \$13,000 (inclusive of GST) to \$15,900 (see Figure 14.3)

- as a result of the decline in the number of international students, total international tuition fee revenue for tertiary education institutions decreased between 2005 and 2006 by 13 percent, from \$426 million to \$371 million.



Figure 14.3: International fee revenue in tertiary education institutions (2000 to 2006)



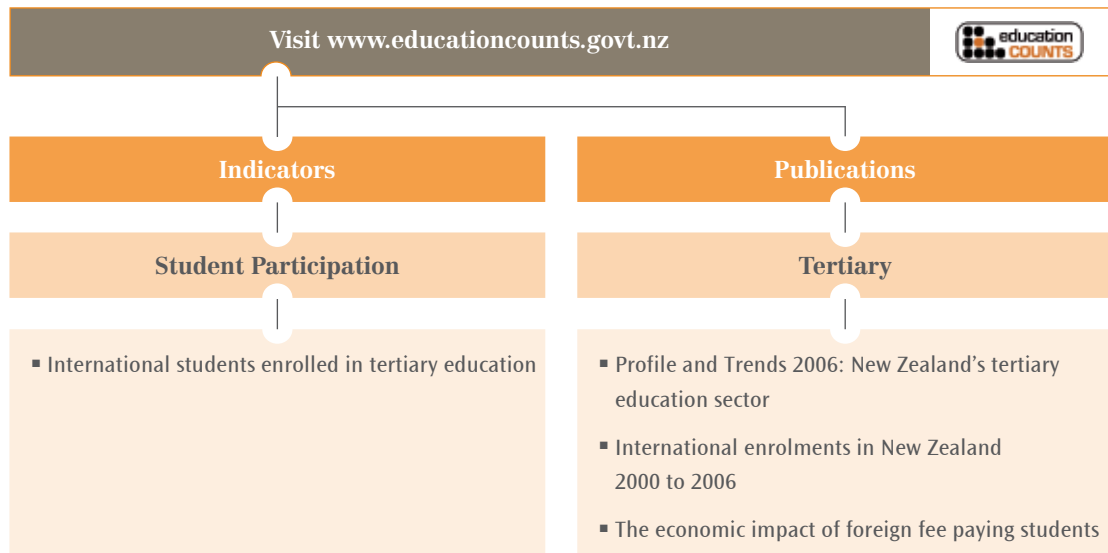
Source: Ministry of Education (2007m)

1. International fee revenue is exclusive of GST.

2. All colleges of Education have now been amalgamated with universities, so they have been combined in this graph



Where to find out more



15. Research

What we have found

The level of university research funding and its alignment with business and government priorities is improving. The research income that universities earn from contestable funding sources is increasing, the number of students being awarded PhDs is increasing and the completion rate of PhD students is rising.

The quality of the research in New Zealand's tertiary education sector is measured by the Performance-Based Research Fund (PBRF) quality evaluation. In the 2006 quality evaluation, around 33 percent of New Zealand's PBRF eligible staff were assessed as having produced original and innovative research. This has improved from 29 percent in the previous evaluation.

Around seven percent of PBRF eligible staff produced highly original and innovative research that was esteemed by the international academic community, which is up from six percent in the previous evaluation.

Why this is important

Highly qualified research graduates and high quality research are crucial to increasing New Zealand's knowledge base and adding to innovation.

The tertiary sector has the responsibility for producing graduates from research degrees with skills, knowledge and attributes required for an innovative knowledge society. In particular, it is responsible for training most of the researchers for the innovation system. The sustainability of the country's research and innovation sector depends on a strong and improving research culture in universities.

The tertiary sector directly undertakes research alongside, and sometimes in partnership with other research organisations, industry and businesses, community organisations and government. The universities produce over 60 percent of New Zealand's research papers.²⁹

How we are going

University research contract income

Universities report the income they have earned from research contracts on an annual basis.³⁰ There are several sources of research contract income for the universities. These include contestable research funds allocated via Vote Research, Science and Technology, funding for Centres of Research Excellence (CoREs), research contracted by government agencies, and research commissioned by the private sector. Research contract income is a proxy measure of research quality. It is usually won through competitive bidding and is often subjected to rigorous peer review.

The largest part of research contract income is provided by businesses and not-for-profit organisations which contract universities to conduct specific pieces of research on their behalf in order to meet their business needs (i.e. they 'purchase' the research outputs). Trends in this form of external research income provide a good proxy measure for the extent to which the research meets a test of relevance or alignment to business needs. The data show:

²⁹ Ministry of Research, Science and Technology. (2006). *National Bibliometric Report 2001-2004: International Benchmarking of New Zealand Research*. Wellington: Ministry of Research, Science and Technology

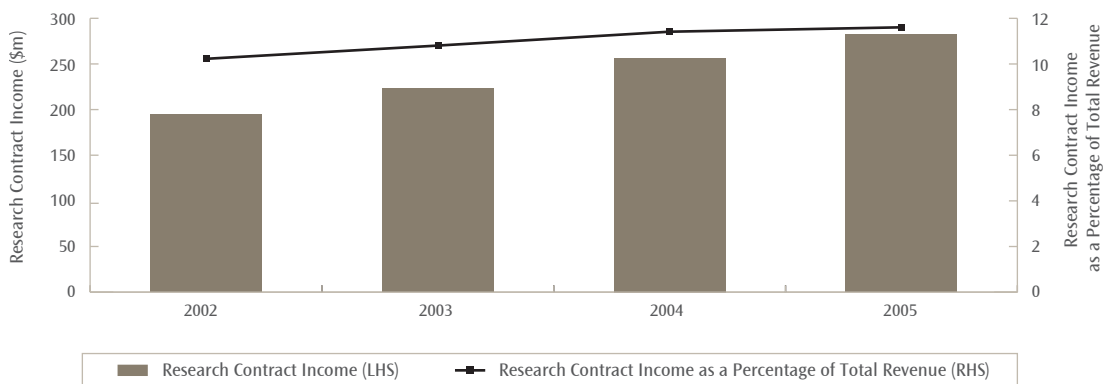
³⁰ This analysis uses the Performance-Based Research Fund definition of external research income to measure research contract income. For trend analysis purposes colleges of education data have been combined with the university data.





- total research contract income increased substantially at universities between 2002 and 2005. During this period, research contract income increased by 45 percent from \$194 million to \$283 million (see Figure 15.1). In real terms, this amounts to an increase of 36 percent³¹
- after adjusting for the size of the academic workforce and inflation, there has still been a substantial rise in research contract income at universities. On a per full-time equivalent academic staff member basis, research contract income increased by 6.1 percent in real terms between 2002 and 2005
- the importance of research contract income to universities increased between 2002 and 2005. As a percentage of all university income, research contract income increased from 10 percent in 2000 to 12 percent in 2005 (see Figure 15.1)
- research contract income sourced from businesses and not-for-profit organisations is increasing. In 2005 around \$116 million was received by universities from this source compared with \$93 million in 2002, an increase of 25 percent. In real terms this amounts to an increase of 16 percent. This funding represented 41 percent of total university research contract income in 2005 compared with 48 percent in 2002. The relative fall occurred because the value of the research contracts from government sources rose at a faster rate.

Figure 15.1: University research contract income (2002 to 2005)



Source: Ministry of Education (2007n)

Research degree completion rates

Tertiary providers submit enrolment and completion details for tertiary students to the Ministry of Education. The enrolment and completion details of students can then be statistically matched to calculate qualification completion rates.³² The data show:

- the number of students awarded PhDs increased by 40 percent from 456 in 2000 to 639 in 2006
- the seven-year completion rates for PhD students increased from 49 percent for students who began their PhDs in 1998 to 54 percent for students who started in 2000. The long-term completion rate for PhD students is over 60 percent.

³¹ Sums quoted in real terms have been adjusted for the effects of inflation over time.

³² Scott, D. (2004). Retention, Completion and Progression in Tertiary Education. Wellington: Ministry of Education.

Performance-based research fund (PBRF) eligible staff receiving an A or B quality category

The quality of researchers in the tertiary education sector is measured by the Tertiary Education Commission through the PBRF quality evaluations. In the evaluations, all PBRF-eligible staff members submit an evidence portfolio that describes their research performance across three dimensions: the quality of nominated research outputs, the esteem in which they are held by their peers, and their contribution to the research environment. Through a peer review process, each PBRF-eligible staff member was then assigned a quality category.

In the quality evaluations, four quality categories were assigned to the PBRF-eligible staff who submitted evidence portfolios. A researcher who received:

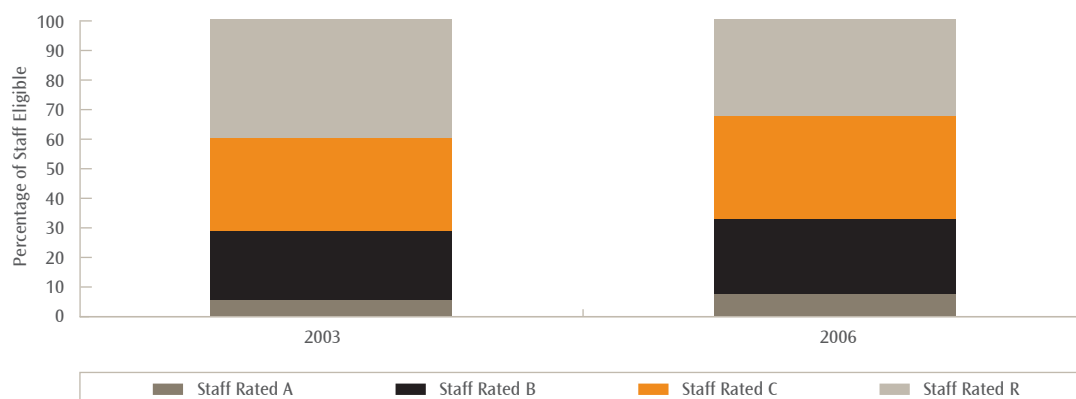
- an 'A' quality category was assessed as producing research that was highly original or innovative and was esteemed by the international academic community
- a 'B' quality category was assessed as producing research that was original and innovative and recognised beyond the staff member's own institution
- a 'C' quality category was assessed as producing research that applied existing research methodologies with acknowledgement by their peers of a sound research basis³³

- an 'R' quality category was assigned to a researcher who did not meet the standard of a 'C' quality category.³⁴

There have been two quality evaluations. The first took place in 2003, followed by a second in 2006. However, determining the degree of improvement in quality between the 2003 and 2006 quality evaluation is difficult, given changes that took place between 2003 and 2006. These included changes in the staff eligibility criteria, new quality categories assigned to new and emerging staff, the impact of the partial round and improvements made by staff to the presentation of their evidence portfolios. The data show:

- the number of staff producing research that is highly original and innovative and of world class was 600 in 2006, up 41 percent on 2003. Around seven percent of staff produced research that is highly original and innovative and of world-class in 2006, compared with six percent in 2003 (see Figure 15.2)
- the number of PBRF-eligible staff on a full-time equivalent basis rated as producing original and innovative research was 2,663, an increase of 24 percent on 2003. As a percentage of all PBRF-eligible staff, around 33 percent of staff produced original and innovative research in 2006, compared with 29 percent in 2003.

Figure 15.2: Performance-Based Research Fund (PBRF) eligible staff by quality category (2003 and 2006)



Source: Tertiary Education Commission 2004, 2007

³³ This quality category includes those new and emerging researchers who received a C(NE) quality category in the 2006 quality evaluation.

³⁴ This quality category includes those new and emerging researchers who received an R(NE) quality category in the 2006 quality evaluation.





Academic impact of university research

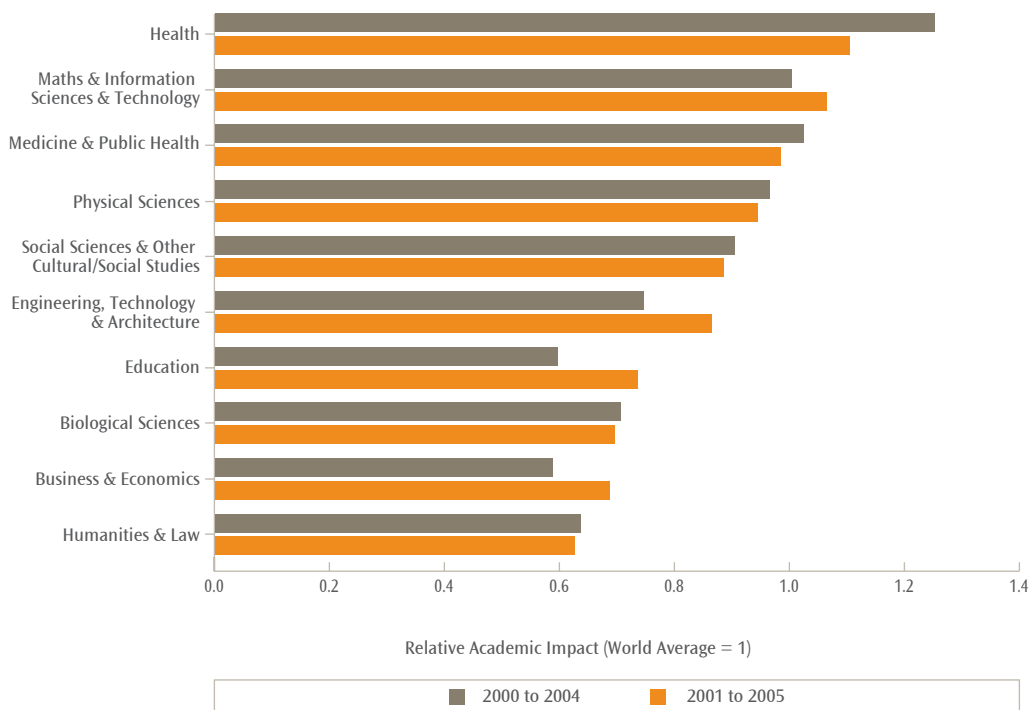
The academic impact of research by New Zealand universities can be measured by counting the number of times a research publication is cited by subsequent researchers.³⁵ The greater the number of citations a publication receives, the greater the impact this research has made on the research community.

