



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

# State of Education

in New Zealand 2008

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# Foreword

The State of Education series is an annual publication. *State of Education in New Zealand: 2008* is the third issue in the series, with most of the data relating to the previous year (2007).

The series provides a system-wide assessment of key aspects of the education system and of trends. In doing so it draws together information from a wide range of sources, some of which have been previously released. But the advantage of this publication is that it provides an overall picture of the education sector and how that sector is meeting the needs of particular population groups. The series does not attempt to assess and compare performance across particular providers.

The general education picture is positive in many respects and there have been improvements in recent years.

However, there are always areas that require further development. One that this system wide view highlights is that the need for continuing efforts to ensure that students, particularly many of our children from areas of socio-economic disadvantage, do not fall behind and disengage from education applies to all parts of the sector.

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.

The education sector indicators presented in the State of Education series are available from the *Education Counts* website ([www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)), where greater detail is 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 graphic showing where information can be found.



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

**Karen Sewell**  
Secretary for Education



# Executive Summary

The State of Education series documents how education is performing across different parts of the education sector, and the impact of education through to the labour market. Performance has been positive, with recent years showing continued improvements.

Time spent in early childhood education (ECE) enhances future learning and contributes to a child's later development. The number of children attending and benefiting from early childhood education services has increased since the early 1990s, as has the time children spent at these services (see Chapter 1). Quality of service, as measured by the proportion of qualified and registered staff, has been increasing with rapid growth occurring from 2004 (see Chapter 4).

Despite this rising demand for early childhood education services, accessibility does not appear to be a problem. And the recent introduction of *20 Hours ECE* has seen the price that families pay for early childhood education services fall considerably (see Chapter 2). The sustainability of early childhood education services continues to improve, in part because of the increased occupancy rates.

Primary schooling builds on the concepts gained in early childhood education and lays the foundation for success in later schooling years. Recently released international studies show that, on average, New Zealand Year 5 students perform at around the international mean (see Chapter 5). By the time they are 15 years old, students will be performing significantly above the international mean (see Chapter 9).

Students who are 'engaged' in education, that is, who participate and become involved in their schooling communities, are more likely to reach their educational potential and succeed. Students who disengage, and in particular leave school early, are more likely to face hardship in the labour market as well as being excluded from necessary learning opportunities later in life. Students from socio-economically disadvantaged communities and Māori students (who are over-represented in these disadvantaged communities) have relatively poor rates of student engagement, continuing the trend of previous years (see Chapters 6 and 7).

The knowledge and skills young people gain at secondary school are critical to their successful participation in tertiary education; also, a formal school qualification is a basic prerequisite of many entry-level jobs. International studies show that 15-year-old New Zealand students achieved significantly above the international mean (see Chapter 9). More secondary students left school with qualifications than in previous years, giving the students more chances of continuing on to tertiary education and enabling better labour market opportunities (see Chapter 10).

Tertiary education allows people to develop the knowledge and skills to live in a modern, rapidly changing knowledge-based society. Higher educational attainment is associated with a range of positive outcomes, including better income, employment and health. After substantial increases in the number of people enrolled in tertiary education over the decade, there was a decrease in 2007, largely because of reductions in certificate-level study (see Chapter 12).

Tertiary education also contributes to the expansion of scientific and cultural knowledge. After rapid growth in between 2000 and 2004, the number of international students enrolled in tertiary education providers has declined for three consecutive years. However, it was still about four times higher in 2007 than it was in 1998 (see Chapter 14). Latest qualification data show the number of doctorates awarded was increasing. Research quality in the tertiary sector was assessed in 2003 and 2006. Comparisons show increases in both the production of 'original and innovative research', and 'highly original research' (see Chapter 15).



While the general education picture for New Zealand continues to be positive, the system continues to underperform for specific groups of learners. Generally, early childhood education services and schools that draw their children and students from communities with the greatest socio-economic disadvantage have the worst rates for qualification attainment, numeracy and literacy, and student engagement. The over-representation of Māori and Pasifika in these socio-economically disadvantaged communities means that these groups of students are particularly at risk.

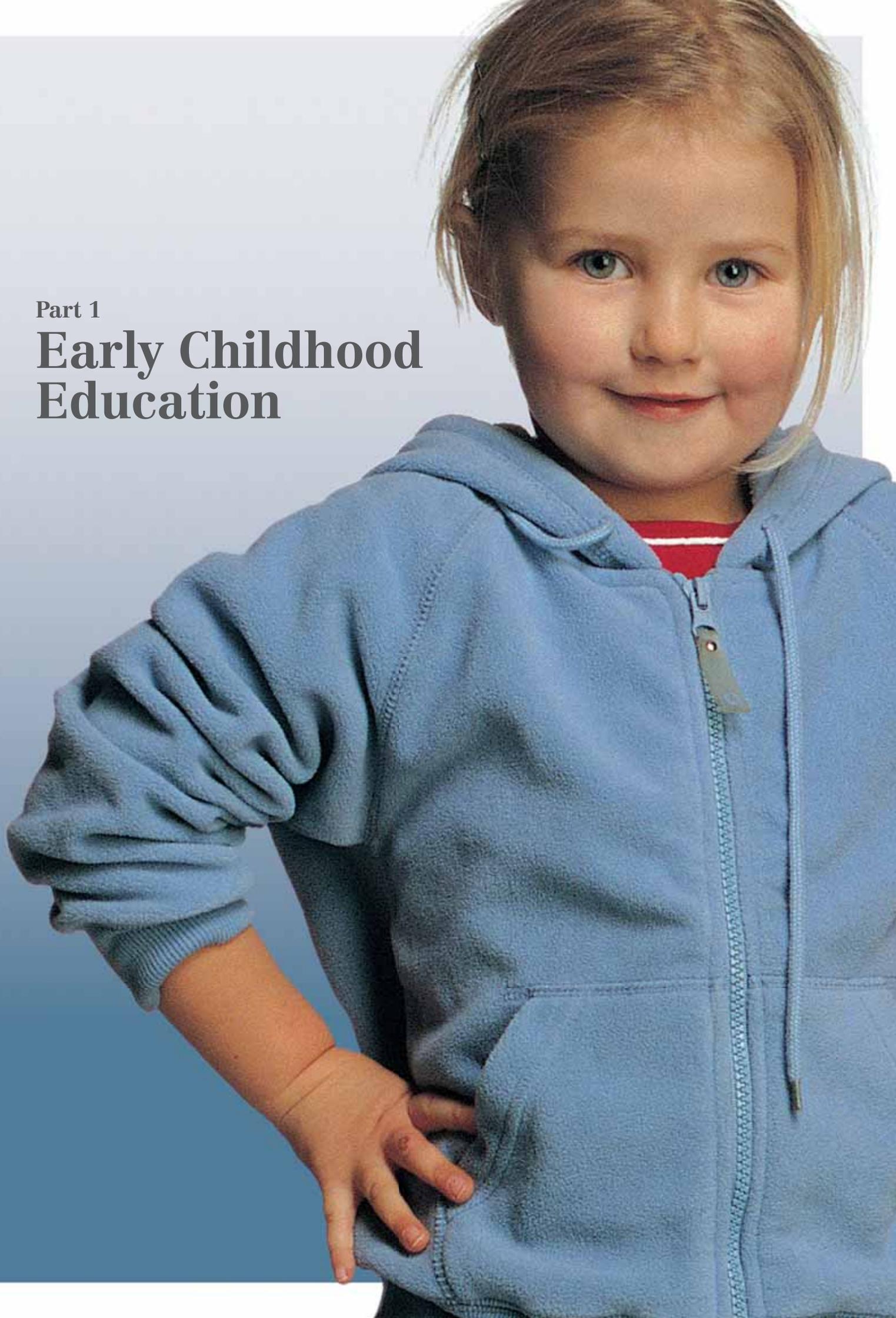
In recent years, Māori and Pasifika students and students from low socio-economic communities have tended to improve at relatively higher rates than other groups for student engagement, numeracy and literacy, and schooling qualifications. This suggests that disparities are reducing. However, there has been insufficient progress in reducing persistent, long-standing educational disparities.





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 17 years. The rate of increase has been greatest for children aged one, two, and three years. During this time the labour market has strengthened, which means more parents of young children are likely to be in work.

In 2007, 95 percent of children received some form of early childhood education before starting school. Participation in early childhood education increased for children from all communities and backgrounds since 2002. The increase was greater for children from Māori and Pasifika communities and those from lower socio-economic backgrounds.

Despite this overall trend, participation for Pasifika and children from lower socio-economic backgrounds has fallen slightly in recent years. Overall, children from these communities have lower levels of participation in early childhood education.

In the past decade, the proportion of children attending all-day services compared to the shorter sessional services has increased by 50 percent.





## Why this is important

Children who participate in quality early childhood education gain benefits that continue beyond their early school years.<sup>1</sup> These children show higher cognitive skills and more advanced social skills than children who do not participate in early childhood education.<sup>2</sup> 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.<sup>3</sup>

## How we are going

### Enrolments and time spent in early childhood education

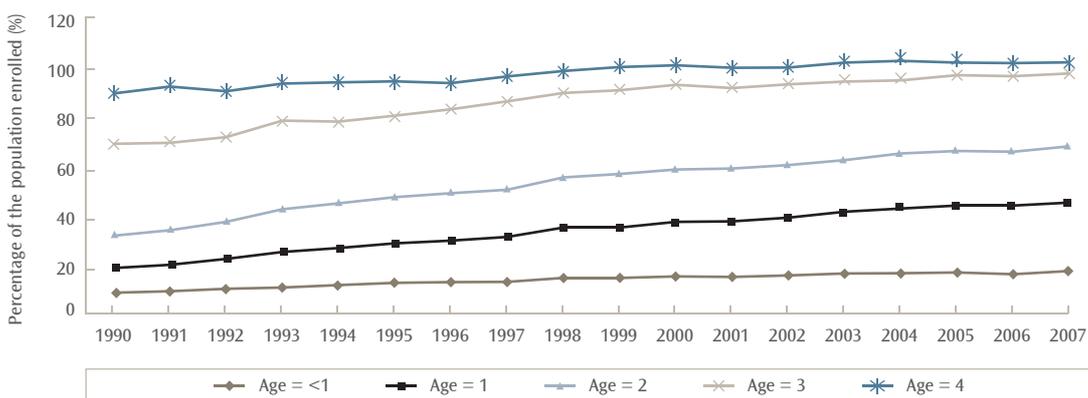
Over the past 17 years, the number of enrolments in early childhood education services has grown for all ages. The data show:

- between 1990 and 2007 there was an increase in enrolments across all ages, with enrolments growing for each age group over the past year (see Figure 1.1)
- the growth is most noticeable for children aged one, two, and three years. Four-year-olds already

had high participation through New Zealand's kindergarten system

- 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 2007 this figure had risen to 63 percent. This change towards all-day services most likely reflects the growing number of employed parents
- driven by 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 past three years
- on average, the number of hours per enrolment has increased from 13.5 hours for the four service types shown in Figure 1.2 to 17.6 hours in 2007. The number of hours per child is likely to be higher, as some children are enrolled in more than once service (see Figure 1.2).