As the rates of citation differ between subjects and are also rising over time, academic impact is expressed as the ratio of New Zealand university citations per publication to world citations per publication. A value of greater than one indicates that the academic impact of the New Zealand university research was above the world average.

A value below one indicates the academic impact of the research was below the world average. The number of publications and their citations are measured in five-year overlapping time periods. The data³⁶ show:

- university research in the ‘health’ subject area achieved the highest research impact during the period 2001 to 2005. This was followed by research in the mathematical and informational sciences, and the technology subject area
- the relative academic impact of research increased in four of ten broad subjects areas between 2000 to 2004 and 2001 to 2005 (see Figure 15.3).

Figure 15.3: Relative academic impact of university research by subject area (2000 to 2004 and 2001 to 2005)

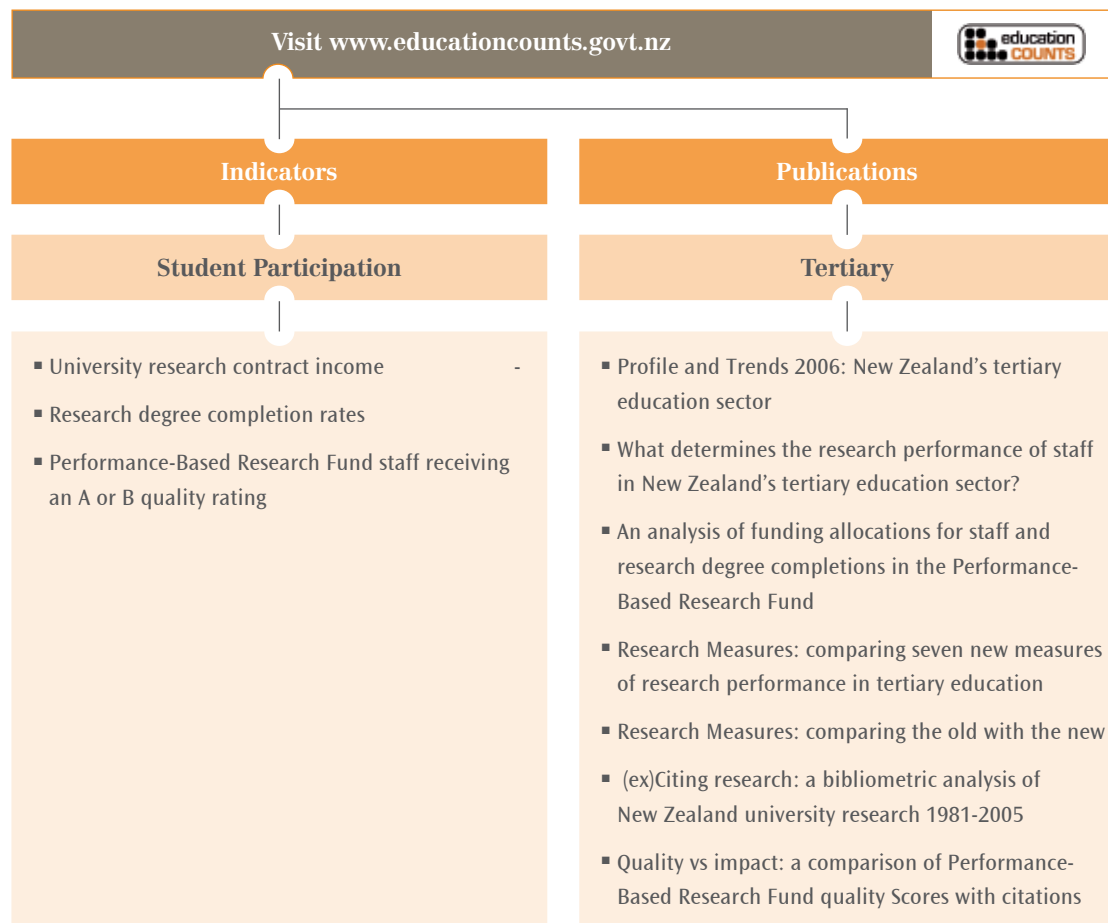


Source: Ministry of Education

³⁵ There are important caveats that apply to the use of citations and indexed publication data. For example, not all of the research produced by the universities is captured by this dataset, with the coverage of research in the humanities and social sciences not as extensive as in other subject disciplines. Therefore, caution should be used in judging the academic impact of research in these areas. A detailed discussion of this and other important caveats can be found in Smart and Weusten (2007) (*ex*)Citing research: a bibliometric analysis of New Zealand university research 1981-2005.

³⁶ A bibliometric dataset provided by Thomson Scientific is used to measure the relative academic impact of research.

Where to find out more





Part 4

Labour Market



The success of an education system is manifested in, among other things, the success of individuals in the labour market. There is a substantial body of evidence to show that on average those with higher levels of education are more likely to participate in the labour market, face lower risks of unemployment, have greater access to further training and receive higher earnings.

These labour market advantages are an important outcome of education. They may even be the primary economic and social outcome, because earned income enables people to achieve higher standards of living and many of the other individual and national outcomes associated with education accrue either directly or indirectly from this.

Areas examined in this chapter are education's impact on income, income premiums through education, and unemployment.

There is a lot of good quality labour market information available. However, there is a lack of longitudinal information following the many pathways of school leavers to tertiary education, the labour market and non-labour market activities.



16. Youth Inactivity

What we have found

There was a slight increase between 2004 and 2007 in the percentage of youth aged 15 to 19 who are inactive – that is, who are not in employment, in formal study or in a caregiving role.³⁷ In comparison there was a slight decrease in the percentage of the population aged 20 to 24 not in employment, formal study or a caregiving role.

When examining the data for each gender separately, the percentage of males and females aged 15 to 19 not in employment, formal study or a caregiving role has increased for both males and females between 2004 and 2007. However, for the population aged 20 to 24, despite an increase in the percentage of males not in employment, formal study or a caregiving role, there has been a decrease for females.³⁸

Why this is important

The proportion of people aged between 15 and 24 years not in employment and/or formal study indicates the effectiveness of the senior-secondary and tertiary education sectors; it gives a sense of the way the system manages transitions from school to further study or employment.

The proportion of young people in work can not be changed directly by an education intervention – it is subject to broader changes in the labour market. However, improvements in the proportion of those who obtain a university entrance qualification will improve the prospects of students making a direct transition to tertiary education while increased school retention will also affect this indicator.

How we are going

Youth inactivity

The employment, study and caregiving status of the youth population is reported in Statistics New Zealand's Household Labour Force Survey.³⁹ The data show:

- the percentage of the population aged 15 to 19 who were not in employment, formal study or in a caregiving role increased from 7.9 percent in 2004 to 8.8 percent in 2007. The percentage of the population aged 20 to 24 who were not in employment, formal study or in a caregiving role decreased from 8.7 percent in 2004 to 8.4 percent in 2007
- both males and females aged 15 to 19 showed an increase in the proportion of the population that were not in employment, formal study or a caregiving role. Males increased from 7.7 percent in 2004 to 9.2 percent in 2007. While females increased slightly from 8.1 to 8.5 percent in the same period
- between 2004 and 2007 the percentage of the male population aged between 20 and 24 not in employment, formal study or in a caregiving role increased, while the proportion of females decreased over the same period. Males increased from 6.8 percent in 2004 to 8.6 percent in 2007; while females decreased from 10.6 percent in 2004 to 8.1 percent in 2007 (see Figure 16.1).

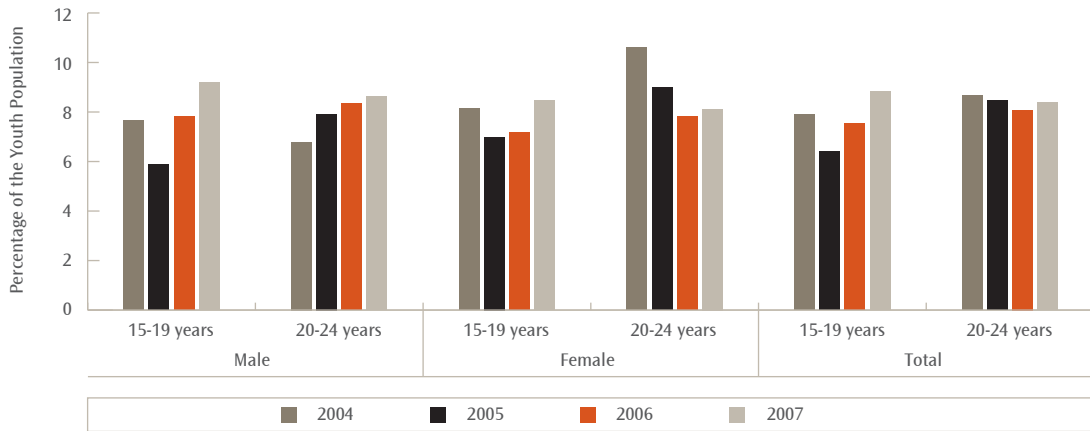
³⁷ To be participating in formal study, an individual must be either attending secondary school or working towards a tertiary qualification that takes three or more months of full-time study to complete.

³⁸ The inactive group includes those individuals who are not employed and/or engaged in informal study, and does not include those classified as caregivers. This definition differs from that used by other government agencies, where survey respondents who indicate they are in informal study are treated as being excluded from the inactive group. Also, the data used in this indicator is from the June quarter in each year, whereas other government agencies report an annual average.

³⁹ Note that the Household Labour Force Survey, from which all these numbers are drawn, is a sample. As a result, some of the figures are subject to sampling error. The sampling error in the case of this sub-category of the respondents is between 8 and 10 percent. Therefore, caution must be exercised when looking at these results.



Figure 16.1: The percentage of the youth population not in employment, formal study or a caregiving role, by age group (2004 to 2007)



Source: Statistics New Zealand, Household Labour Force Survey (June quarter, 2004-2007)



17. Impact of education on income

What we have found

The higher the level of qualification a person holds, the greater the likelihood they will have a higher income. Gender disparities are evident between the earnings of men and women, with men generally earning more than women who hold the same qualification. However, holding higher qualifications tends to reduce these disparities. Furthermore, the gender disparities in earnings are reducing over time among those with tertiary qualifications.

Why this is important

One of the important marks of the success of an education system is the opportunities it creates for individuals to find sustainable employment. Another is the fact that employers recognise and are willing to pay for the skills and knowledge acquired by people in the course of their education. People with higher levels of education on average are more likely to participate in the labour market, face lower risks of unemployment, have greater access to further training and receive higher earnings.

These labour market advantages are an important outcome of education. They may even be the primary economic and social outcome because a higher income enables people to achieve a higher standard of living and many of the other individual and national outcomes associated with education may accrue either directly or indirectly from higher incomes.

How we are going

New Zealanders who attain tertiary qualifications generally earn higher incomes than those without tertiary qualifications. The data show:

- from 1997 to 2006, the real median weekly income for those with a bachelors degrees or higher tertiary qualifications was slightly over 2.5 times that of people with school qualifications or no formal school qualifications (see Figure 17.1)
- from 1997 to 2006, the median weekly income of holders of non-degree level tertiary qualifications was almost twice that of those with school qualifications or no formal school qualifications
- for males, the percentage gain from holding a bachelors degree or higher qualification, compared with those with no qualifications, decreased from 197 percent in 1997 to 134 percent in 2006. Over the same period, the percentage gain for women with a bachelors degree or higher qualification over those with no qualifications rose from 132 percent to 148 percent⁴⁰
- the percentage gain for men holding non-degree level tertiary qualifications over men with no qualifications fell from 113 percent to 80 percent. Women in that category experienced an increase in premium from 52 percent to 66 percent over the same period
- research⁴¹ shows that the disparities between men and women tend to be reduced by higher levels of educational study – if all other factors are held constant (see Figure 17.2)
- higher qualifications also tend to reduce ethnic group disparities in earnings (see Figure 17.3).