Figure 1.1: Enrolment rates in early childhood education by age (1990 to 2007)



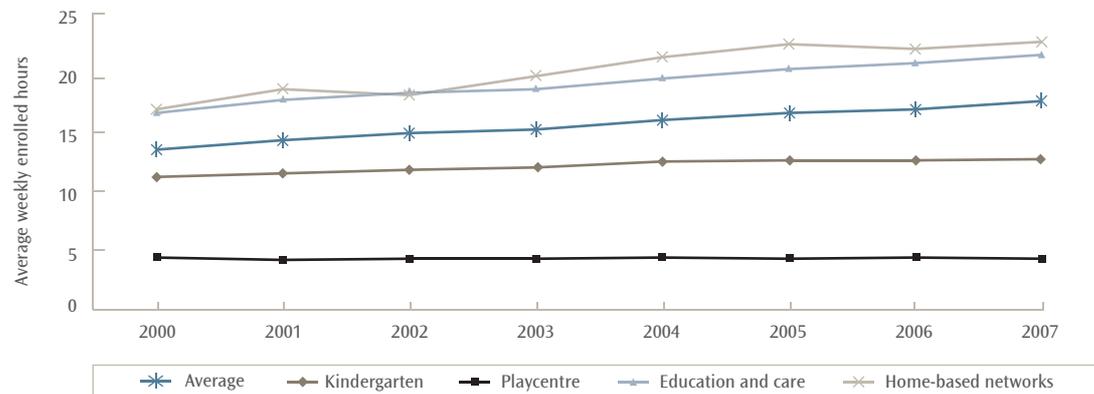
Source: Ministry of Education (2008a)

1. Children aged five years are excluded.
2. Children can enrol at more than one service so double counting of enrolments will occur, causing the enrolment rate to be greater than 100 percent for some age groups.

<sup>1</sup> Wylie, C., Hodgen, E., Ferral, H., & Thompson, J. (2006).

<sup>2</sup> NICHD Early Childcare Research Network. (2006).

<sup>3</sup> Leleman, P. P. M. (2002).

**Figure 1.2:** Average weekly enrolled hours in early childhood education by service type (2000 to 2007)

Source: Ministry of Education (2008b)

1. Kōhanga reo services are excluded as weekly enrolled hours are not collected (most children are estimated to be attending between 27 and thirty hours a week).

### *Participation in early childhood education by socio-economic background*

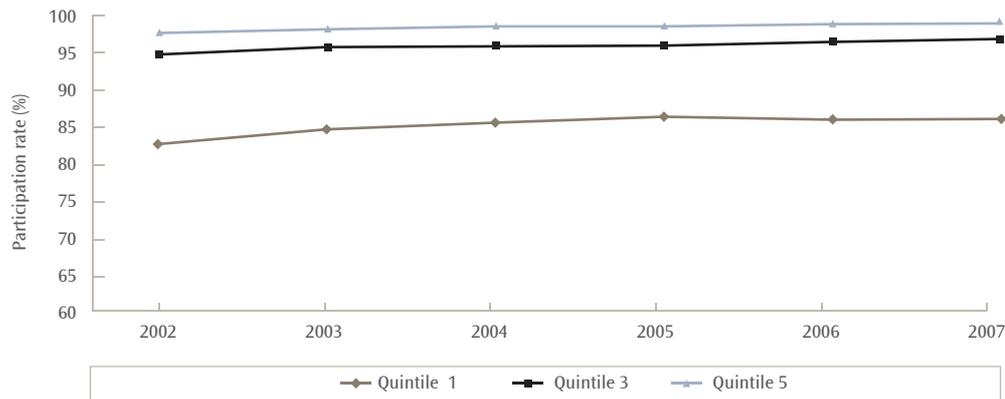
The extent to which children participate in early childhood education differs between different socio-economic backgrounds. Schools' deciles<sup>4</sup> can be used to identify differences in prior participation in early childhood education by socio-economic background. The data show:

- over the past six years, participation in early childhood education has increased across all socio-economic backgrounds (see Figure 1.3)

- in 2007, 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 is down slightly from its 2005 high for children attending quintile 1 schools, but well up from its level in 2002 (see Figure 1.3).

<sup>4</sup> 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 2007)



Source: Ministry of Education (2008c)

1. Correspondence School early childhood education, health camps, students on New Zealand Agency for International Development scholarships and foreign fee-paying students are excluded.
2. Prior to 2004, the New Zealand Agency for International Development scholarship was known as a Ministry of Foreign Affairs and Trade (MFAT) scholarship.
3. The number of students with unknown attendance has been excluded when calculating participation rates.
4. Students who attend schools that do not have a decile rating, mostly private schools, are excluded.

***Participation in early childhood education by different ethnic groups***

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

- in 2007, 95 percent of children had participated in some form of early childhood education before starting school
- participation has continued to grow, but at a slower rate than earlier this decade (see Table 1.1)
- Pasifika participation rates have slowed, with a decrease of 0.7 percentage points since 2004.



**Table 1.1:** Prior participation rates in early childhood education for children starting school by ethnic group (2002 to 2007)

Ethnic group	ECE prior participation rate (%)					
	2002	2003	2004	2005	2006	2007
Māori	86.5	88.4	89.3	89.9	89.9	90.6
Pasifika	79.4	83.4	84.7	84.5	84.2	84.0
Asian	92.1	92.4	94.1	95.1	96.0	96.0
Other	86.6	88.9	89.4	89.9	91.7	93.6
European/Pākehā	96.6	97.4	97.6	97.7	98.0	98.2
<b>Total</b>	<b>92.3</b>	<b>93.6</b>	<b>94.1</b>	<b>94.3</b>	<b>94.5</b>	<b>94.7</b>

Source: Ministry of Education (2008c)

1. Correspondence School early childhood education, health camps, students on New Zealand Agency for International Development scholarships and foreign fee-paying students are excluded.
2. Prior to 2004, the New Zealand Agency for International Development scholarship was known as a Ministry of Foreign Affairs and Trade (MFAT) scholarship.
3. The number of students with unknown attendance has been excluded when calculating participation rates.
4. 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

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

<b>Indicators</b>	<b>Student participation</b>	<ul style="list-style-type: none"> <li>▪ Hours of participation in early childhood education</li> <li>▪ Participation in early childhood education</li> <li>▪ Prior participation in early childhood education: new entrants</li> </ul>
<b>Publications</b>	<b>Key publication series</b>	<ul style="list-style-type: none"> <li>▪ BES</li> <li>▪ Quality teaching early foundations</li> </ul>
	<b>ECE</b>	<ul style="list-style-type: none"> <li>▪ Competent children, competent learners</li> </ul>
		<ul style="list-style-type: none"> <li>▪ Early effects of <i>20 Hours ECE</i></li> <li>▪ Impact of <i>20 Hours ECE</i> on playcentres 2008</li> <li>▪ Outcomes of early childhood education: Literature review</li> </ul>



## 2. Accessibility

### What we have found

Despite rising demand for early childhood education services, most areas have a service that is able to take on new enrolments. However, in 2007, 21 percent of licensed services had waiting times of more than six months for children aged two years or under while 17 percent had waiting times for children aged three years or over.

The price that families pay for early childhood education has fallen considerably since the introduction of the free early childhood education policy (*20 Hours ECE*). The drop was an average of 34 percent in the year to the June 2008 quarter.

### Why this is important

Access to early childhood education services is a precondition for children being able to participate in early childhood education and gain its benefits. 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, including that the child must be able to get to the service; there must be a place for the child; the service, including its culture and philosophy, must be acceptable to the parents and child; and the service must be affordable.

### How we are going

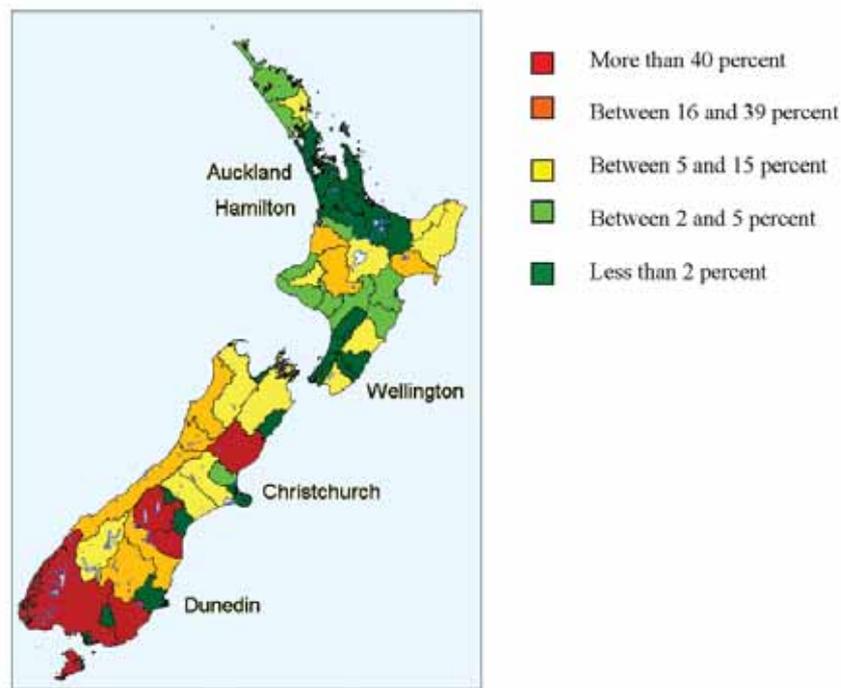
#### *Physical access*

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. 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:

- while the estimated number of children aged zero to four years grew 4.0 percent between 2001 and 2007, the number of licensed services grew 8.7 percent
- of the national 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 this national population, 99.6 percent had at least one licensed early childhood education service within 25 kilometres of their home, with only 2.6 percent having fewer than four services within that distance
- most territorial authorities have less than five percent of their children with fewer than four services within 25 kilometres of their home. The exceptions are the rural territorial authorities, particularly those in the more isolated areas of the South Island. More than 40 percent of zero- to four-year-olds living in the Southland, Clutha, Waimate, Hurunui and Mackenzie districts had fewer than four early childhood education services within 25 kilometres of their home. These children represent 1.4 percent of zero- to four-year-olds in New Zealand (see Figure 2.1)
- of those children who attended licensed early childhood education services in 2007, an estimated 75 percent lived 3.5 kilometres or less from the service they attended.
- in urban areas, 75 percent of children lived within 2.8 kilometres from the service they attended. In rural areas, 75 percent of children lived within 12.1 kilometres.



**Figure 2.1:** Percentage of zero-to four-year-olds with fewer than four licensed early childhood education services within 25 kilometres of their home by territorial authority (2007)



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.

#### *Availability of places*

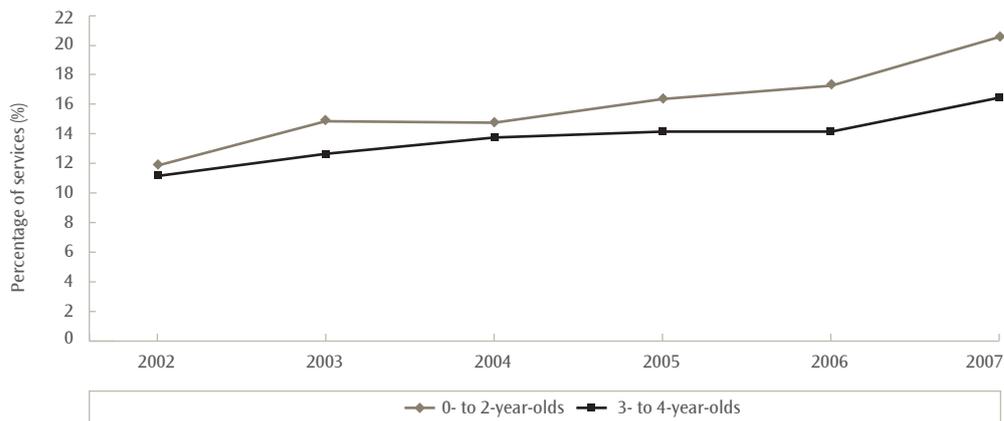
For a service to be accessible there must be an available place at a suitable time for the child to be enrolled. If children have to wait for a place, the wait should be short.