⁴⁰ Household labour Force survey data, June quarter 2006.

⁴¹ Nair B (2007) *Measuring the returns on investment in tertiary education, three and five years after study*. Wellington: Ministry of Education.

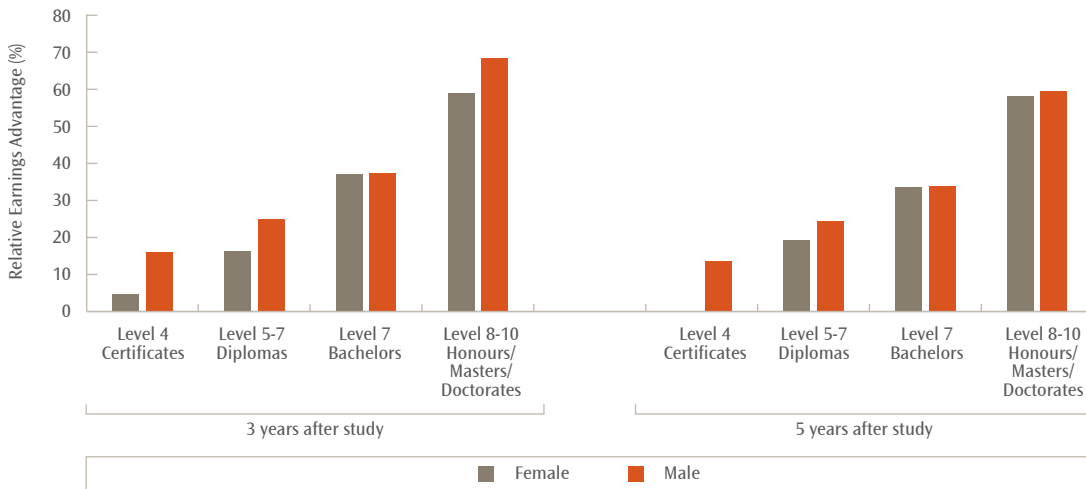


Figure 17.1: Real median weekly income from all sources for the population aged 15 years and above by highest qualification (1997 to 2006)



Source: Statistics New Zealand. New Zealand Income Survey (June quarter, 1997-2006)

Figure 17.2: Estimated earnings three and five years after study by level of study and gender (2006)



Source: Statistics New Zealand, Integrated Dataset on Student Loan Scheme Borrowers.

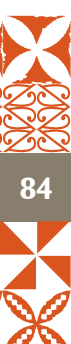
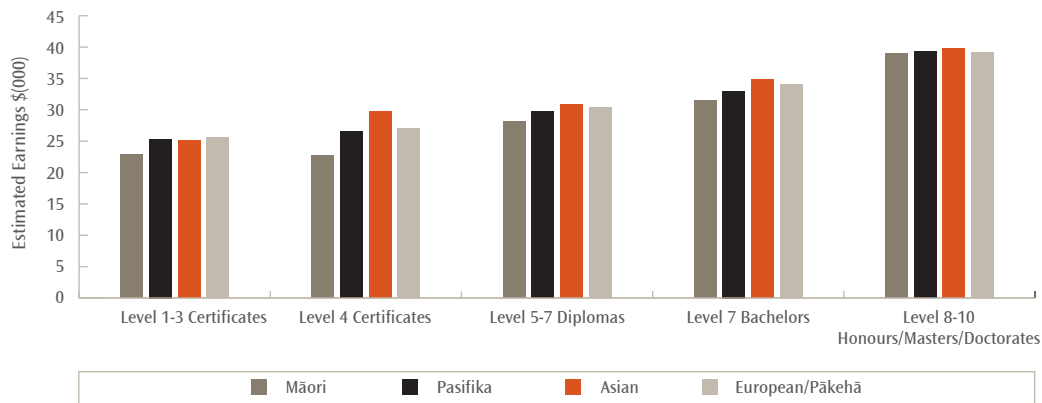
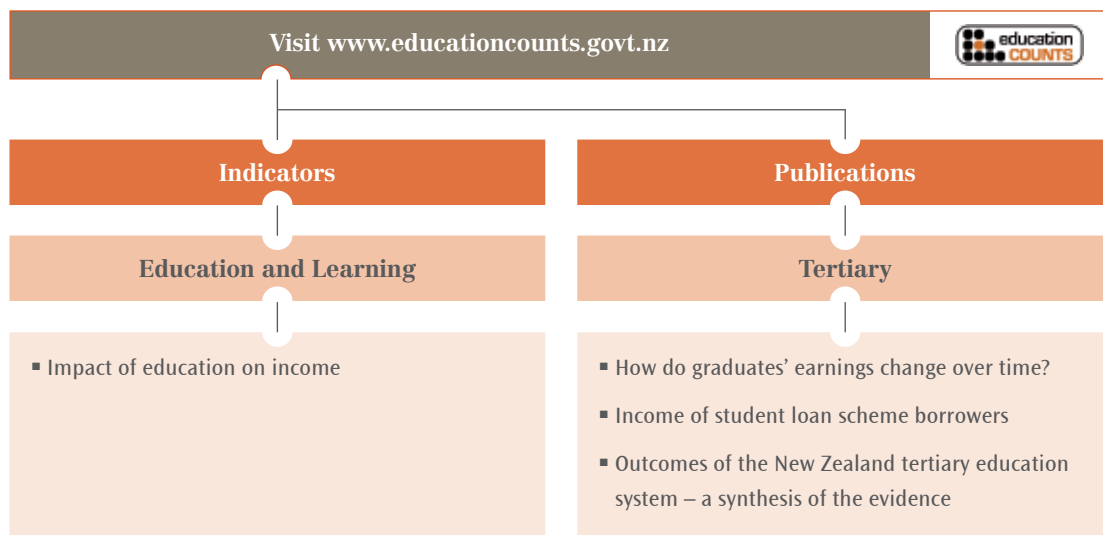


Figure 17.3: Estimated earnings five years after study by study level and ethnic group (2006)



Source: Statistics New Zealand, Integrated Dataset on Student Loan Scheme Borrowers.

Where to find out more



18. Graduate income premium

What we have found

The differences in earnings between those who have undertaken tertiary education depend in large part on the level at which they study. However, within each level of study, completion also makes a difference to people's earnings. On average, people who start qualifications and complete them earn more than those who start qualifications at the same level but do not finish. In other words, the labour market pays a premium for completion of qualifications.

The highest premium is paid for completion of a bachelors degree and this premium endures over time. A significant premium is also paid for completion of a diploma. The premium for completion of a masters degree or a certificate qualification is less. In the case of masters degrees, this reflects the fact that those who start a masters degree but do not finish will usually have completed a bachelors degree and hence will enjoy the lift in earnings that qualification brings before starting the masters degree.

The premium paid for completion of a certificate or a bachelors degree is higher among Māori and Pasifika, meaning that completion of those qualifications tends to reduce disparities between ethnic groups.

Why this is important

One of the marks of the success of an education system is the extent to which it helps individuals to find sustainable employment and the extent to which employers are willing to pay for their skills and knowledge. Both indicate the extent to which the education system serves the economy.

People with higher levels of education are more likely to participate in the labour market, face lower risks of unemployment, have greater access to further training and receive higher earnings on average. They also benefit personally from their education.

How we are going

The premium for completion

The 'premium for completion' compares the mean income of students who have completed tertiary qualifications against those who started but failed to complete the same level of qualifications. This gives the 'benefit of completion' or the premium in earned income that students who complete receive.⁴² The labour market pays the highest income premium for completion of a bachelors degrees. The data show:

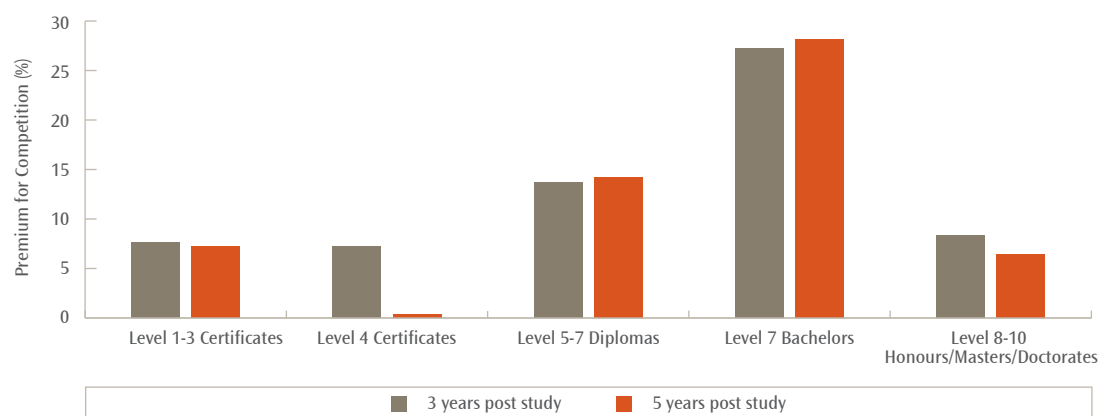
- the premium for completion of most qualification types is evident three years after leaving study and remains after a further two years

⁴² In Chapter 17 – Impact of Education on Income, comparisons of earnings were made between people with tertiary qualifications and people with no qualifications. Differences in earnings in that chapter are not directly comparable with differences given here.



- three and five years after leaving study, those who completed a bachelors degrees and left study earned around 28 percent more than those who started but left without completing a degree—even after controlling for all other factors (see Figure 18.1). This premium remains substantial seven years after study
- the premium is less substantial for completing a level 5 to 7 diploma, where the premium for completing is about 14 percent (see Figure 18.1)
- the premium for completing certificates is lower at around eight percent
- the premium for completing a postgraduate degree was lower at about seven percent. This was largely due to the fact that postgraduate qualification students had already earned a premium for their bachelors degree.

Figure 18.1: Premium for completion of qualifications three and five years after leaving study by qualification level



Source: Ministry of Education (2007o)

Demographic factors and the premium for completion

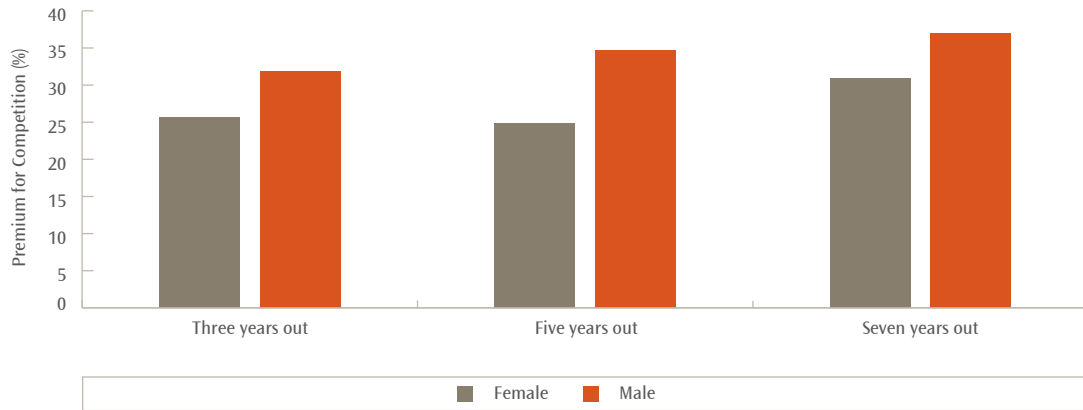
Women generally earn less than men with equivalent qualifications and there are also disparities in earnings between different ethnic groups. This section looks at the extent to which the completion of a bachelors degree and levels 1-3 certificates reduces these disparities. The data show:

- men who complete a bachelors degree overall enjoy higher premiums for completion of tertiary education than women. The premium for male bachelors degree graduates who left study in 1997 was 32 percent three years after leaving study, rising to 37 percent seven years after leaving study while among women who completed a bachelors degree, the premium was 26 percent after three years and 31 percent after seven years (see Figure 18.2)
- Māori and Pasifika who complete bachelors degrees receive higher premiums than those of European/Pākehā ethnicity, indicating that completion at this level tends to reduce the earnings disparity between these two ethnic groups and European/Pākehā (see Figure 18.3)
- the return to women who completed level 1-3 certificates is slightly lower than the return to males three years post-study, 13 percent compared to 17 percent, but is the same seven years post-study (12 percent)
- completion of levels 1-3 certificates tends to reduce the disparity in incomes between European/Pākehā, and Māori and Pasifika. The premium for European/Pākehā is six percent three years post-study, dropping to four percent at seven years post-study, while for Māori and Pasifika the premiums three years post-study are 31 percent and 11 percent respectively, and both have a seven year post-study premium of 16 percent.



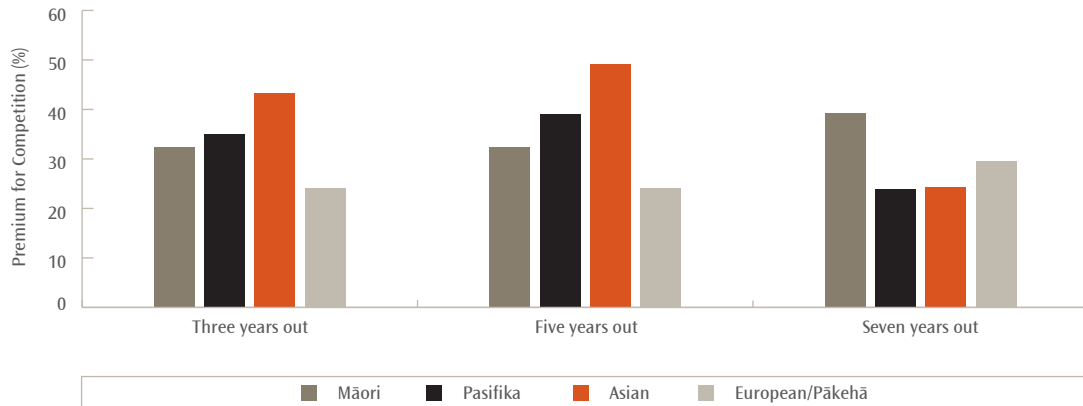


Figure 18.2: Premium for completion of bachelors degrees three, five and seven years after leaving study, by gender, for those who last studied in 1997



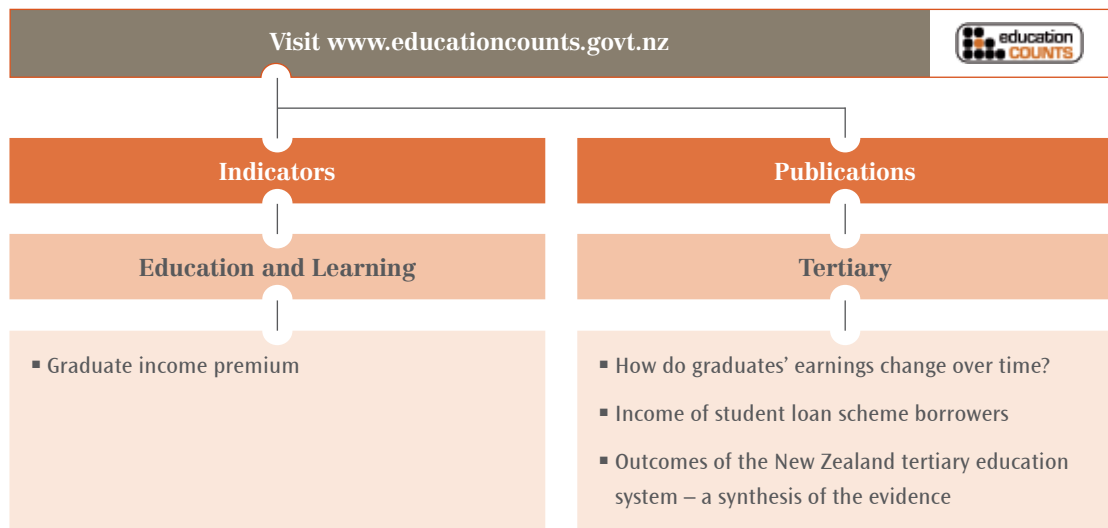
Source: Ministry of Education (2007o)

Figure 18.3: Premium for completion of bachelors degrees three, five and seven years after leaving study, by ethnic group, for those who last studied in 1997



Source: Ministry of Education (2007o)

Where to find out more



19. Unemployment rates

What we have found

The higher the level of qualification held, the more likely people are to be in employment.

When there is higher unemployment in the economy, the disparities in unemployment rates between qualifications is greater. During the periods of relatively high unemployment in the 1990s, people with no qualifications had an unemployment rate three to four times that of those with a bachelors degree or higher.

Why this is important

One of the important marks of the success of an education system is the opportunities it creates for individuals to find sustainable employment. Participation in employment can lower economic dependency and deprivation and help to raise an individual's living standards. This in turn helps contribute to the growth of a healthy society. The employment prospects of individuals with varying levels of qualifications depend both on the requirements of labour markets and on the supply of workers with different skills. Those with low educational qualifications are at particular risk of economic isolation since they are both less likely to participate in the labour force and more likely to be without jobs even if they are actively seeking them.

How we are going

The labour-force participation rate has increased considerably over the last few years, resulting in a narrowing of the gap in the unemployment rate between those who are tertiary qualified and those with no qualifications. The unemployment rate fell between 2005 and 2006 for those with no qualifications, whereas the unemployment rate remained stable for those with non-degree tertiary qualifications and for those with a bachelors degree or

higher qualifications. The overall unemployment rate has decreased since 1998 because of the strong New Zealand economy.⁴³ The data show:

- in the 15 years since 1991, people with tertiary qualifications have been considerably more likely than those with only school qualifications to be in employment. However, unemployment rates for those with non-degree tertiary qualifications are now very similar to those with a bachelors degree or higher qualifications (see Figure 19.1)

In the early and late 1990s there were periods of relatively high unemployment overall, with the greatest disparities in unemployment rates being between those with and without tertiary qualifications. This confirms that holding a higher-level qualification tends to provide greater sustainability of employment.

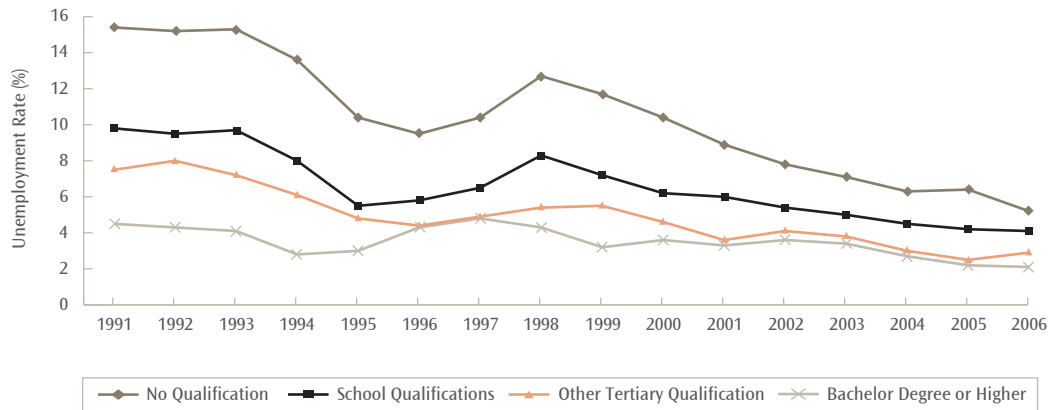
- for instance, from 1996 to 1998, while unemployment rates increased by 34 percent for those with no qualifications and 43 percent for those with school qualifications, unemployment rates remained relatively flat for those with tertiary qualifications.⁴⁴

⁴³ In 2006 New Zealand has the fifth lowest unemployment rate among 27 OECD nations with comparable data, behind Norway, the Netherlands, South Korea, and Denmark.

⁴⁴ Smart, W. (2006). *Outcomes of the New Zealand Tertiary Education System: A Synthesis of the Evidence*. Wellington: Ministry of Education.



Figure 19.1: Unemployment rate in the population aged 15 years and over by highest qualification (1991 to 2006)



Source: Statistics New Zealand, Household Labour Force Survey (June quarter, 1991-2006)

The disparities in the unemployment rates of different ethnic groups holding tertiary qualifications reduced between 1991 and 2006. The gap between ethnic groups has especially narrowed among those with a bachelors degree or higher qualifications. The data show:⁴⁵

- the unemployment rate for European/Pākehā with a bachelors degree or higher qualification dropped from four percent to less than two percent between 1991 and 2006; among Māori, the rate dropped from 5 to 3.5 percent; and among Pasifika the drop was more significant: from ten percent in 1991 to less than two percent in 2006 (see Figure 19.2)

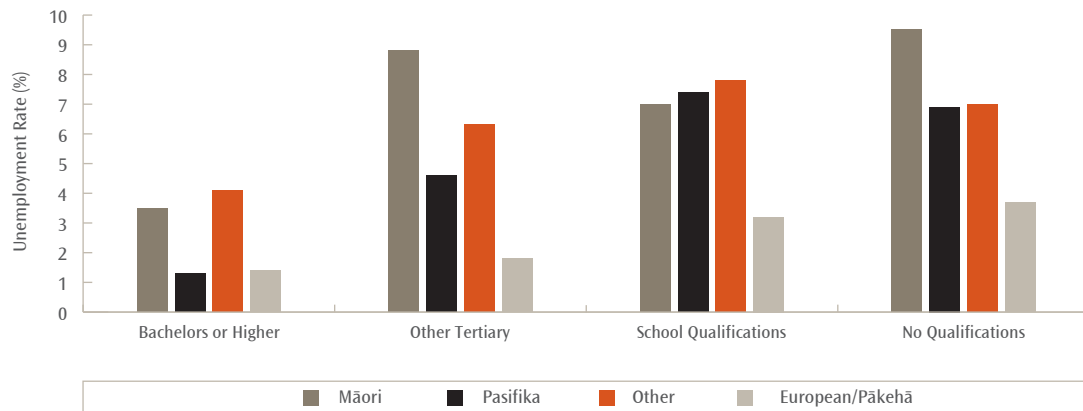
- the unemployment rate also narrowed gradually between ethnic populations holding non-degree level qualifications. The unemployment rate dropped for European/Pākehā with non-degree level qualifications from five percent to two percent; among Māori the rate fell from 19 percent to nine percent; and among Pasifika the unemployment rate was just below five percent.

In the June 2006 quarter the unemployment rate among those with a bachelors degree or higher qualification was well below the two percent mark for European/Pākehā, while it was slightly higher at three percent among Māori and nearly four percent among Pasifika.

⁴⁵ The unemployment rate of those with a bachelors degree for Māori and Pasifika are not available in data from the Household Labour Force Survey (HLFS) due to issues with small samples.



Figure 19.2: Unemployment rate in the New Zealand population aged 15 years and over by highest qualification and ethnic group (2006)



Source: Statistics New Zealand, Household Labour Force Survey (June quarter, 2006)

Note: The Household Labour Force Survey, from which all these numbers are drawn, is a sample. As a result, some of the figures are subject to sampling error. The sampling error in the case of this sub-category of the respondents is between 8 and 10 percent. Therefore, caution must be used when looking at the unemployment rates of bachelors degrees for Māori and Pasifika, which are highly subject to sampling errors due to very small sample sizes.

- The gender disparity in the unemployment rate among those with a bachelors degree or higher qualifications or school qualifications is small compared with holders of non-degree level qualifications or no qualifications. The data show:
- males and females with non-degree level qualifications had a higher unemployment rate than those with bachelors degrees or higher qualifications, at three percent and 4.2 percent, respectively.
 - females with a bachelors degree or higher qualifications had a higher unemployment rate than males, at 2.4 percent and 1.7 percent respectively (see Figure 19.3)

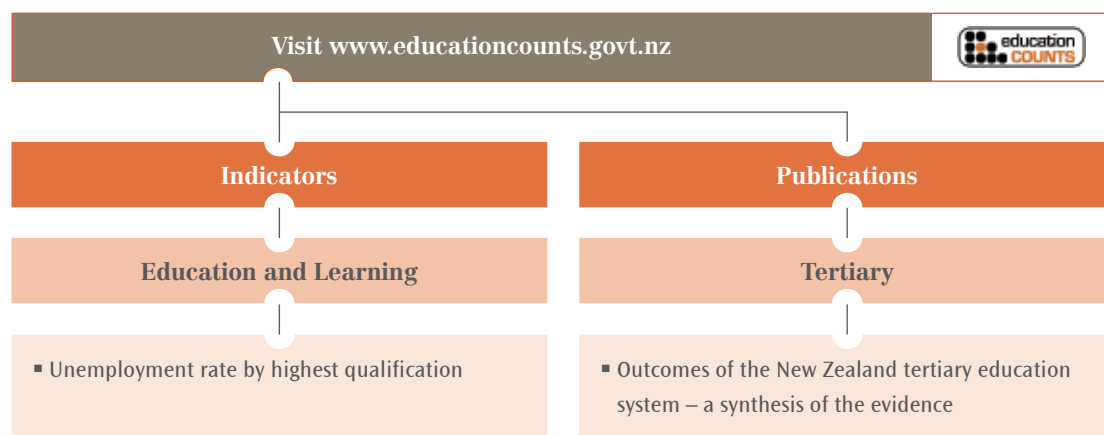
Figure 19.3: Unemployment rate in the New Zealand population aged 15 years and over by highest qualification and gender (2006)



Source: Statistics New Zealand, Household Labour Force Survey (June quarter, 2006)



Where to find out more



Part 5

Funding



Effective education requires the right combination of trained and talented personnel, adequate facilities, state-of-the-art equipment and motivated students ready to learn. Government investment in education is critical to achieving this and ensuring lifelong access to education and skills development.

The demand for high-quality education, which can translate into higher costs per student, must be balanced against placing an undue burden on tax-payers.