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

- 89 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 enrol<sup>5</sup>
- the upwards trend in average occupancy rates mentioned in Chapter 3 suggests increased pressure on capacity
- 21 percent and 17 percent of licensed early childhood education services have waiting times longer than six months for children aged two years or under and three years or over respectively. For both age groups, the proportions have increased over time, especially over the past year. These rises are a reflection of increasing demand for early childhood education, as also indicated by rising participation rates (see Figure 2.2).

<sup>5</sup> The 'hours on offer' figure takes account of the fact that services tend to operate below their maximum capacities.

**Figure 2.2:** Percentage of licensed early childhood education services with a waiting time of six months or longer by age (2002 to 2007)



Source: Ministry of Education

1. Casual education and care services have been excluded as these services have casual rolls and therefore waiting times are not collected.
2. Playcentres and kōhanga reo are excluded 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.

### 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. Since 1 July 2007, the government has provided up to 20 hours a week of free early childhood education (*20 Hours ECE*) to children aged three and four years old who attend teacher-led services. Assistance with fees is also provided by the Ministry of

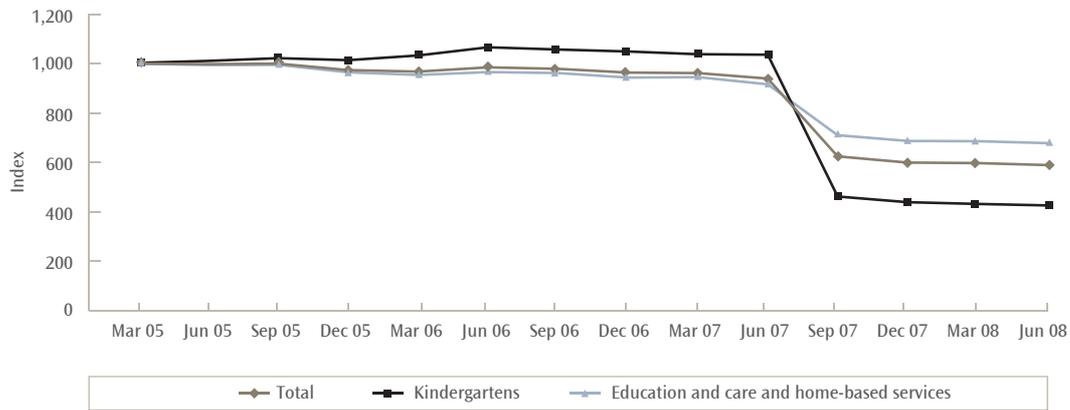
Social Development to those eligible for the Childcare Subsidy.

Information on fees and other charges for early childhood education services is collected as part of Statistics New Zealand's Consumer Price Index (CPI). The data show:

- the financial cost of early childhood education services to families fell 34 percent in the year to June 2008
- changes in fees vary according to the service type, with the price falling 57 percent for kindergartens and 23 percent for education and care services and home-based services. The difference between service types mainly reflects the take-up rate of *20 Hours ECE* and the extent that services' rolls are made up of three- and four-year-olds
- over the same period, hourly earnings<sup>6</sup> rose five percent, so fees relative to average income fell by 37 percent (see Figure 2.3).

<sup>6</sup> Average hourly ordinary-time earnings (from Statistics New Zealand's Quarterly Employment Survey) are used as a proxy for income.

**Figure 2.3:** Index of childcare fees relative to income by quarter (March 2005 to June 2008)



Source: Statistics New Zealand with graph 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](http://www.educationcounts.govt.nz)

Publications

Key publication series

- BES
- Quality teaching early foundations

Publications

ECE

- Locality-based evaluation of Pathways to the Future – Ngā Huarahi Arataki – Stage 1 baseline report
- Locality-based evaluation of Pathways to the Future – Ngā Huarahi Arataki – Stage 1 report



## 3. Sustainability

### What we have found

Sustainability, that is, the ability of early childhood education service to cover their costs on an ongoing basis, has improved within the sector.

Occupancy rates have increased, so fewer services are 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 persistent deficit has fallen.

While the rate of teacher loss from the sector has declined, the level of teacher turnover within services has increased since 2004.

A lower proportion of services are now closing.

### 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*

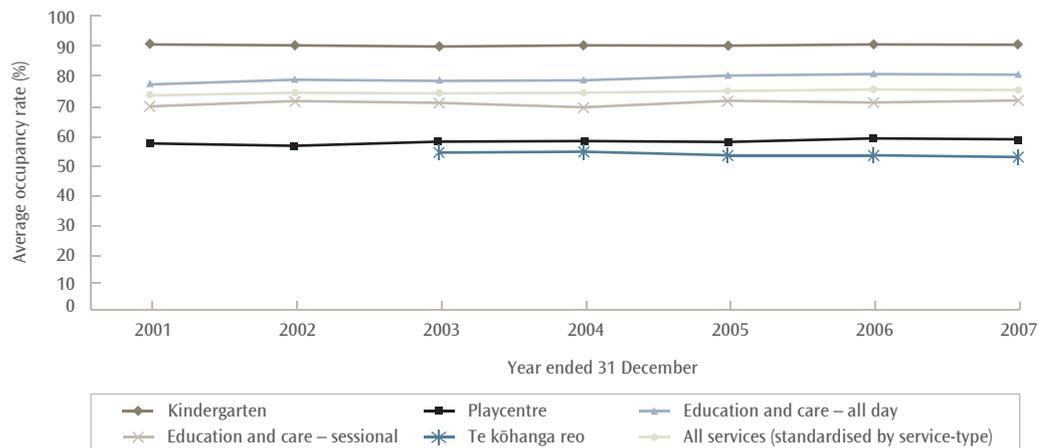
Occupancy rates give an indication of how full a service is in terms of the number of children or child-hours it can accommodate. Services operating well below capacity are likely to have difficulty sustaining their operations. Analysis shows that in the year before they closed, closed services tended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

- occupancy rates<sup>7</sup> have increased since 2001. The average rate was 75.7 percent in 2007, up from 73.9 percent in 2001
- 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 11.5 percent in 2001 to 9.9 percent in 2007.

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.

<sup>7</sup> 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 of Education. 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.



**Figure 3.1:** Average occupancy rate of early childhood education services by service type (2001 to 2007)

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 36 percent in 2006
- 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 15 percent in 2006

- six percent of community-based services in 2003 had an operating deficit for three consecutive years, but by 2006 this figure had fallen to four 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 2006)

	Operating deficit	Operating deficit over 10 percent	Operating deficit for three consecutive years
2001	40.1	16.0	
2002	39.1	14.7	
2003	39.0	13.7	6.0
2004	39.8	16.6	5.2
2005	34.5	13.9	4.8
2006	35.6	15.0	4.2

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 be more likely to close. 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 been back at its 2002 level of 20 percent for the past two years
- in 2007, 4.9 percent of services had higher than two-thirds teacher turnover and 19.1 percent had a turnover greater than one-third. This compares with rates of 4.6 percent and 19.3 percent respectively in 2002
- the proportion of teachers leaving the sector has fallen over the last few years. In 2007, 7.7 percent of teachers left their jobs without getting employment in other early childhood education jobs in New Zealand, down from 10.4 percent in 2002.

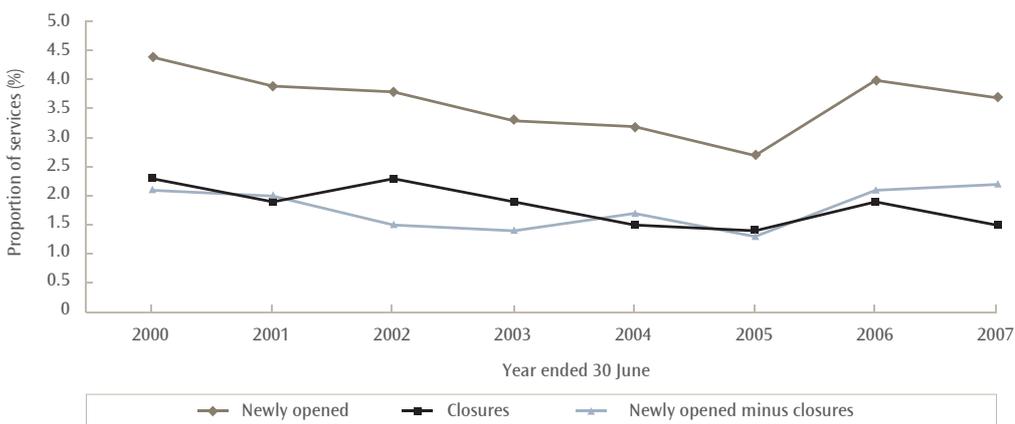
The lower loss of teachers from the sector is positive for sector sustainability, but turnover within services has increased in the past few years.

**Service closures**

The number of closures is an indication of how well the sector is sustaining its operations. The lower rate of closures suggests that sustainability in the sector has improved (see Figure 3.2). The data show:

- in 2007, 54 services closed and 136 services opened
- 1.5 percent of services closed in 2007, down on its rate earlier in the decade (2.3 percent in 2000) and close to recent lows (1.4 percent in 2005)
- the rate of services opening was 3.7 percent in 2007, which is down on the highs earlier this decade (4.4 percent in 2000) but up from the recent lows (2.7 percent in 2005)
- in 2007 the total number of services rose by 2.2 percent.

**Figure 3.2:** Proportion of licensed services opening and closing each year, and the proportion opened less the proportion closed (2000 to 2007)



Source: Ministry of Education.

**Where to find out more**

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

Publications

ECE

- Evaluation of the sustainability of ECE services during the implementation of Pathways to the Future – Ngā Huarahi Arataki

## 4. Teaching

### What we have found

Since the early childhood education strategic plan was first implemented in 2002, the proportion of teachers in early childhood education who are qualified and registered has increased. Sixty percent of early childhood teachers were registered or qualified in 2007.

Forty-nine percent of all unqualified teachers employed in the early childhood education sector in 2007 were enrolled in tertiary education courses leading to teacher registration.

This means that 80 percent of teachers are either qualified or in the process of gaining appropriate qualifications.

### Why this is important

Children benefit from participation in quality early childhood education services. That quality is achieved through a number of interacting factors. Teaching is just one aspect of quality and is the result of factors such as the proportion of qualified teachers, the number of children (or group size), and the qualification levels of teachers.<sup>8</sup>

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 helps to ensure currency of professional knowledge and practice. The early childhood strategic plan has the target that, by 2012, all regulated staff<sup>9</sup> in teacher-led early childhood education services must be registered or enrolled in approved early childhood teacher education programmes.

<sup>8</sup> Farquhar, S. (2003b).

<sup>9</sup> 'Regulated staff' means those staff required to meet the adult-to-child ratios prescribed in the Education (Early Childhood Centres) Regulations 1998.