A comparison of spending on education measures the share of national resources devoted to education and so provides a basis for assessing the fiscal implications of how that might change in the future. This informs debate about resource allocation amongst competing uses, including other parts of the education sector.

Expenditure indicators also measure inputs to the education process. These can be used to understand education differences over time and amongst countries.

This chapter examines expenditure on educational institutions and per student expenditure.

There is a considerable amount of information on international comparisons and on trends in education funding and expenditure, but care needs to be taken because of:

- expenditure being influenced by many factors such as the wealth of the country
- the age structure of the population and its relationship to education levels (the compulsory school-age population is more likely to place demands on resources) and productivity differences in what is defined as education expenditure.



20. Funding Expenditure

What we have found

Education expenditure represents a growing proportion of government expenditure and has grown faster than GDP over the past decade. Early childhood expenditure and student support expenditure in the tertiary sector have both shown marked increases over the past year in the wake of policy changes in those sectors.

At many levels of education, New Zealand expenditure is close to the OECD average level once its relative wealth and demographic structure are taken into account. It is notably higher at the pre-primary education level.

However, as New Zealand has a relatively young population at present which demands a greater share of resources, its education expenditure consumes a higher proportion of its GDP. Its share of total government expenditure is one of the highest amongst OECD countries.

Private expenditure is growing as a share of total education expenditure internationally and in New Zealand is above the OECD average in the pre-primary and tertiary sectors.

Why this is important

Comparisons of spending on education serve two main purposes. They measure the share of national resources devoted to education and so provide a basis for assessing the fiscal implications of how that might change in the future. Thus they can inform debate about resource allocation amongst competing uses, including other parts of the education sector.

Expenditure indicators also measure inputs to the education process. These can be placed alongside other characteristics of education systems to analyse and seek to explain the differences in educational outcomes that are observed across countries.

How much a country spends on education will be influenced by a number of factors. A key factor is the relative wealth of the country, so many indicators relate education spending to the Gross Domestic Product (GDP), expressing the total spend as a percentage of GDP. Other key factors are the age structure of the population (the compulsory school-age population being more likely to place demands on resources), the level of participation of the population at

each level of education, the volume of resources devoted to each student participating in education, and the price of education resources in the country.

How we are going

Public expenditure on education

Government expenditure on education as a percentage of GDP has remained relatively stable over the past decade 1996/97 and 2006/07 and grown slightly as a percentage of government expenses.⁴⁶ The noticeable upward movement in 2005/06 reflected the write-down of student loans resulting from the introduction in that year of both the interest-free student loan policy and new international financial reporting standards. The data show:

- in 2006/07 education expenses as a percentage of GDP were 5.6 percent, an increase of almost 15 percent since 1996/97 (see Table 20.1)
- over the same period spending on education as a percentage of total government expenses has increased by more than 22 percent from 15.2 percent to 18.6 percent (see Table 20.1).

⁴⁶ Total government expenses are represented by core crown expenses as measured in the government's statement of financial performance.

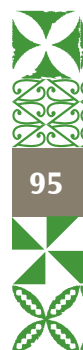


Table 20.1: Government expenditure on education in New Zealand (1996/97 to 2006/07)

Financial Year	Expenditure on Education (\$ m)	GDP (\$ m)	Percentage of GDP	Total Government Expenditure (\$ m)	Percentage of Total Government Expenses
1996/97	4,817	99,034	4.9	31,708	15.2
1997/98	5,162	101,592	5.1	32,852	15.7
1998/99	5,337	104,689	5.1	34,367	15.5
1999/00	5,712	111,025	5.1	34,536	16.5
2000/01	6,136	118,349	5.2	36,699	16.7
2001/02	6,473	125,795	5.1	37,970	17.0
2002/03	7,016	132,730	5.3	41,749	16.8
2003/04	7,585	142,746	5.3	41,608	18.2
2004/05	7,930	150,990	5.3	46,234	17.2
2005/06	9,914	156,325	6.3	50,238	19.7
2006/07	9,289	166,714	5.6	49,900	18.6

Source: The Treasury

New Zealand government expenditure on early childhood education

Expenditure⁴⁷ on early childhood education has increased significantly over recent years with funding rates increasing along with improvements in quality of early education services. The free early childhood education policy came into effect on July 1, 2007. This policy initiative provides up to 20 hours per week for three and four year olds in teacher-led services and is estimated to add a further \$100 million per year on top of existing Government subsidies. Over the coming years further increases in expenditure are expected from the impact of adult to child ratio changes. The data show:

- expenditure on early childhood education increased from \$284 million in 1996/97 to \$767 million in 2006/07⁴⁸, which in nominal terms represents an increase of 170 percent. In real terms, expenditure has more than doubled over the last 10 years
- expenditure on early childhood education is forecast to exceed \$1 billion in 2009/10.

New Zealand government expenditure on schools

Education expenditure on New Zealand schools increased between 1996/97 and 2006/07. The data show:

- total expenditure on schools in nominal terms increased by 86.2 percent from \$3,079 million in 1996/97 to \$5,732 million in 2006/07. This was a 49.9 percent increase in real terms
- teacher salaries made up nearly half (49.8 percent) of all expenditure on schools in 2006/07. The amount spent on teacher salaries increased by 32.2 percent in real terms since 1996/97
- approximately one fifth (18.8 percent) of all expenditure on schools in 2006/07 was funding provided to schools for their operation. This operational expenditure has increased by 31.2 percent in real terms since 1996/97
- expenditure on property made up 21.4 percent of all expenditure on schools in 2006/07. Property expenditure has increased by 45 percent in real terms since 1996/97.

New Zealand government expenditure on tertiary education

Total government spending on tertiary education has increased over the past six years. The data show:

- in 2006/07 the tertiary education institutions received in total over \$2 billion for providing tertiary education services. In real terms the funding of tertiary education increased by 17.6 percent between 2000/01 and 2006/07

⁴⁷ Expenditure presented on early childhood education, schools and tertiary education in the rest of this chapter is confined to expenditure through Vote: Education and through student support programmes (student loans, student allowances and scholarships) administered through Vote: Social Development.

⁴⁸ The 2006/07 financial year concludes on the 30th June 2007, therefore early childhood expenditure for this period excludes expenditure on free early childhood education.



- tuition subsidies account for the biggest share of tertiary expenditure. In absolute terms, tuition subsidies had the most growth over the five years to 2006/07, rising by \$ 497 million. In real terms this amounted to an increase of 20.1 percent
- between 2005 and 2006, the number of student places funded by government decreased by 6.7 percent, from 239,770 to 223,785 equivalent full-time student units. The number of funded places has fallen for two years in a row since their peak in 2004. The main reason has been a decrease in funded EFTS at wānanga which reflects an agreement with wānanga to reduce provision of tertiary education services to sustainable levels
- between 2005 and 2006, the average tuition funding per equivalent full-time student for tertiary education organisations increased by 8.9 percent, from \$7,082 to \$7,713.

New Zealand's educational expenditure compared to the OECD

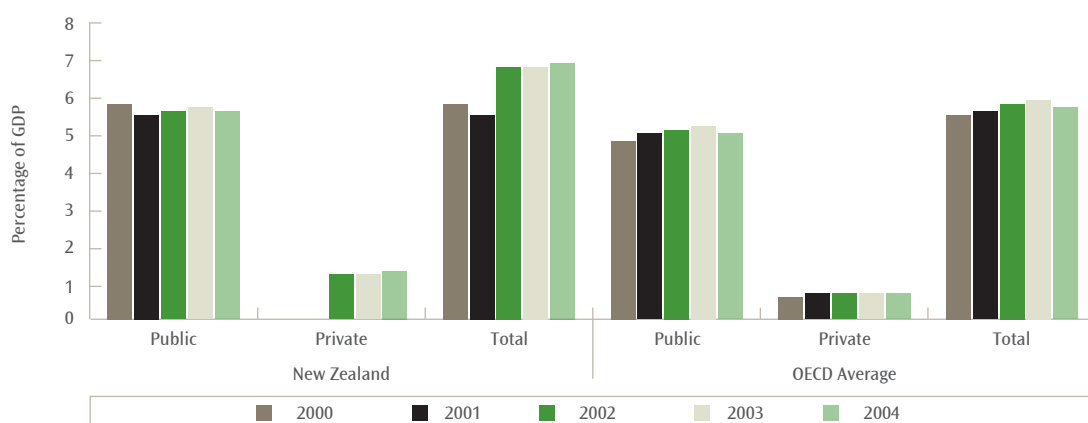
A large proportion of education expenditure takes the form of payments to institutions, such as schools and universities, or to teachers on behalf of schools. This expenditure is captured by the OECD and reflected in an array of education indicators in its 2007 publication of *Education at a Glance*

(EAG2007). For most purposes the restriction to payments to institutions does not cause any significant bias, though in the tertiary sector the exclusion of student support payments from this measure of education expenditure means data requires careful interpretation.

New Zealand spends a higher proportion of its national wealth on education than most OECD countries and its expenditure in real terms has grown at an above average rate in all but the tertiary sector. The data show:

- the 6.9 percent of GDP spent by New Zealand on education in 2004/05 places it fifth amongst OECD countries, well above the average of 5.8 percent (see Figure 20.1)
- demographic factors contribute to this result. Last year, OECD estimated that if New Zealand had the same proportion of 5 to 19 year-olds and 20 to 29 year-olds (principal education participation years) as the OECD average, then its percentage of GDP spent on educational institutions would be 0.5 percent lower
- expenditure from public sources grew by 54 percent in real terms over the nine years to 2004/05, compared to 42 percent for the OECD.

Figure 20.1: Expenditure on educational institutions as a percentage of GDP, for all levels of education, New Zealand vs. OECD average (2003 and 2004)



Source: OECD (2007)

1. OECD financial indicators are generally based on data for the calendar year. 2003 relates to the 2003/4 fiscal year and 2004 relates to the 2004/5 fiscal year for New Zealand.





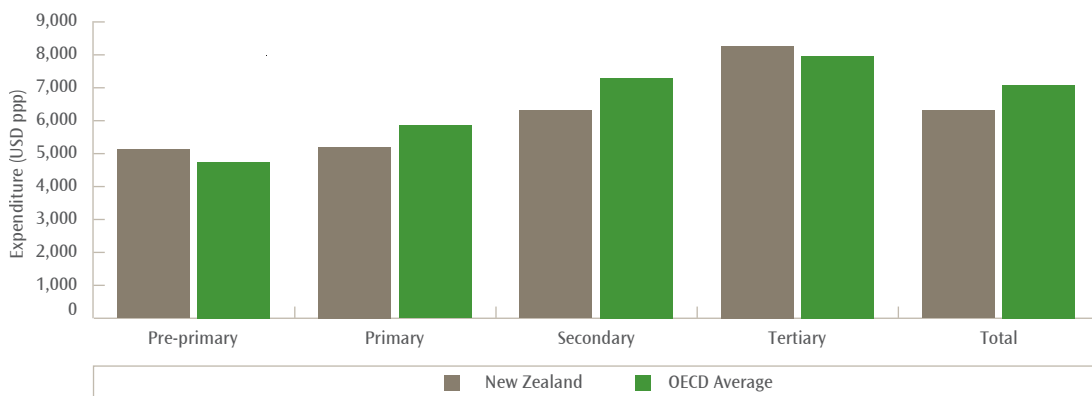
Expenditure per student compared to the OECD

New Zealand overall spends less per student than other OECD countries. But it does spend a bigger share of its GDP on education. When both its national wealth and education participation (largely reflecting its demographic structure) are taken into account, many expenditure measures show New Zealand's expenditure close to average. The data show:

- in the year ended June 2005, New Zealand's annual expenditure on educational institutions per student (converted using purchasing power parity (PPP)⁴⁹ rates for GDP) for the primary to tertiary sectors was US\$6,298. This was below the OECD average of US\$7,061

- while below average in most sectors, expenditure on educational institutions per student at pre-primary level was US\$5,112, 8 percent above average. This reflects the impact of the first stages of the new funding regime (see Figure 20.2)
- expenditure on educational institutions per student in relation to GDP per capita adjusts for both economic wealth and participation. In 2004/05 this amounted to 25 percent for New Zealand for the primary to tertiary sectors, just below that of Australia and the OECD average (26 percent) and above that of the United Kingdom (23 percent) (see Figure 20.3).