## How we are going

### Registered and qualified teachers

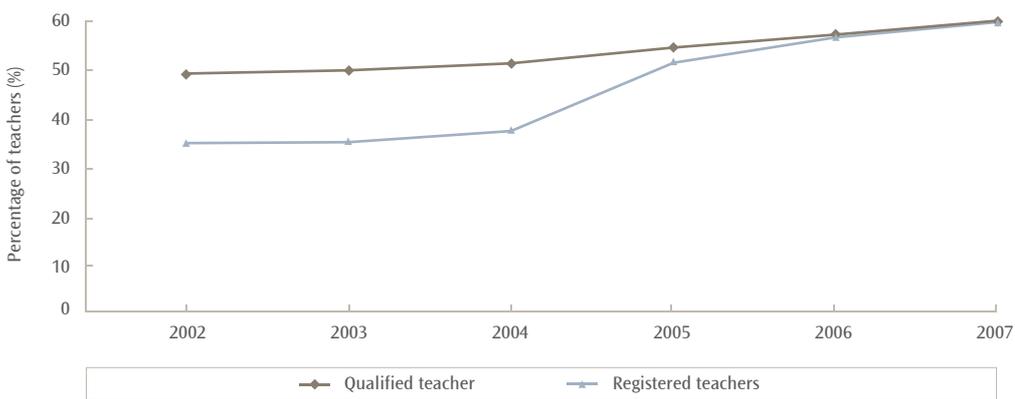
Before teachers can become registered with the New Zealand Teachers' Council (NZTC), they must hold a qualification approved by the Council. Once qualified, teachers can then apply for provisional registration with the Council, as long as they are of good character and are fit to be teachers.

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

- 60 percent of early childhood teachers held a qualification that met NZTC teacher registration requirements in 2007. This has increased from 49 percent in 2002 (see Figure 4.1)
- 54 percent of early childhood teachers in education and care services held qualifications that met NZTC registration requirements in 2007. This has increased from 39 percent in 2002. As kindergarten teachers have been required to be registered teachers for some time, most of the unqualified teachers are in education and care services

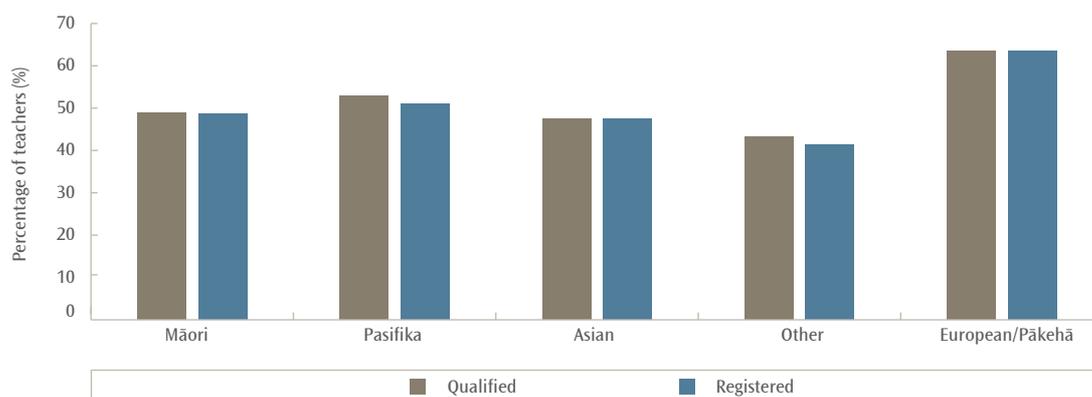
- the gap between the number of qualified teachers and the number of registered teachers that existed in 2002 has disappeared. This is because “person(s) responsible” regulations and changes to the funding of services provided incentives for existing qualified teachers to become registered in 2005. As such, there was a large one-off increase in the percentage of teachers registered in 2005 (52 percent), compared to 2004 (37 percent)
- in 2007, the percentages of Asian (48 percent) and Māori (49 percent) qualified teachers were lower than for European/Pākehā (64 percent) (see Figure 4.2). Pasifika teachers, currently 53 percent qualified, are becoming qualified twice as fast as non-Pasifika teachers
- at the regional level, West Coast (47 percent), Auckland (54 percent), Waikato (55 percent) and the Bay of Plenty (55 percent) had the lowest proportion of qualified teachers. These regions employ over half of the early childhood education service teachers in New Zealand. Tasman (79 percent) and Nelson (74 percent) have the highest proportion of registered teachers.

**Figure 4.1:** Qualification and registration status of early childhood teachers in teacher-led services by service type (2002 to 2007)



Source: Ministry of Education

1. Caregivers in home-based networks are excluded.

**Figure 4.2:** Qualification and registration status of early childhood teachers by ethnic group (2007)

Source: Ministry of Education

1. Caregivers in home-based networks are excluded

#### *Enrolments and graduates from NZTC-approved early childhood education 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 45 percent between 2002 and 2006
- the number of completions increased by 44 percent between 2002 and 2006 (see Table 4.1)
- the growth in enrolments of Māori students since 2002 (81 percent) is greater than that of non-Māori students (42 percent). The growth in enrolments of Pasifika students since 2002 (93 percent) is greater than that of non-Pasifika students (41 percent).

**Table 4.1:** Enrolments and completions from tertiary early childhood education courses leading to teacher registration (2002 to 2006)

	2002	2003	2004	2005	2006
Enrolments	4,940	5,450	5,970	6,450	7,160
Completions	1,070	1,150	1,320	1,470	1,540

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:

- more than 2,950 unqualified teachers (49 percent of all unqualified teachers) were in study in 2007 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 (2007)

Service type	Expected Year of Graduation				Total
	2007	2008	2009	2010	
Free kindergartens	7	2	5	0	14
Education and care	760	1,030	796	355	2,941
Total	767	1,032	801	355	2,955

Source: Ministry of Education

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

**Where to find out more**

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

Publications

Key publication series

- BES
- Quality teaching early foundations

- COI (Centre of Innovation)

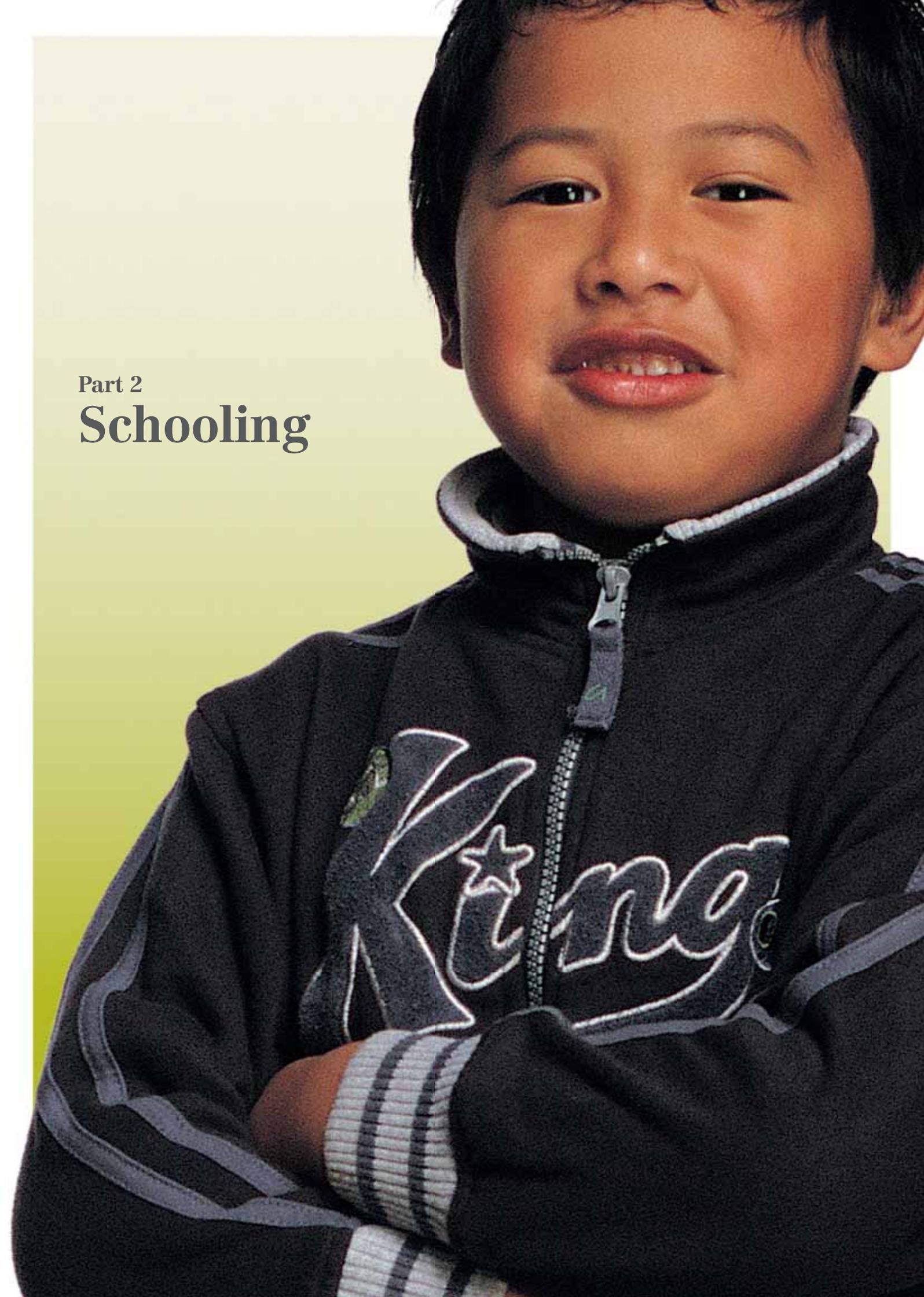
ECE

- ECE teacher-led workforce survey 2003
- Perceptions of teachers and teaching: A focus on early childhood education

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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 life-long 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 information available from the international studies comes from the Progress in International Reading Literacy Study (PIRLS)<sup>10</sup> and the Trends in International Mathematics and Science Study (TIMSS).<sup>11</sup> These studies show that New Zealand Year 5 students, on average, perform significantly above the international mean in reading but only performed significantly above 13 of 36 countries in science, and significantly above 12 of 36 countries in mathematics. However, by the time these students are 15 years old they will be performing, on average, above the international means for mathematics and science (see Chapter 9).

Between 1994 and 2006, there was a significant improvement in the mean mathematics scores of New Zealand Year 5 students while the mean science scores have remained about the same. Between 2001 and 2005, there has been no significant change in the mean reading scores.

On average, Year 5 girls significantly outperform boys in reading. In mathematics and science, the mean scores for girls and boys are generally about the same. However, the ranges of achievement in mathematics, science, and reading are wider for boys than for girls.

Year 5 European/Pākehā and Asian 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 some ethnic groups for mathematics and science.

### Why this is important

The literacy and numeracy skills gained at primary school during Years 1 to 8 are essential life skills upon which all other learning is based. Successful learning at a young age increases the likelihood of positive engagement in later schooling years and assists students to become lifelong learners.

### 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 PIRLS scale mean. The data also show:

- there was no significant change in New Zealand students' mean score between 2001 and 2005/06
- there was no significant change in the mean reading literacy scores of any of the four ethnic groupings over this period (see Table 5.1)
- the performance of many New Zealand Year 5 students was relatively strong compared with their international counterparts in 2005/06. For example, approximately 13 percent of New Zealand students achieved scores

<sup>10</sup> See Chamberlain, M. (2007); Chamberlain, M. (2008) for further details.

<sup>11</sup> See Caygill, R. (2008); Caygill, R. & Kirkham, S. (2008a); Caygill, R. & Kirkham, S. (2008b) for further details.





625 or higher (i.e. reached the Advanced International Benchmark). This was the ninth highest proportion internationally and nearly double the international median of seven percent (see Figure 5.1)

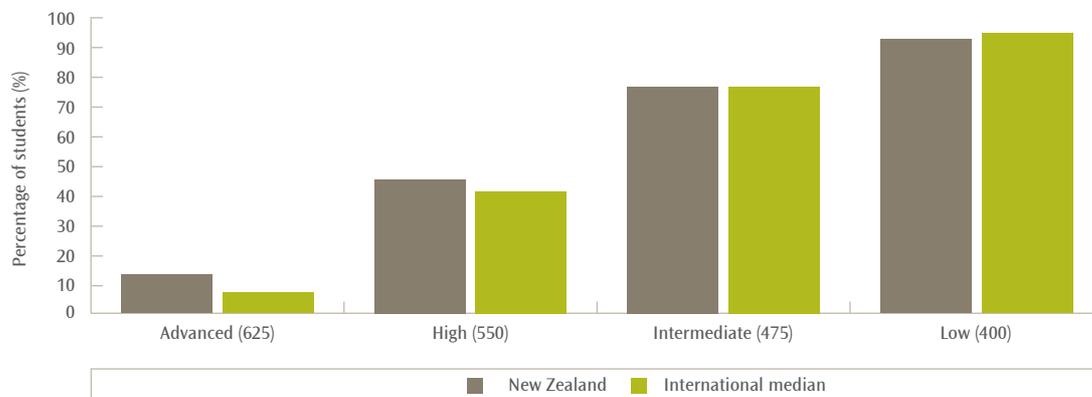
- as well as having the highest average performance, Asian and European/Pākehā girls were more likely to be among the group the students who reached the higher benchmarks
- as in 2001, there continues to be a relatively large gap between the highest and lowest achieving New Zealand Year 5 students in 2005/06. This gap is larger than most other higher performing countries
- relative to higher performing countries, New Zealand had a slightly higher proportion of students who
- showed they had weaker reading comprehension skills. For example, eight percent did not reach the Low International Benchmark of 400 (compared with the international median of six percent)
- the group with weaker comprehension skills were more likely to be Māori boys, Pasifika boys and girls, and students in lower decile schools than other Year 5 students
- in 2005/06, girls generally achieved significantly higher reading literacy scores than boys in all but two of the 40 participating countries (Spain and Luxembourg were the exceptions). The average difference observed between New Zealand Year 5 girls and boys was one of the largest internationally.

**Table 5.1:** Year 5 students' mean reading literary scores in 2001 and 2005/06 by ethnic group

Ethnic group	Mean reading literary scores	
	2001	2005/06
Māori	481 (5.5)	483 (3.6)
Pasifika	481 (7.2)	479 (6.7)
Asian	540 (9.9)	550 (5.3)
European/Pākehā	552 (3.4)	552 (2.4)

Source: Chamberlain (2008).  
 1. Standard errors appear in parentheses.

**Figure 5.1:** Percentage of New Zealand Year 5 students reaching the PIRLS international reading benchmarks (2005/06)



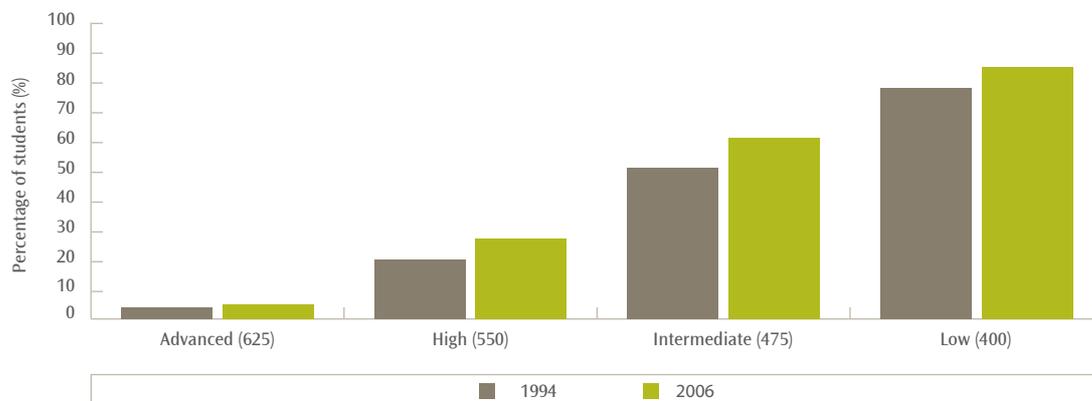
Source: Chamberlain (2007).

### Mathematics achievement

The Trends in International Mathematics and Science Study (TIMSS) showed that in 2006, New Zealand Year 5 students performed higher on average than 12 of the 36 participating countries.<sup>12</sup> Furthermore, there was significant improvement in the mean score of New Zealand Year 5 students between 1994 and 2006. The range of scores between the highest and lowest-performing groups of students reduced between 1994 and 2006, largely because of the increase in scores of students in the lowest performing group. The data also show:

- proportionately more New Zealand Year 5 students achieved at or above the low, intermediate, or high mathematics benchmarks in TIMSS in 2006 than in 1994
- the proportion of New Zealand Year 5 students who did not reach the low mathematics benchmark in TIMSS in 2006 was seven percentage points less than in 1994 (see Figure 5.2)
- girls and boys generally score similarly in mathematics in New Zealand
- Asian and Māori students had the largest increases in mean achievement scores between 1994 and 2006 in TIMSS (see Figure 5.3)
- the National Education Monitoring Programme (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 2006)



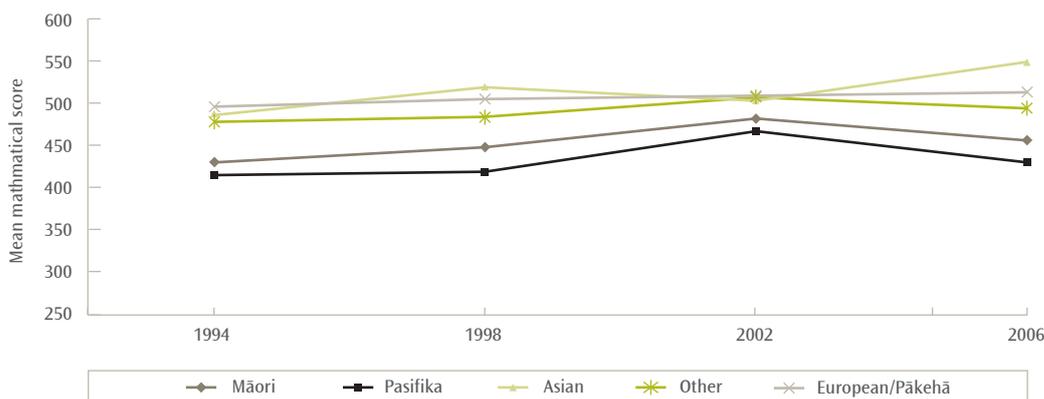
Source: Caygill & Kirkham (2008a).

<sup>12</sup> TIMSS is no longer reporting international means because of the volatile movements in means as more countries join the study.





**Figure 5.3:** Mean mathematics achievement for New Zealand Year 5 students in TIMSS by ethnic group (1994 to 2006)



Source: Caygill & Kirkham (2008a).

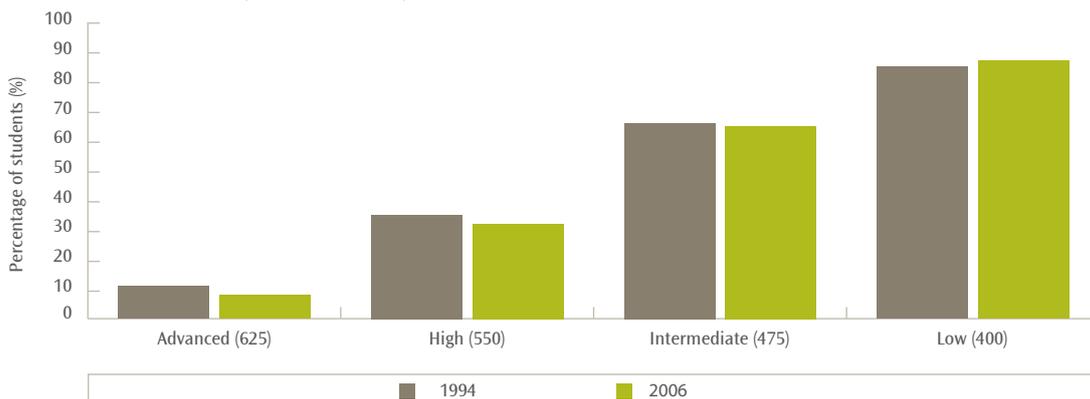
1. The 1998 assessment was a national study only as grade 4 was not part of the international TIMSS-98/99.
2. Because 2002 was the only year in which New Zealand assessed in two languages, for trend purposes, the mean scores shown here are for those students assessed in English.

**Science achievement**

Between 1994 and 2006, the average science performance of New Zealand Year 5 students remained about the same as measured by TIMSS. In 2006 the mean performance of Year 5 students was significantly higher than 13 of 36 participating countries. The distribution of scores has narrowed since 1994, with fewer students demonstrating very high or very low achievement. The data also show:

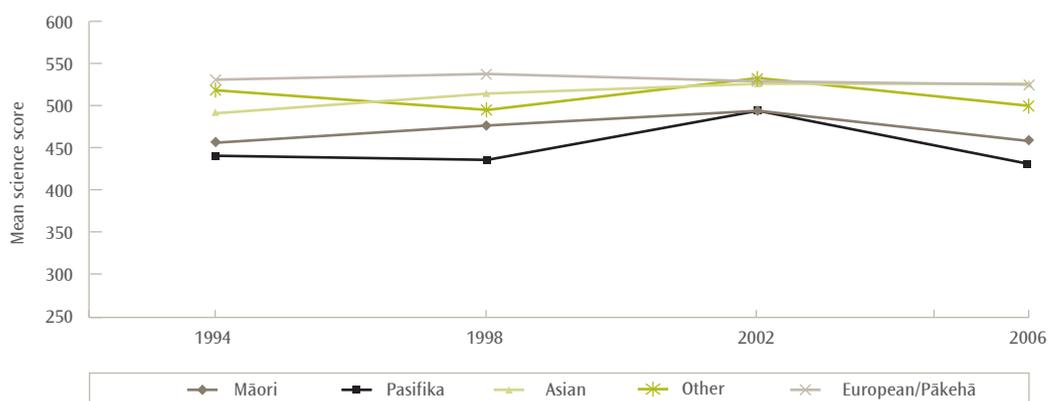
- proportionately fewer New Zealand Year 5 students achieved at or above the advanced international science benchmarks in 2006 than in 1994 (see Figure 5.4)
- the proportion of students who did not reach the high, intermediate, and low science benchmark in 2006 was about the same as in 1994 (see Figure 5.4)
- the average science achievement of girls and boys did not change significantly between 1994 and 2006. The range of achievement for boys was wider than that of girls, both in 1994 and 2006. However the range of achievement for boys has narrowed since 1994
- there have been significant increases in the mean science scores of Asian students between 1994 and 2006. The average science achievement of Pākehā/ European, Māori, and Pasifika students was not significantly different in 2006 from that observed in 1994 (see Figure 5.5).

**Figure 5.4:** Trends in the proportions of Year 5 students achieving at or above the international science benchmarks in TIMSS (1994 and 2006)



Source: Caygill (2008).

**Figure 5.5:** Mean science achievement for New Zealand Year 5 students in TIMSS by ethnic group (1994 to 2006)



Source: Caygill (2008).