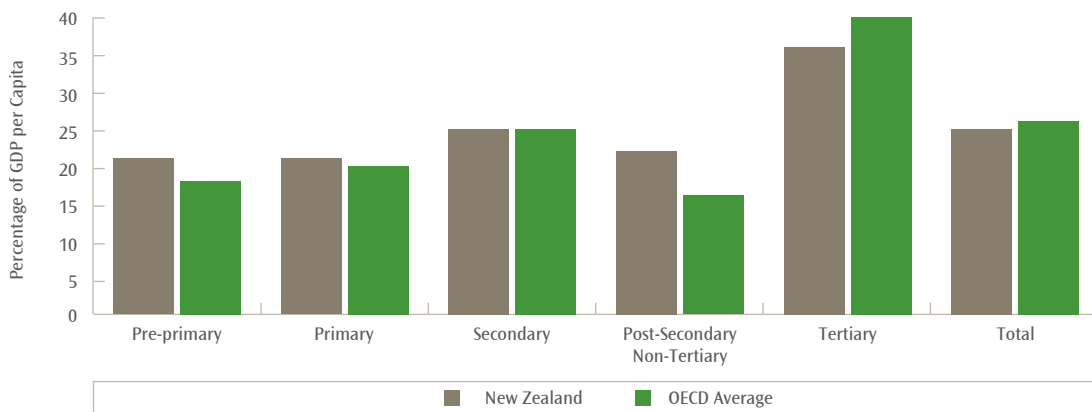
Figure 20.2: Annual expenditure on educational institutions per student by sector (2004)



Source: OECD (2007)

1. Total excludes pre-primary.

Figure 20.3: Annual expenditure on educational institutions per student as a percentage of GDP per capita by sector (2004)



Source: OECD (2007)

1. Total excludes pre-primary.

⁴⁹ Purchasing power parity (PPP) is a theory of exchange rate determination and a way to compare the average costs of goods and services among countries.

Public and private expenditure compared to the OECD

Internationally, most education expenditure is financed from public sources, the public share being highest at primary and secondary education levels. New Zealand records significantly higher proportions of private expenditure at pre-primary and tertiary education levels, though the treatment of all student loan drawings as expenditure distorts this measure of expenditure. New Zealand's public expenditure on education represents a bigger share of its total public spending than most other OECD countries. The data show:

- the share of public expenditure at pre-primary level, at 57.6 percent, is well below the 80.0 percent OECD average
- a lower public share is also recorded at tertiary level, 60.8 percent compared to the OECD average of 75.7 percent
- there has been a move towards funding from non-government sources in both the school and tertiary sectors in the OECD, with private expenditure growing at more than twice the rate of public expenditure in each case
- in New Zealand there has been little growth in real terms in public tertiary expenditure between 1995/96 and 2004/05. However, at the school level, public expenditure has grown faster than the OECD average
- as a proportion of total public expenditure, New Zealand's public education expenditure⁵⁰ in 2004/05, at 21.0 percent, was second amongst OECD countries only to Mexico. Contributing to this result was New Zealand's relatively young population structure noted above and the treatment of all student loan borrowings as expenditure. However, even after accounting for these factors, New Zealand still devotes a high proportion of its public expenditure to education.

Student support services

The government also provides significant proportion of funding to support students studying in tertiary education through the student loan scheme, student allowances and scholarships. There were significant increases in these

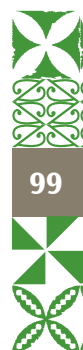
student support payments in 2006. The removal of interest on student loans for borrowers meeting residency requirements from April 2006 was accompanied by an increase in borrowers in the 2006 year. This followed a fall the previous year, the first since the scheme began in 1992. The data show:

- the number of students who borrowed under the loan scheme in the academic year 2006 was 167,425, 13,000 or 8.4 percent more than in 2005
- the estimated uptake rate of loans by full-time students, which is the percentage of all eligible full-time students who take up a student loan, was 78 percent in 2006 and has ranged from 81 percent in 2001 to 72 percent in 2003
- the number of first-time borrowers increased again and reached 60,016 in 2006 after having fallen from 62,763 in 2002 to 51,433 in 2005
- in 2006 the average amount borrowed by a borrower in a year increased by 3.2 percent to \$6,565
- in 2006, \$689 million of borrowing was used for course fees, \$98 million for course-related costs, \$312 million for living costs and \$8.4 million for administration fees.

International financial reporting standards have applied to student loans since 2005/06. Loans are classified as loans and receivables and as such are initially valued at fair value and at amortised cost thereafter. The loan portfolio is actuarially re-valued each year according to the required accounting standards. This includes testing for impairment or reduction in value of the asset based on objective evidence. The data show:

- during 2006/07 \$1.185 billion was lent to students through the student loan scheme. This was written down to 58.85 percent or \$0.697 billion, representing the estimated fair value of that lending
- in 2006/07 the government incurred other expenses on student loans in the form of write-offs for deaths and bankruptcies and impairment of the loan portfolio. This amounted to \$151 million

⁵⁰ This percentage of GDP spent on education differs from that in Table 20.1 since it uses a different definition of education expenditure. In particular, student loan drawings are fully included as education expenditure in the OECD measure as opposed to the accounting cost of lending.





- at the end of 2006/07 the loan portfolio totalled \$9.413 billion in nominal debt and was valued in the financial statements of government at \$6.011 billion.

The number of student allowance recipients and the amount received by them also increased in 2006. The increase in recipients followed declines in the previous four years. This principally reflected the impact of further changes to the income testing regime in 2006, in particular an increase in the parental income threshold and changes to the personal income abatement regime. The data show:

- in 2006 the number of student allowance recipients grew by 5 percent to 59,400
- expenditure on allowances grew by 8 percent to \$373 million, recovering to the level of 2004
- the average allowance was \$6300, \$200 (3 percent) greater than in 2005

- three out of four allowance recipients also receive accommodation benefit. In 2006, 45,000 students received the accommodation benefit, which increased by 7.8 percent in 2006 to an average of \$1,040

- the proportion of allowance recipients under the age of 25, the threshold for parental income testing, grew slightly to 55 percent

- in 2006 the proportion of parental income based allowance recipients increased by 2 percent from the previous year and reached to 51 percent of all allowance recipients

- about 83 percent of allowance recipients also borrowed under the student loan scheme, this group representing 29 percent of all student loan borrowers

- in 2006 the government paid a total of \$12.8 million on scholarships.

Where to find out more

Visit www.educationcounts.govt.nz

Indicators

Resources

- Total investment in education
- Annual expenditure per student
- Government funding of tertiary education

21. Financial Performance

What we have found

In general, state and state-integrated schools have sustained higher levels of working capital and public equity, indicating a generally healthy financial position in the school sector. Most schools have experienced operating surpluses in 2006 and the financial performance is particularly strong in primary schools.

Overall tertiary financial performance was satisfactory but below that achieved in 2005. Universities maintained a sound financial position. The performance of polytechnics was mixed, with the return on income below the recommended benchmark level and 8 out of the 20 polytechnics running operating deficits in 2006. Two of the three wānanga also experienced operating deficits in 2006. The financial performance of polytechnics and wānanga was influenced by a reduction in international students and policy changes to community education.

Why this is important

The impact of public resources on education outcomes depends on a range of factors, including the management and governance efforts applied to these resources in public schools and tertiary education institutions.

The government has ownership interests in public education institutions. It is important that those in charge of these institutions, such as boards of trustees, ensure the future financial wellbeing of their institutions.

How we are doing

This chapter looks at the financial performance of public education providers, specifically public schools (state schools and state-integrated schools⁵¹) and public tertiary education institutions (universities, polytechnics, colleges of education and wānanga). It provides a high-level summary of public schools' financial performance as considered in *New Zealand Schools: Ngā Kura o Aotearoa*

(2006) and public tertiary institutions' financial performance as considered in *Profile and Trends: New Zealand's Tertiary Education Sector (2006)*. More detailed information is available in these publications.

The financial performance of state and state-integrated schools

The collective financial performance of state and state-integrated schools was reasonably strong in 2006, although the collective performance has declined compared to 2005. In general, schools are in general being capably governed and managed and are in financially healthy positions. The data show:

- government funding⁵² as a percentage of schools' revenue has increased slightly since 2002. In 2006, 89 percent of primary schools' revenue and 83 percent of secondary schools' revenue came from government funding

⁵¹ State-integrated schools have been included in this analysis because they follow the state curriculum requirements (while retaining their 'special character' for example, religious observance) and the state pays day-to-day expenses, including teacher salaries. This funding represents the bulk of a school's revenue. The proprietors of integrated schools provide the accommodation.

⁵² Government funding represents what schools have received from government directly (including teachers' salaries). This does not represent the entire funding provided by the government as some payments were made to third parties for the benefit of the schools which do not go through schools accounts directly.





- the net operating surplus⁵³ as a percentage of revenue has declined from 1.3 percent in 2005 to 0.8 percent in 2006. The surplus at primary schools has declined from 1.6 percent of revenue in 2005 to 1.3 percent in 2006. The surplus at secondary schools has also declined from 1.1 percent in 2005 to 0.1 percent in 2006 (see Table 21.1)
- schools have steadily increased their working capital⁵⁴ over the last five years. Ninety-five percent of primary schools and 87 percent of secondary schools had healthy working capital ratios in 2006
- public equity⁵⁵ has increased gradually each year over the last five years. Eighty-two percent of primary schools and 76 percent of secondary schools had expanded their public equity between 2002 and 2006.

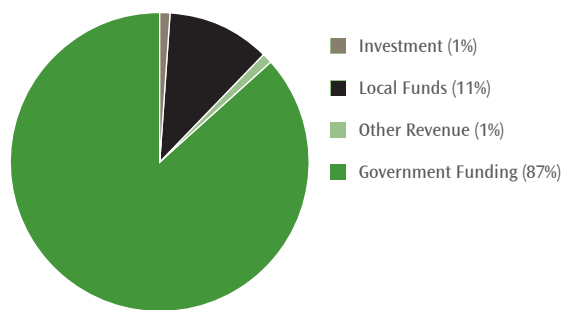
Table 21.1: Financial indicators of schools in real 2006 terms (2002, 2005 and 2006)

Financial Indicators	2002	2005	2006
Government Funding as a Percentage of Revenue	85.8	86.4	86.6
Net Operating Surplus as a Percentage of Revenue	1.5	1.3	0.8
Working Capital (\$m)	361.9	458.9	475.8
Public Equity (\$m)	1,153.0	1,416.8	1,446.0

Source: Ministry of Education

1. The dollar amounts for working capital and public equity have been inflated to 2006 dollars using appropriate June CPI values.

Figure 21.1: Breakdown of the estimated revenue the school sector received (2006)



The financial performance of public tertiary education institutions

The collective financial performance of the public tertiary education institutions improved between 2000 and 2004, but there was a reversal in 2005 and 2006, with performance falling on all four of the key indicators used to monitor

performance. However, in most financial measures, performance is above benchmarks set for prudent management of tertiary institutions (see Table 21.2).

This dip in financial performance reflects factors such as the reduction in international student enrolments and changes to the funding of community education. Universities performed better than other institutions because they faced only a small decline of international students and they have relatively small community education programmes and more diversified sources of income. The data show:

- liquid assets provide a buffer against variability in the operating environment. In public tertiary institutions, liquidity strengthened between 2000 and 2006, although it dropped from 18 percent in 2004 to 15 percent in 2006

⁵³ Operating surplus is the difference between revenue and normal operating expenditure (including depreciation).

⁵⁴ Working capital measures the difference between total current assets (including investments) and total current liabilities. A 'healthy' working capital means the school has enough money or liquid assets to cover short-term debt.

⁵⁵ Public equity represents net worth of the school. It is the difference between total assets and total liabilities.

- in 2006 the collective operating surplus of the public tertiary institutions was 1.9 percent of revenue. Universities had the largest operating surplus as a percentage of revenue (3.4 percent) while wānanga had the lowest with a deficit (-12.0 percent). Reasons for this decline below the benchmark level were the fall in international students, changes to the funding of community education and a reduction in the recently experienced roll growth
- asset productivity indicates how efficiently tertiary education institutions generate income on every dollar of assets. The tertiary sector continues to perform above the minimum benchmark (see Table 21.2)
- net cash flow the amount of cash institutions have left over after meeting their expenses has decreased slightly from 2005 to 2006, but remained above the minimum benchmark (see Table 21.2).

Table 21.2: Strategic financial position of tertiary education institutions (2000, 2005 and 2006)

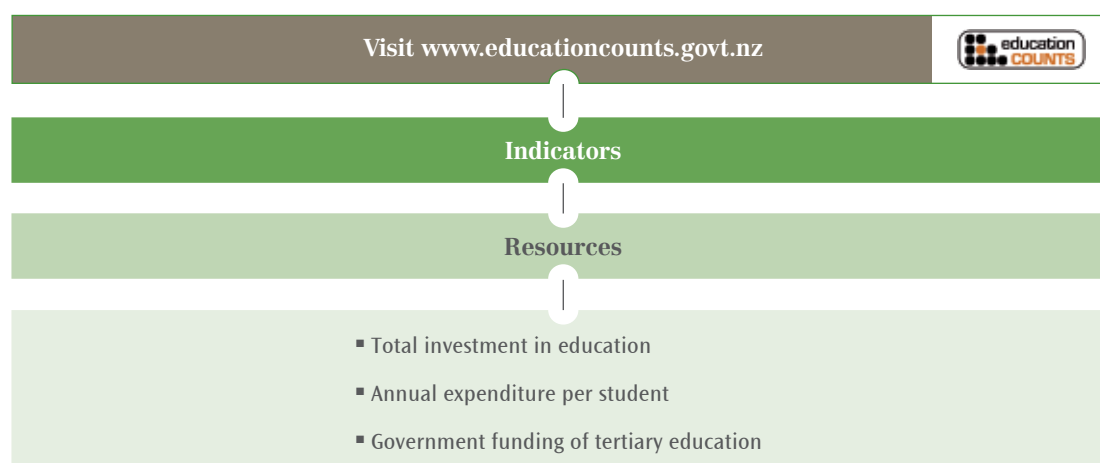
Financial Indicators	Percentage			
	Benchmark ¹	Performance in 2000	Performance in 2005	Performance in 2006
Liquid Assets	100	111	137	130
Surplus ² as a Percentage of Revenue	100	81	75	63
Asset Productivity	100	132	138	118
Net Cash Flow	100	120	123	118

Source: Ministry of Education

1. Performance data have been scaled to form an index. The Tertiary Education Commission (TEC) benchmark for prudent operation has been scaled to 100.