1. The 1998 assessment was a national study only as grade 4 was not part of the international TIMSS-98/99.
2. Because 2002 was the only 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

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

<b>Indicators</b>	<b>Education and learning</b>	<ul style="list-style-type: none"> <li>Reading literacy achievement: primary schooling</li> <li>Mathematics achievement: primary schooling</li> <li>Science achievement: primary schooling</li> </ul>
<b>Publications</b>	<b>Key publication series</b>	<ul style="list-style-type: none"> <li>BES</li> <li>Quality teaching for diverse students in schooling</li> </ul>
	<b>Assessment</b>	<ul style="list-style-type: none"> <li>PIRLS</li> <li>TIMSS</li> </ul>
		<ul style="list-style-type: none"> <li>NEMP (National Education Monitoring Project)</li> </ul>



## 6. Student Engagement

### What we have found

Male students, students from low decile schools, and Māori students are more likely to ‘disengage’ from education services.

Male students are more than twice as likely to be given a suspension as female students, and three times more likely to be excluded or expelled from school. Māori have the highest suspension rates and exclusion rates, and the second highest expulsion rates.

Students from decile 1 and 2 schools are between three and six times more likely to be suspended, excluded, and expelled than students from decile 9 and 10 schools. They are also more likely to be unjustifiably absent and frequent truants.

The Student Engagement Initiative (SEI) has resulted in sizeable decreases in the suspension rates of Māori and Pasifika students who attend SEI schools.

### Why this is important

‘Engagement’ in education means the extent to which young people participate and become involved in schooling. It encompasses attendance, a sense of belonging and wellbeing, and enjoyment.

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 that suggest 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 addressed, disengagement can lead to stand-downs and suspensions or, in more serious cases, exclusion or expulsion.



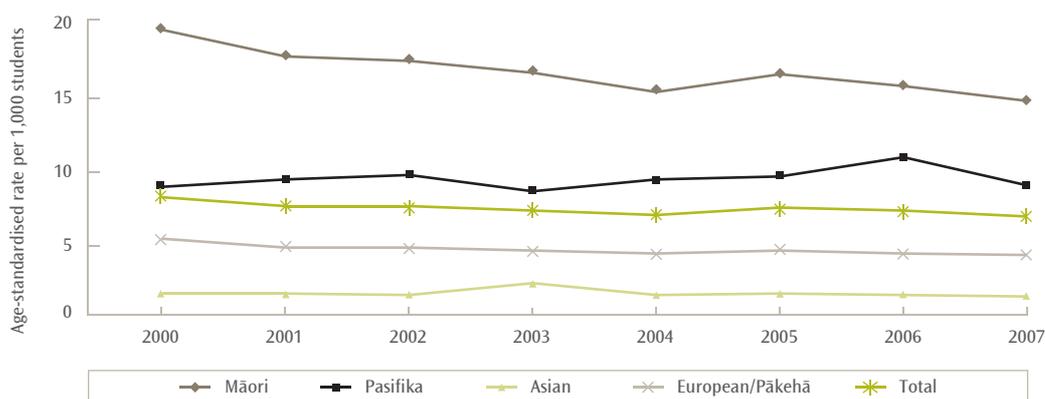
## How we are going

### Suspensions

High suspension rates are an issue for males, students from low decile schools, and Māori students. Between 2006 and 2007, suspension rates decreased for all ethnic groups. The data show:

- in 2007, the suspension rate was more than two and a half times greater for males (9.4 students per 1,000) than for females (3.6 students per 1,000)
- in 2007, Māori students had the highest suspension rate (14 students per 1,000) while Asian students had the lowest rate of suspensions (with 1.2 students per 1,000) (see Figure 6.1)
- all ethnic groups had a decrease in suspension rates between 2006 and 2007 with the 17 percent decrease for Pasifika suspensions (8.7 students per 1,000 in 2007) being the largest decrease. This took Pasifika students back towards the rate they had in 2000 (8.6 students per 1,000)
- between 2000 and 2007 the suspension rate decreased by 17 percent from 7.9 students per 1,000 to 6.6 students per 1,000
- since 2000, Māori had the greatest decrease in suspensions (25 percent), with European/Pākehā also having a large decrease of 22 percent
- students from decile 1 and 2 schools (11 suspensions per 1,000 students) were almost five times more likely to be suspended than students from decile 9 and 10 schools (2.3 per 1,000)
- suspended students lost an average of 20 school days in 2007, a trend that has changed little since 2000.

**Figure 6.1:** Age-standardised suspension rates per 1,000 by ethnic group (2000 to 2007)



Source: Ministry of Education (2008d).

1. New Zealand Agency for International Development (NZ Aid) students, foreign fee-paying students, Correspondence School students, adult students (aged over 19 years old), and private students are excluded.

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

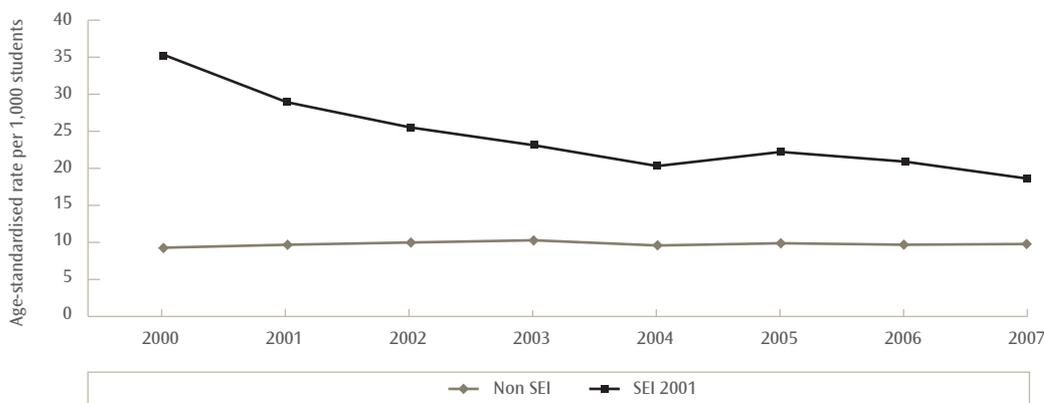




The Student Engagement Initiative (SEI, formally known as the Suspension Reduction Initiative) was established in 2001 to reduce the disproportionately high number of Māori suspensions, truancies, and early leaving exemptions. Sixty-three secondary schools joined the programme in the first year. The data show:

- between 2000 and 2007, the suspension rate for SEI schools who joined in 2001 had almost halved (to 18 per 1,000 students in 2007), while the suspension rate for secondary schools that had never joined the SEI programme (9.5 per 1,000 students in 2007) remained constant. As a result of this decrease the suspension rate for SEI schools dropped from four times greater than non-SEI schools to only two times greater (see Figure 6.2)
- the Māori suspension rate for SEI schools who joined in 2001 (30 per 1,000 students in 2007) decreased by 59 percent between 2000 and 2007 compared to a nine percent increase in the Māori suspension rate for schools that had never joined the SEI programme (24 per 1,000 students in 2007)
- between 2000 and 2007, the Pasifika suspension rate for SEI schools that joined in 2001 decreased by 21 percent (25 per 1,000 students). Over the same period there was a 35 percent increase in the Pasifika suspension rate for schools that had never joined the SEI programme (19 per 1,000 students in 2007).

**Figure 6.2:** Age-standardised suspension rates for secondary schools by Student Engagement Initiative (SEI) status (2000 to 2007)



Source: Ministry of Education (2008d).

1. New Zealand Agency for International Development (NZAID) students, foreign fee-paying students, Correspondence School students, adult students (aged over 19 years old), and private students are excluded.
2. SEI equals the original 63 secondary schools that joined the programme in the first year.
3. Non-SEI equals secondary schools that have never joined the SEI programme.

**Exclusions and expulsions**

In cases where a student is suspended, the school’s board of trustees can decide whether the student should be excluded or expelled from the school. The rates of both exclusions and expulsions have decreased over the past seven years, indicating that less extreme forms of discipline are being used. The data show:

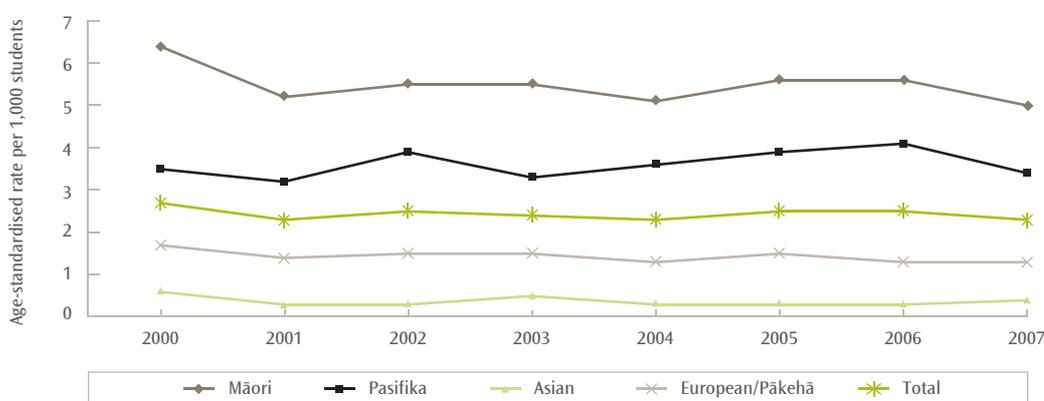
- in 2007 Māori students continued to have the highest exclusion rate. Māori students had an exclusion rate of 5.0 per 1,000 students and European/Pākehā

students had an exclusion rate of 1.3 per 1,000 students. Both these rates were a decrease from 2000 with the Māori rate decreasing by 21 percent and the European/Pākehā rate decreasing by 25 percent (see Figure 6.3)

- between 2000 and 2007, Pasifika students have experienced the smallest decrease in exclusion and expulsion rates. In 2007, the Pasifika expulsion rate was 4.1 students per 1,000 and exclusion rate was 3.4 students per 1,000

- male students account for more than three-quarters of all exclusions and expulsions
- students from decile 1 and 2 schools are more than four times more likely than students from decile 9 and 10 schools to be excluded, and more than three times more likely to be expelled.

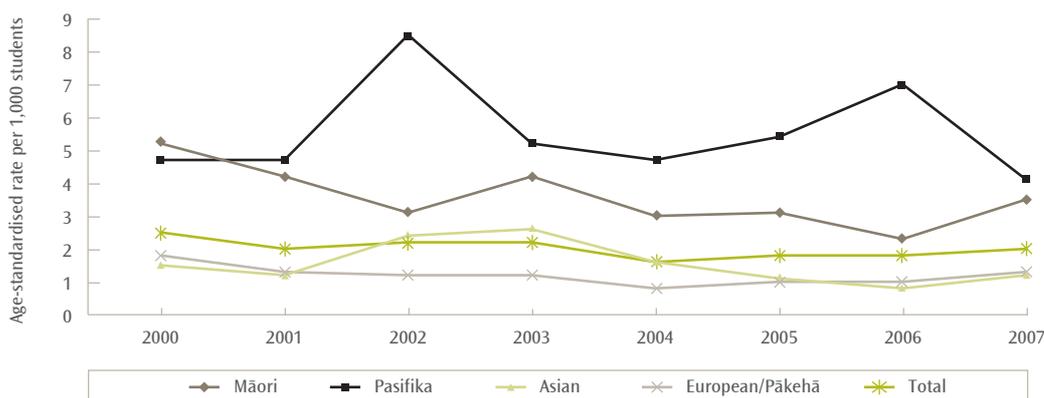
**Figure 6.3:** Age-standardised exclusion rates per 1,000 by ethnic group (2000 to 2007)



Source: Ministry of Education (2008e).

1. New Zealand Agency for International Development (NZAID) students, foreign fee-paying students, Correspondence School students, adult students (aged over 19 years old), and private students are excluded.
2. A series for students of 'Other' ethnicity is not represented; however, they are included in the total series.

**Figure 6.4:** Age-standardised expulsion rates per 1,000 by ethnic group (2000 to 2007)



Source: Ministry of Education (2008e).

1. New Zealand Agency for International Development (NZAID) students, foreign fee-paying students, Correspondence School students, adult students (aged over 19 years old), and private students are excluded.
2. A series for students of 'Other' ethnicity is not represented; however, they are included in the total series.





**Truancy**

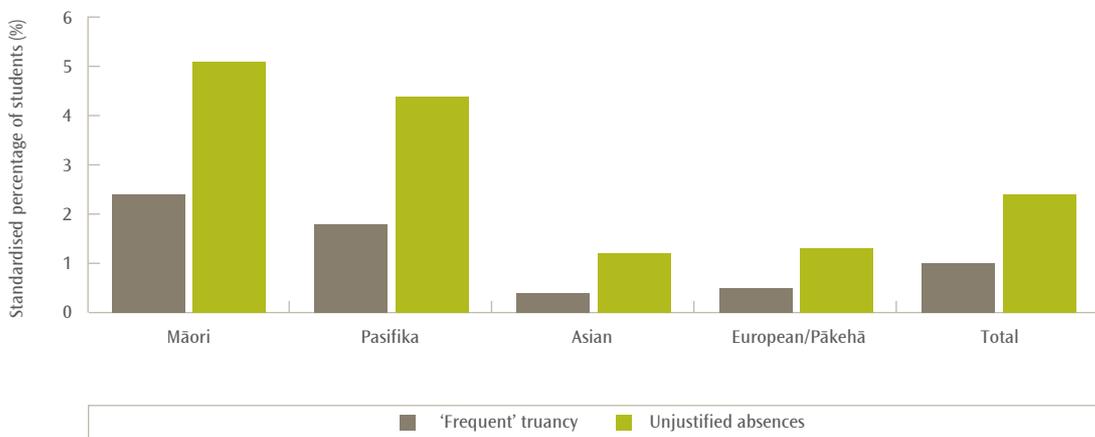
The last attendance survey was carried out in New Zealand in 2006. This survey estimated truancy rates, that is, the percentage of students who have absences that cannot be explained or that are not satisfactorily explained. Truancy can range from an intermittent absence for part of the day, such as arriving late at school, skipping classes and tardiness in class attendance, to an unjustified absence for a half day or longer. Students who were unjustifiably absent for three or more days during the week of the survey were identified as ‘frequent truants’. The data show:

- in 2006, more students had unjustified absences in secondary schools (3.9 percent) than in primary schools (1.5 percent) or composite schools (2.6 percent)
- in 2006, Māori students had the highest proportion of ‘frequent’ truants (2.4 percent), which was 30 percent

greater than Pasifika students (1.8 percent). The Māori proportion of ‘frequent’ truants was five times greater than for European/Pākehā (0.5 percent) (see Figure 6.5)

- in 2006, Māori students had the highest unjustified absences (5.1 percent), which was 18 percent greater than Pasifika students (4.4 percent). The Māori proportion of students with unjustified absences was almost four times greater than that of European/Pākehā students (1.3 percent) (see Figure 6.5)
- in 2006, a student from a decile 1 or 2 school was more six times more likely to be a ‘frequent’ truant (2.5 percent compared to 0.4 percent) and more than five times more likely to have an unjustified absence (5.5 percent compared to 1.0 percent) than a student from a decile 9 or 10 school (see Figure 6.6).

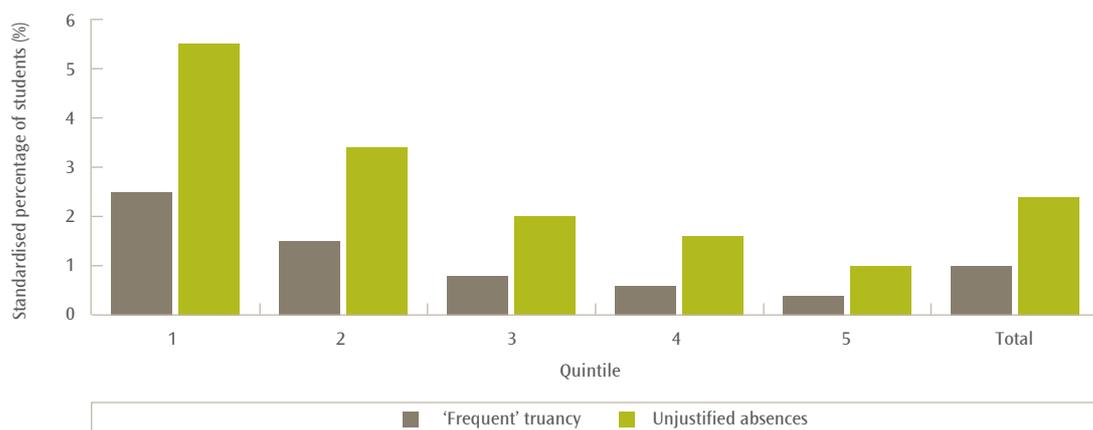
**Figure 6.5:** Standardised percentage of ‘frequent’ truancy and unjustifiable absences by ethnic group (2006)



Source: Ministry of Education (2007b).

1. As age was not provided in the attendance survey data, truancy percentages have been standardised by year level.
2. Total includes ‘Other’ ethnic group.

**Figure 6.6:** Standardised percentage of ‘frequent’ truancy and unjustifiable absences by quintile (2006)



Source: Ministry of Education (2007c).

- 3. As age was not provided in the attendance survey data, truancy percentages have been standardised by year level.
- 4. Total includes 'Other' ethnic group.

## Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

<b>Indicators</b>	<b>Student participation</b>	<ul style="list-style-type: none"> <li>Stand-downs and suspensions from school</li> <li>Exclusions and expulsions from school</li> <li>Truancy from school</li> </ul>
<b>Publications</b>	<b>Key publication series</b>	<ul style="list-style-type: none"> <li>Attendance and absence in NZ schools</li> <li>BES                             <ul style="list-style-type: none"> <li>Quality teaching for diverse students in schooling</li> <li>The complexity of community and family influences on children’s achievement in New Zealand</li> </ul> </li> <li>Student engagement</li> </ul>



## 7. Participation

### What we have found

Although the percentage of students staying at school until the age of 17.5 has changed very little since 2000, the early leaving exemption rate halved between 2006 and 2007. This was due to a fourfold increase in the number of early leaving exemption applications being declined, as well as a general decrease in applications for early exemptions.

Māori students were more than twice as likely to be granted an early leaving exemption when compared to any other ethnic group. Māori students were also less likely to stay at school until the ages of 17.5 than any other ethnic group.

Male students were more likely to be granted an early leaving exemption and less likely to stay at school until the age of 17.5 than female students.

Students from decile 1 and 2 schools were six times more likely to be granted an early leaving exemption than students from decile 9 and 10 schools. Students from decile 1 and 2 schools were also less likely to stay at school until the age of 17.5 than students from decile 9 and 10 schools.

### Why this is important

Students who leave school early, many with few 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 five to 10 percent.

Students must be focused on and engaged in learning to achieve the necessary qualifications that prepare them for life-long learning. Students must be encouraged to participate and offered support by the schooling community, parents, and family/whānau.

### How we are going

#### *Early leaving exemptions*

Early leaving exemptions are granted on the basis of education problems, conduct, or the improbability that a student will gain any benefit from attending available schools. Students must have a valid reason, such as moving into a training programme or employment.

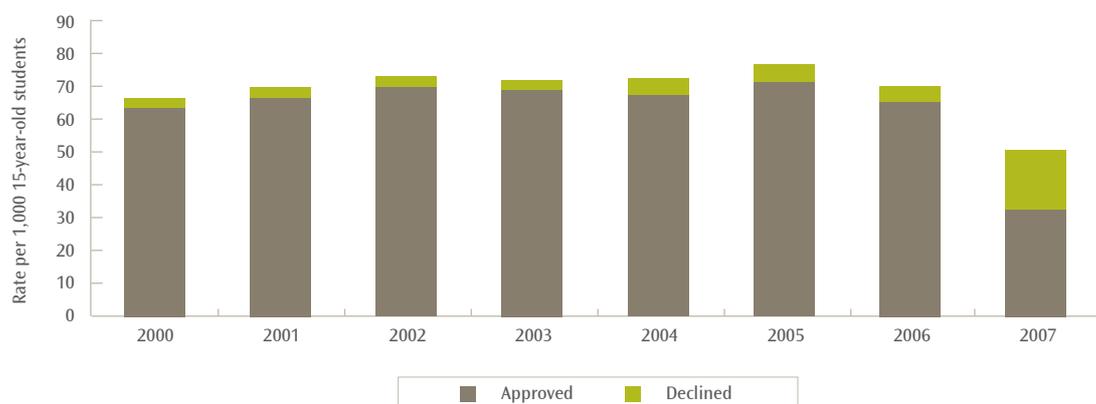
In May 2007, the Ministry of Education strengthened its early-leaving application and approval process. The action involved:

- imposing a stricter interpretation of the early leaving legislative criteria, which sets a very high threshold for early leaving eligibility



- ensuring direct contact between parents and ministry staff at the first stage in the early leaving process, to actively dissuade early leaving and to support parents to find ways of keeping their children engaged in learning
  - encouraging alternatives to early leaving, such as a combination of school- and work-based learning.
- This action sought to reduce the number of early leaving exemptions, and the consequential social and economic disadvantages that face those students who leave school early. The evidence so far suggests the new process has been successful. The data show:
- between 2006 and 2007, the rate of approved early leaving exemptions halved from 65 per 1,000 15-year-old students to 32 per 1,000 15-year-old students (see Figure 7.1)
  - a decreased demand for early leaving exemptions from 70 to 51 applications per 1,000 15-year-old students occurred during this period; correspondingly the rate of declined early leaving exemption applications quadrupled from 4.6 to 18 per 1,000 15-year-old students
  - males had almost double the rate of early leaving exemptions as their female counterparts; 42 and 22 per 1,000 15-year-old students respectively in 2007
  - Māori students (73 per 1,000 15-year-old students) were more than two and three times more likely to be granted an early leaving exemption in 2007 than Pasifika and European/Pākehā students; 33 and 23 per 1,000 15-year-old students respectively (see Figure 7.2)
  - Asian students had a much lower early leaving exemption rate than any other ethnic group; 1.5 per 1,000 15-year-old students in 2007
  - students from decile 1 and 2 schools were six times more likely than students from decile 9 and 10 schools to be granted an early leaving exemption; 62 and 10 per 1,000 15-year-old students respectively
  - of the students who were granted an early leaving exemption in 2007, 76 percent intended to take a training course, 18 percent intended to move into full-time employment, and the remaining six percent intended to take polytechnic and university courses.

**Figure 7.1:** Early leaving exemption application approval and decline rates per 1,000 15-year-old students (2000 to 2007)

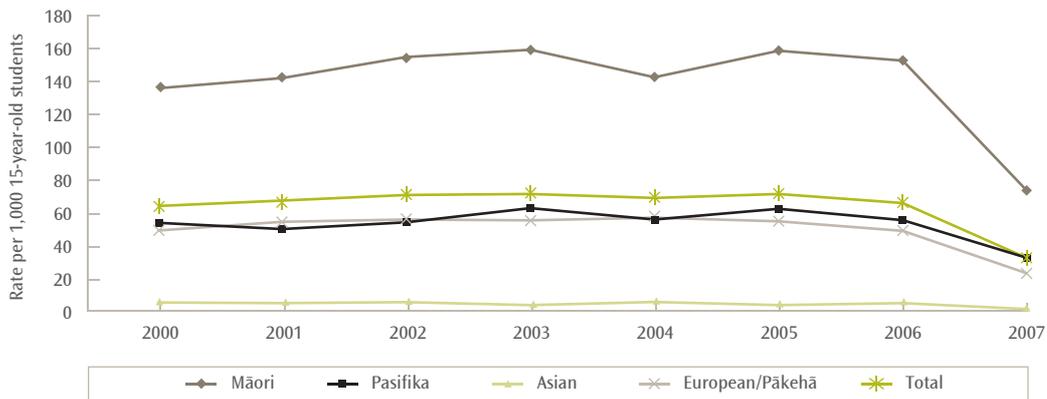


Source: Ministry of Education (2008f).