2. Surplus excludes abnormal items.

Where to find out more





Part 6

Appendices



Glossary of Terms

Bachelors or higher degree

Includes bachelors degree, advanced diploma, postgraduate diploma, masters and doctorate degrees.

Colleges of education

Public tertiary education institutions (TEI) that provide mainly specialist teacher education training. They also offer other non-teaching courses such as business, performing arts, sport coaching and science, as well as professional development for teachers. All of these institutions in New Zealand have now amalgamated with universities.

Decile

A school's decile indicates the extent to which the school draws its students from low socio-economic communities. Decile 1 schools are the 10 percent of schools with the highest proportion of students from low socio-economic communities, whereas decile 10 schools are the 10 percent of schools with the lowest proportion of these students. A school's decile represents a proxy of the overall socio-economic mix of the students in the school.

Early leaving exemption

Parents may apply for permission for students to leave school before their sixteenth birthday. The application must be based on the students' educational problems or conduct, or the estimated benefit of their staying at school. Students granted Early Leaving Exemptions can take up training courses, or enter polytechnics, university, or fulltime employment.

Education and care services

These services provide sessional, all-day or flexible-hour programmes for children from birth to school age. They may be privately owned, community-based or operated as an adjunct to a business or organisation. Individual Education and Care Services may be known by many names, including crèches, private kindergartens, aoga, punanga reo, and childcare centres. These services are teacher-led and are required to meet the teacher registration targets.

Employment

Number of people in work for one hour or more per week.

Equivalent Full-Time Student (EFTS)

This is a unit for counting tertiary student numbers. The basis of the EFTS system is that a student taking a normal year's full-time study counts as 1.0 EFTS unit or the equivalent of 120 credits on the National Qualifications Framework. The courses taken by part-time students are proportions of 1 EFTS unit: for example, 0.75 EFTS.

Exclusion

Students who are excluded are not allowed to return to the school they have been excluded from, but must enrol elsewhere. Only students under the age of 16 can be excluded.

Expulsion

Students who are expelled are not allowed to return to the school they have been expelled from. They may enrol at another school. Only students aged 16 or over can be expelled from a school.

Formal tertiary education

For the purposes of statistical reporting, a tertiary student is considered to be a formal student when enrolled in a formal programme of study of more than one week's full-time duration (i.e. an equivalent full-time student (EFTS) value greater than 0.03). The programme must lead to a qualification approved by an authorised certifying body or issued by an institution.

Frequent truant

A student who was unjustifiably absent for three or more days during the week of the attendance survey.

Graduate income premium

See Income Premium.

Home-based childcare services

Early childhood services where early childhood education is provided to small groups of children in a caregiver/educator's or child's own home. Home-based care services are grouped together in networks, which are supervised by coordinators who are registered teachers.

Household labour force survey (HLFS)

A quarterly survey conducted by Statistics New Zealand to monitor labour force activity in New Zealand.



Income

Refers to income from all sources – salary, wages, self-employment, plus unearned income such as benefits, dividends and interest.

Income premium

The additional income a group have as a result of higher qualifications: for example, a bachelors degree versus a schooling qualification.

Industry training

Industry training (including the Modern Apprenticeship scheme) is the main workplace learning programme in New Zealand. Industry, via Industry Training Organisations (ITOs), is responsible for setting skill standards and developing training programmes for its learners. Industry training learners have formal training agreements with both their employer and their ITO, which facilitate structured training. Training leads to a nationally recognised qualification on the National Qualifications Framework (NQF). ITOs do not provide training themselves but make arrangements for workplace assessments and off-job delivery of training, such as the purchase of training from a polytechnic or a private training establishment.

Institutes of technology and polytechnics

A public tertiary education institution (TEI) that is characterised by a diversity of vocational and professional programmes. Usually known as polytechnics.

Kindergartens

Teacher-led early childhood services represented by the New Zealand Kindergartens Inc. or the New Zealand Federation of Free Kindergartens, providing sessional programmes for mainly three and four year old children.

Licence-exempt early childhood groups

Services that have been issued an exemption from licensing requirements, in recognition of the fact that more than half of the children attending attend with a parent.

Licensed early childhood services

Any premises used regularly for the education or care of three or more children under the age of six must be licensed, except where specifically exempted by the Minister of Education.

Modern apprenticeships

Introduced in 2000, the Modern Apprenticeships scheme is a work-based training initiative that encourages and helps young people, particularly those aged between 16 and 21 years, to take up and complete apprenticeship training. For modern apprentices, the NQF qualifications have replaced the trade and advanced trade certificates of the past.

National Certificate of Educational Achievement (NCEA)

NCEA is New Zealand's national qualification on the National Qualification Framework (NQFW), which is based on credits from all unit and achievement standards. NCEA Level 1 replaced School Certificate in 2002 and is usually undertaken by Year 11 students. In 2003 NCEA Level 2, which is usually undertaken by Year 12 students, was introduced. NCEA Level 3 was introduced in 2004 and replaced university Bursaries. NCEA Level 3 is usually undertaken by Year 13 students.

National Education Monitoring Project (NEMP)

NEMP is solely New Zealand assessment study of Year 4 and Year 8 students, undertaken by the Education Assessment and Research Unit (EARU) of the University of Otago under contract to the Ministry of Education. NEMP measures achievement across all the curriculum areas including reading, writing and mathematics. Monitoring started in 1995 and runs every year in a four-year cycle across curriculum areas.

New Zealand Income Survey (NZIS)

An annual survey conducted by Statistics New Zealand, which collects information on wages and salaries, self-employment, government transfers and other transfer income, supplementary to the Household Labour Force Survey (HLFS).

New Zealand Teachers' Council (NZTC) Registration

New Zealand Teachers' Council (NZTC) registered teachers include teachers who hold NZTC practising certificates which have NZTC full registration, registration subject to confirmation, or registration that is provisional. Full registered teachers are teachers who have satisfactorily completed two years of teaching in New Zealand in the last five years. Registration subject to confirmation includes experienced teachers from overseas and experienced New Zealand teachers who have taught for less than two of the last five years in New Zealand. Provisional registration is given to beginning teachers (newly graduated teachers who have not been early childhood qualified teachers before).

Playcentres

Early childhood services that belong to an association affiliated with the New Zealand Playcentre Federation Inc. A primary characteristic of playcentres is that families manage and implement the education programme. Playcentres may be licensed ECE services or licence-exempt ECE groups.





Programme for International Student Assessment (PISA)

PISA is an OECD-sponsored study of 15 year-old students which assesses achievement in reading literacy, mathematical literacy and scientific literacy. The main focus of the assessment changes with each cycle. The major domain of the 2003 cycle was mathematics, with reading literacy and scientific literacy as minor domains. In 2006 the major PISA domain was science, with reading and mathematics as minor domains. PISA assessment focuses on applying knowledge and experience to real world issues, rather than being limited to mastery of specific school curricula.

Progress in International Reading Literacy Study (PIRLS)

PIRLS is a study of Year 5 students. The most recent results are from the 2005/06 cycle. The International Association for the Evaluation of Educational Achievement (IEA) sponsors PIRLS. PIRLS assessment focuses on three aspects of students' reading literacy: process of reading comprehension, purposes of reading and reading behaviours and attitudes.

Quintile

A school's decile indicates the extent to which the school draws its students from low socio-economic communities. Quintile 1 schools (deciles 1 and 2) are the 20 percent of schools with the highest proportion of students from low socio-economic communities, whereas quintile 5 schools (deciles 9 and 10) are the 20 percent of schools with the lowest proportion of these students.

Retention rate

The proportion of students still enrolled to ages 16.5 and 17.5 years old, beyond the minimum school leaving age of 16.

Stand-down

Students on stand-down are not allowed to attend school for a period of up to five school days. The school principal can decide whether a student should be stood-down and can decide on how many days the stand-down will last for. Stand-downs, for any student, can total no more than five school days in any term, or 10 days in a school year. Following stand-downs, students return automatically to school.

Suspension

Students who are suspended are not allowed to attend school until the board of trustees decides the outcome at a suspension meeting. The school principal can suspend a student, but the school board decides the next step. The

board may decide to list the suspension with or without conditions, to extend the suspension, or, in the most serious cases, to either exclude or expel the student.

Suspension Reduction Initiative (SRI)/ Suspension Engagement Initiative (SEI)

The SRI was established in 2001 to counter the disproportionately high number of Māori suspensions. Its goal is to reduce Māori suspension statistics to the same rate as non-Māori students by 2016, and it is one of a number of initiatives directed towards the underlying goal of improving and sustaining Māori student achievement and retention.

This initiative has since been integrated into the Student Engagement Initiative (SEI), a programme designed to reduce truancy and early leaving exemptions, as well as suspensions.

Trends in International Mathematics and Science Study (TIMSS)

TIMSS 02/03 was the third in a cycle of studies designed to measure trends in mathematics and science achievement, at the middle primary and lower secondary levels, across a large number of countries. The International Association for the Evaluation of Educational Achievement (IEA) sponsors TIMSS. The study has been carried out in New Zealand in 1994, 1998 and 2002.

Unemployment

The number of people who are not in work, but who are available for and actively seeking work.

University

A public tertiary education institution (TEI) that is primarily concerned with advanced learning and knowledge, research, and teaching to a postgraduate level.

University entrance

A prerequisite for entrance to university for people who have not attained the age of 20 years. University Entrance requires a minimum of 42 credits at NCEA Level 3 or higher. Within these credits there must be at least 14 credits at Level 3 or higher in two separate subjects from a list of 'approved subjects'. There are also literacy and numeracy requirements. A student must gain at least 14 numeracy credits at Level 1 or higher and eight literacy credits at Level 2 or higher, four in reading and four in writing.

Technical notes

Ethnicity

The ethnic group or groups to which an individual belongs. The concept of ethnicity adopted by the Ministry of Education is a social construct of group affiliation and identity. The Ministry of Education uses the definition of ethnicity used by Statistics New Zealand, namely:

A social group whose members have one or more of the following characteristics:

- they share a sense of common origins
- they claim a common and distinctive history and destiny
- they possess one or more dimensions of collective cultural individuality
- they feel a sense of unique collective solidarity

Prioritisation of ethnicity is when people are allocated to one of the ethnicities they have recorded they affiliate with. This usually occurs when data are collected manually and/or aggregate data returns are collected centrally. This allocation is performed using a predetermined order of ethnic groups. The purpose of this prioritisation is to ensure that ethnic groups of policy importance are not swamped by the European/Pākehā ethnic group.

In the Early Childhood Education and Schooling sections of this publication ethnicity is prioritised in the order of Māori, Pasifika, Asian, other groups except European, and European/Pākehā.

Multiple ethnicities are used in the Tertiary part of this publication. Multiple ethnicity works by considering each ethnicity a person affiliates with as one data entry. For example, the data relating to an individual who affiliates as both Māori and Pasifika will be included in both categories. This approach can be undertaken in tertiary analysis as most data is collected in a disaggregated fashion.

In this publication European/Pākehā refers to people who affiliate as New Zealand European, Other European or European (not further defined). For example, this includes but is not limited to people who consider themselves as Australian (not including Australian Aborigines), British and Irish, American, Spanish, Ukrainian and Czech.

Part 1 – Early Childhood Education

Chapter 1 – Participation

Apparent participation rate –

The number of children attending early childhood education services is collected as at 1 July of each year. The data consists of the total numbers of children in each service, by ethnic group and age. It is not currently possible to identify individual children, so the total number of enrolments contains those children enrolled at more than one service.

The apparent participation rate is calculated by taking the total number of enrolments by age group as a proportion of the total population for that age group based on Statistics New Zealand census population projections. Because of the double counting of children, the apparent participation rate is above 100 percent for some age groups.

Prior participation rate –

When children start school their parents are asked if their child has been regularly attending early childhood education. The rate of participation in early childhood education is calculated as those children attending early childhood education as a proportion of all those children starting school, excluding those whose attendance cannot be determined. This measure eliminates double counting of students that occurs when calculating the apparent participation rate. However, no information on the type of service is collected here.

The prior participation rate is essentially a four-year-old participation rate given the age children generally start school in New Zealand.

Chapter 4 – Teaching

Enrolments/students in tertiary early childhood education courses –

Students may enrol in and complete more than one early childhood education tertiary course leading to teacher registration. Therefore enrolments and completion numbers will be slightly higher than the number of students enrolling and graduating. However, the differences between enrolments and students, and completions and graduates, are small.



Part 2 – Schooling

Chapter 5 – Foundation Knowledge

Progress in International Reading Literacy Study (PIRLS) –

Mean PIRLS scores are based on scores generated using Item Response Theory. These scores are reported on an international scale with an international standard deviation of 100 so that approximately two-thirds of all students internationally have scores between 400 and 600.

Trends in International Mathematics and Science Study (TIMSS) –

Mean TIMSS scores for New Zealand population and sub-populations are based on scores generated using Item Response Theory. These scores are reported on an international scale with an international standard deviation of 100 so that approximately two-thirds of all students internationally have scores between 400 and 600.

Chapter 6 – Student Engagement

Stand-down, suspension, exclusions and expulsions: interpretation issues –

There was an apparent large increase (greater than 50 percent) in both the stand-down and suspension rates for Other ethnic groups between 2000 and 2001, while there was little change from 2001 on. This could be a result of small numbers of students being recorded as Other when recording stand-downs and suspensions while, on the school roll they may appear in one of the larger ethnic groups.

In 2004, 2005 and 2006 for a small number of schools there was an abnormally large increase in the numbers of stand-downs and/or suspensions and/or exclusions and/or expulsions recorded as belonging to Other ethnic groups. Investigation of individual records, trends over time for each school and each school's catchment area indicated that a considerable number of records had an ethnic group erroneously coded as Other. A conservative adjustment was made to the data to correct for this poor coding.

Chapter 7 – Participation

Apparent retention rate: interpretation issues –

This measure is calculated from aggregate roll return data which captures the age of the student in whole years. Therefore, a student aged 16 on 1 July, which is the date the data is captured, could be between 16 years and 0 days, and 16 years and 364 days. Statistically it is a measure of those who stay at school to age 16.5 years on average. The same issue applies to 17 year-olds.

Because the retention of individual students cannot be tracked over time, the retention rates shown in this chapter are only estimates. The estimates are derived by comparing total enrolments, by ethnic group etc. for 16.5 and 17.5 year-olds in each year with the total number of enrolments of 14.5 year-olds two and three years earlier respectively. Due to high migratory inflows, enrolments have actually increased, inflating the observed retention rate. Similarly, both positive and negative net migration can affect the results for all groups, but its effects are most pronounced in the Asian population where the apparent retention rates for 16.5 and 17.5 year-olds was 122 percent and 121 percent respectively in 2004.

This enrolment increase does not include Ministry of Foreign Affairs Scholarship and Foreign Fee-Paying students, who have been excluded from the analysis.

Early leaving exemptions: interpretation issues –

For all years there were at least seven percent of students for whom no ethnicity code had been recorded. The distribution of cases with ethnicity codes has been applied to the set of students with no ethnicity codes so as to equate numbers by ethnic group with total numbers of cases. For this reason all comparisons by ethnicity should be viewed as estimates only.

The data include students without a 'last school attended'. These students were home-schooled, newly arrived in New Zealand (so had never been to school here) or truant (that is, the student was not enrolled at school when the exemption was granted), with the exemption possibly being with the assistance of NETS.

Chapter 9 – Knowledge – Secondary Years

Programme for International Student Assessment (PISA) –

Mean PISA scores for the New Zealand population and sub-populations are based on scores generated using Item Response Theory. These scores are reported on an international scale with an international standard deviation of 100 so that approximately two-thirds of all students internationally have scores between 400 and 600.

Trends in International Mathematics and Science Study (TIMSS) –

Mean TIMSS scores for the New Zealand population and sub-populations are based on scores generated using Item Response Theory. These scores are reported on an international scale with an international standard deviation of 100 so that approximately two-thirds of all students internationally have scores between 400 and 600.



Chapter 10 – School Leavers – Qualifications

National Certificate of Educational Achievement (NCEA): interpretation issues –

NCEA is part of the National Qualifications Framework and has replaced School Certificate, Sixth Form Certificate, University Entrance and University Bursaries qualifications. In 2002 all schools implemented NCEA Level 1, replacing School Certificate.

In 2003 NCEA Level 2 was introduced. However schools were still able to offer a transitional Sixth Form Certificate Programme. From 2004 Level 3 NCEA replaced Higher School Certificate, University Entrance and University Bursaries. In 2004 a new Level 4 qualification, New Zealand Scholarship, was also offered.

The change in qualification structure means that any comparison between current and previous years' data is problematic. The data presented here are one possible means of drawing some comparison. However when interpreting any changes over time the disparity between the qualification structures must be taken into account.

Little or no formal attainment, NCEA Level 2 –

The change in qualification structure means that any comparison of the proportion of students with little or no formal attainment between current and previous years is problematic. Previous qualifications, such as School Certificate, were awarded to students if they had completed the assessment and met attendance requirements, independent of the grade awarded.

The new qualification structure, however, is designed to award students credits when they have met achievement rather than participation criteria. These data provide the basis for the graph and are one possible means of drawing some comparison. However when interpreting any changes over time the disparity between the qualification structures must be taken into account.

University entrance standard –

Historically a student who had achieved the required prerequisites to go directly to tertiary study at the degree-level was awarded the qualification University Entrance. This qualification has essentially been replaced by NCEA Level 3.

Because NCEA allows more flexibility for students' courses and more detailed assessments and understanding of what students know from a course of study, it is possible to attain NCEA Level 3 and not have met the required prerequisites for degree-level study, or not attain NCEA Level 3 but have proven to meet the requirements for the degree.

Hence this indicator is about meeting a university entrance standard (which is about being able to attend university to study at the degree-level if desired) rather than attaining a University Entrance qualification or NCEA Level 3.

In 2005 there was no category to identify those attaining 42 to 59 credits at Level 3 or above who also met University Entrance requirements. Rather, all leavers with 30 to 59 credits at Level 3 or above were grouped together. In order to estimate the number of leavers gaining 42 to 59 credits at Level 3 or above meeting University Entrance requirements, results for Year 13 to Year 15 candidates from the 2005 National Qualifications Framework data have been used. The proportion of Year 13 to Year 15 candidates gaining 42 to 59 credits at Level 3 or above with University Entrance, for each school, ethnic group and gender, has been applied to the corresponding set of leavers with 30 to 59 credits at Level 3 or above, by school, ethnic group and gender. In 2006 the data collected indicated students who attained a University Entrance Standard.



Part 3 – Tertiary

Changes in tertiary numbers from 2006 State of Education

A number of revisions of tertiary data were made during 2007. This has resulted in differences in numbers (and rates) for some tertiary measures between what was shown in “State of Education in New Zealand: 2006” and what appears in this report. The two principal reasons for these differences are provided below.

A major review was undertaken of the quality of qualification award category codes (a classification of level of study) and NZSCED field of study assigned to qualifications. As a result, a number of qualifications had their level and field of study revised. The effect of this saw between 1,000 and 2,000 enrolments a year being reclassified from type ‘D’ to type ‘C’. Currently only records known as ‘Type D’ are included in enrolments. These relate to students enrolled in formal qualifications of more than one weeks equivalent full-time study. Non-formal enrolments and formal enrolments of a week or less equivalent full-time study are excluded. Hence, those recoded to type ‘C’ are now out of scope and not included in this year’s supply. Many students previously coded to level 1-3 certificates have now been reclassified as level 4 certificates, or level 5-7 diplomas. The change does not affect completions but impacts on higher-level progression rates.

A major review of individual student identifiers, and the data matching process to assign these, was also undertaken during the year. As part of the tertiary reforms introduced by the government in 2006, there was a need to have better information on the attrition, completion, and progression rates for each individual institution. As well, there was an apparent discontinuity in system completion and attrition rates using individual student identifiers before 2003 (based on SN) with rates from 2003 onwards (based on NSN). Both these factors made it essential that the Ministry of Education review the data matching methodology. The availability of four years of NSN data was able to provide a powerful independent means to measure the accuracy of the matching, and to revise the processes used. The methodology was extensively reviewed in 2007 and SNs were regenerated for all existing enrolments and completions data from 1994 to 2006.

Chapter 12 – Participation

Age-standardised participation rate –

The age-standardised participation rates are standardised to the national age distribution (i.e. they represent the rate a group would have if they had the same age distribution as the national age distribution).

Chapter 13 – Achievement

Completion rate –

The completion rate is the percentage of students starting courses or qualifications who successfully complete them. Qualification completion rates are often expressed as the percentage completed after five years, while course completion rates generally relate to one year. Qualification completion rates by level include students who complete different qualifications to the ones they started provided the qualifications completed are at the same level as the ones started. Similarly, qualification completion rates by sub-sector can include students who complete qualifications at different providers to the ones they started at, so long as the providers are part of the same sub-sector as the ones they started at.

Chapter 15 – Research

Real terms –

Sums quoted in real terms have been adjusted for the effects of inflation over time using the Consumer Price Index.

Statistical matching –

The Ministry of Education uses statistical matching methods to link the enrolment and completion records of students who were enrolled prior to 2003.

Performance-Based Research Fund (PBRF) eligible workforce/staff –

To be eligible to participate in the 2003 quality evaluation, staff had to meet the following criteria:

- **EITHER** have been employed on the staff census date under an agreement of salaried employment with a duration of at least one year
- **OR** have been employed on the staff census date by a Tertiary Education Organisation or eligible subsidiary for at least one year under one or more agreements of salaried employment on a continuous basis
- **AND** have been employed for a minimum of one day a week on average or 0.2 full-time equivalent over the period of the entire year
- **AND** their employment functions include research and/or teaching degree-level programmes.



Part 4 – Labour Market

Chapter 17 – Impact Of Education On Income

Real median income –

This is the weekly median income adjusted for inflation using the Consumer Price Index (CPI) to reflect income in real dollar terms in 2006.

New Zealand Income Survey: interpretation issues –

The data will contain both sampling and non-sampling errors.

The sampling methodology used by Statistics New Zealand in collecting the data for the Household Labour Force Survey (HLFS) and New Zealand Income Survey (NZIS) can result in the figures for the smaller ethnic groups (Māori and Pasifika) being less stable than for larger groups (European/Pākehā) owing to a larger sampling error. Caution therefore should be exercised in interpreting changes in the data for these smaller groups over time.

Chapter 18 – Graduate Income Premium

Graduate income premium –

The terms ‘graduate income premium’, ‘graduate earnings premium’ and ‘premium for completion’ are all used to denote the ratio of the mean earnings of those who successfully complete qualifications to the mean earnings of those who study for those qualifications but leave study without having completed them successfully.

It is possible to calculate the premium using the median earnings of each group rather than the mean. This was the approach used in Hyatt and Smyth (2006). In this analysis the mean was used largely because the privacy protocols governing use of the integrated dataset allow use of the mean in relation to all of the sub-groups that were the focus of this study. Small cell size would prevent use of the median in relation to some of the sub-groups.

The decision to use the mean rather than the median results in the measure being subject to distortion due to the mean being affected by extreme observations. This effect is particularly noticeable when comparing men with women. Men’s incomes are more widely dispersed than women’s. Because a disproportionately large share of those with very high incomes are men, the difference between men and women in the earnings premium calculated by means is greater than when the premium is calculated by medians.

For instance for bachelors degree graduates of the 1997 cohort three years post study, there is a difference in the premiums for men and women of six percentage points when the mean is used. Using the median, the difference in the premium reduces to three percentage points. Five years post study, the difference is 10 percentage points using the mean but only seven using the median.

In other words the use of means, not medians, has the effect of overstating the differences between men and women.

Chapter 19 – Unemployment Rates

New Zealand Income Survey (NZIS)/Household Labour Force Survey (HLFS): interpretation issues –

Data for this indicator were obtained from New Zealand Income sample surveys, and will contain both sampling and non-sampling errors. Sampling error is a measure of the variability that occurs by chance because a sample rather than an entire population is surveyed. Non-sampling errors include errors arising from biases in the patterns of response and non-response, inaccuracies in reporting by respondents (including inaccuracies as a result of proxy interviewing) and errors in the recording and coding of data. The Household Labour Force Survey does not measure the quality of people’s jobs: for example, whether they work in casual jobs, how much they are paid, whether they get sick leave, etc.

There are also sometimes complaints about the definitions used in the Household Labour Force Survey (that is, to be counted as employed you only have to have worked for one hour or more in a week, or you can even work unpaid in a family business. And to be unemployed you have to be available to start a job and be actively seeking work – not just looking in newspapers). Therefore, caution needs to be exercised when interpreting the results for comparing smaller groups with the larger group.

Labour force participation rate –

The proportion of the working-age population that is in the labour force.



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