**Figure 7.2:** Early leaving exemption rates per 1,000 15-year-old students by ethnic group (2000 to 2007)



Source: Ministry of Education (2008f).

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

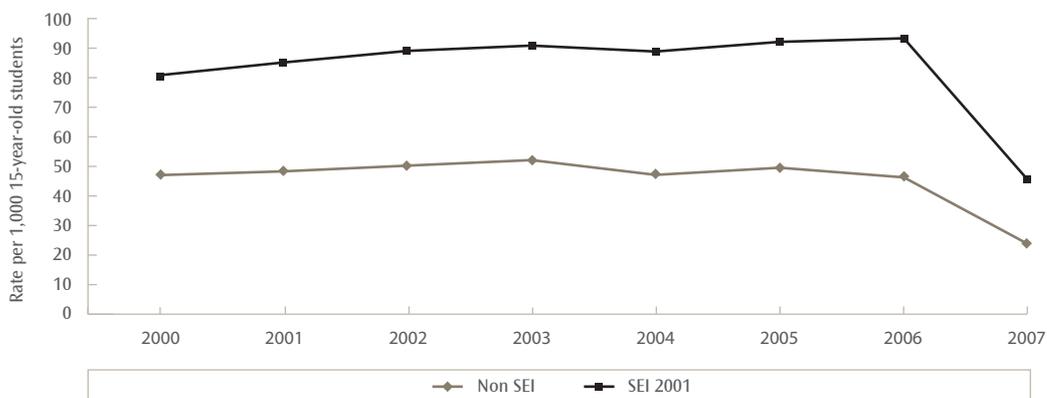
In 2001, 63 secondary schools joined the Student Engagement Initiative (SEI) to reduce the disproportionately high number of Māori suspensions, truancies, and early leaving exemptions.<sup>13</sup> These schools provide the best measurement of success in this area. The data show:

- between 2000 and 2006, the difference in the rate of early leaving exemptions between the original SEI schools and those schools that have never been part of the SEI programme increased. In 2006, SEI schools had

a rate of 93 early leaving exemptions per 1,000 15-year-old students which was 47 per 1,000 15-year-old students worse than non-SEI schools

- Because of the strengthening of the early leaving application process the SEI school early leaving exemption rate halved to 45 per 1,000 15-year-old students in 2007: only 21 per 1,000 15-year-old students worse than non-SEI schools.

**Figure 7.3:** Early leaving exemption rates per 1,000 15-year-old students by Student Engagement Initiative (SEI) status (2000 to 2007)



Source: Ministry of Education.

1. New Zealand Agency for International Development (NZAID) students and foreign fee-paying students are excluded.

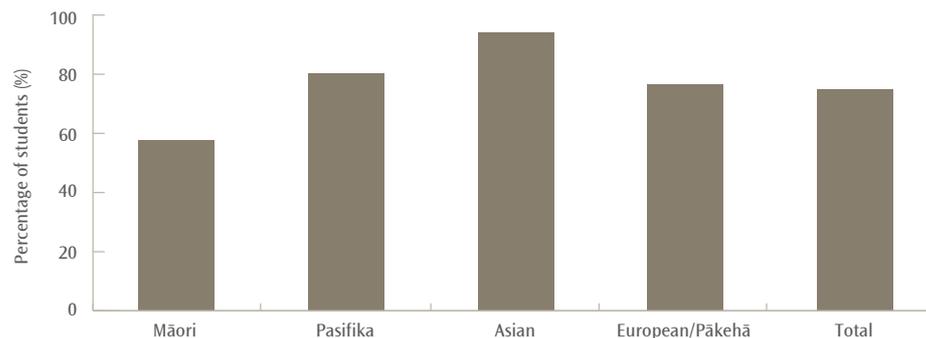
<sup>13</sup> See the chapter on technical notes for more details on the SEI.

### Retention at senior secondary school

Disaggregate school leaver data was comprehensively collected for the first time in 2007 (98 percent of school leavers). This data allows the accurate calculation of school retention. The data show:

- 75 percent of students stayed at school to the age of 17 (see Figure 7.4)
- Asian students (94 percent) were far more likely to stay at school until age 17 than any other ethnic group, and were 23 percent more likely to stay than European/Pākehā students (77 percent)
- 80 percent of Pasifika students stayed at school until the age of 17 compared to only 58 percent of Māori students
- 79 percent of girls stayed at school to age 17 in 2007, compared to 73 percent of boys
- in 2007, decile 9 and 10 students were 27 percent more likely to stay at school until the age of 17 than decile 1 and 2 students.

**Figure 7.4:** Estimated percentage of students staying on at school to age 17 by ethnic group (2007)



Source: Ministry of Education (2007c).

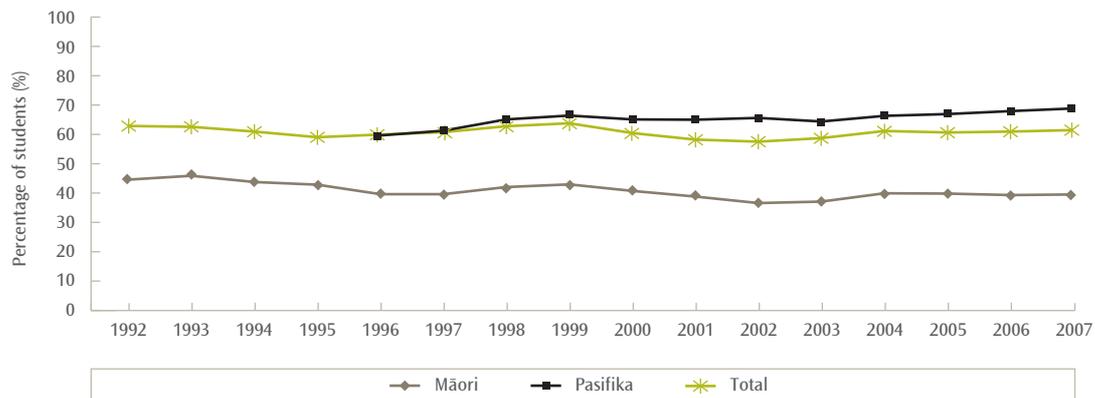
1. This measure was calculated using the proportions of school leavers aged 17 or above, from a file of disaggregated school leaver records. The data included just over 98 percent of school leavers.
2. New Zealand Agency for International Development (NZAID) students and foreign fee-paying students are excluded.

To undertake a trend analysis of retention rates, we need to source data from aggregate school roll returns. These returns only capture the age of students in years and are a snapshot as at 1 July each year. As a result, the trend information technically generates retention to age 17.5 years old. We have used 2007 retention data from the disaggregate school leaver data collection to scale the trend results to provide comparable rates. The data show:

- the retention rates to age 17.5 in 2007 were similar to 2000 for each ethnic group (see Figure 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.



**Figure 7.5:** Estimated percentage of students staying on at school to age 17 by ethnic group (1992 to 2007)



Source: Ministry of Education.

1. New Zealand Agency for International Development (NZ Aid) students and foreign fee-paying students are excluded.
2. This graph represents the proportion of 14-year-olds, as at 1 July, still enrolled at school three years later.
3. This graph is based on aggregated school rolls which calculate retention to age 17.5. The data have been scaled so that the New Zealand total for 2007 matches the retention rate for 17-year-olds derived from the disaggregate data.

## Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)



Indicators

Student participation

- Retention of students in senior secondary schools
- Early leaving exemptions

Publications

Key publication series

- BES
- Quality teaching for diverse students in schooling
- Student engagement



## 8. Teacher Education and Entry into Teaching

### What we have found

The ratio of teachers to students in state schools<sup>14</sup> has grown considerably since 2000. The number of full-time teaching equivalents (FTTEs) has increased by 12.6 percent between 2000 and 2007 compared to roll growth of 3.3 percent.

Over the same period, the percentage of teachers leaving the teaching profession has been stable: 9.8 percent in 2000 to 10.1 percent in 2007. Loss rates peaked at 10.9 percent in 2003.

The percentage of teacher education graduates obtaining employment in teaching has been stable since 2000, with about half of all primary teaching graduates obtaining employment as teachers and about 70 percent of all secondary teaching graduates doing the same.

Overall, the data show that the majority of schools are able to employ adequate numbers of staff, with only 1.3 percent of schools having one or more FTTE positions that they were unable to fill for the entire year.

### Why this is important

The quality of teaching is one of the single most important factors in improving outcomes for students. The demand for and supply of teachers is an important foundation for quality. Schools need to have sufficient teachers for the mix of students at different year levels. Within the schooling sector as a whole, there is a need to balance the demand for experienced teachers with the need to employ and mentor less experienced teachers, and to ensure that teaching remains a valued profession so that staff can be attracted and retained within schools.

### What we have found

#### Teacher numbers

The number of teachers in state schools is largely driven by the number of students, with other factors such as changes in student-to-staff ratios also playing a part (discussed in the next section). Since 2000, the number of students has increased by 3.3 percent, compared to a 12.6 percent increase in the number of full-time teaching equivalents (FTTEs). The data show:

- the number of FTTEs in primary schools has grown by 3.4 percent since 2000, compared to a 2.5 percent decrease in the number of students
- there has been strong growth in the number of FTTEs in secondary schools since 2000, with an increase of 22.7 percent compared to a 13.8 percent increase in the number of students. Much of the growth in teacher numbers was between 2003 and 2005, with growth slowing down in the past few years
- there have been slight changes in the proportion of teachers who are female since 2000. In 2007, 81.2 percent of primary school teachers were female (compared to 79.6 percent in 2000) and 56.7 percent of secondary teachers were female (compared to 53.6 percent in 2000)
- the average age of teachers has changed little over the period from 2000 to 2007, increasing from 44 to 45.

<sup>14</sup> Includes state and state integrated schools. Most of the data presented in this chapter is sourced from payroll records, which are only available for state and state integrated schools.



### Student-to-teacher ratios

Student-to-teacher ratios measure the resources devoted to teaching and managing students. The overall ratio used here is a broad measure that includes management teachers and special education teachers.

- the overall ratio for primary schools has improved from 19.4 students per teacher to 18.1 students per teacher between 2000 and 2007
- the overall ratio for secondary schools has improved from 15.8 students per teacher to 14.4 students per teacher between 2000 and 2007.

**Table 8.1:** Ratio of students to teaching staff at state schools (2000 to 2007)

	2000	2001	2002	2003	2004	2005	2006	2007
Primary/intermediate	19.4	19.0	19.1	19.1	18.8	18.8	18.4	18.1
Composite	14.8	14.3	14.0	13.5	13.4	12.7	12.3	12.2
Secondary	15.5	15.5	15.7	15.4	15.2	14.8	14.5	14.4

Source: Ministry of Education.

<sup>1</sup> The primary and intermediate ratios are based on July rolls. The secondary and composite ratios are based on March rolls.

### Teacher losses

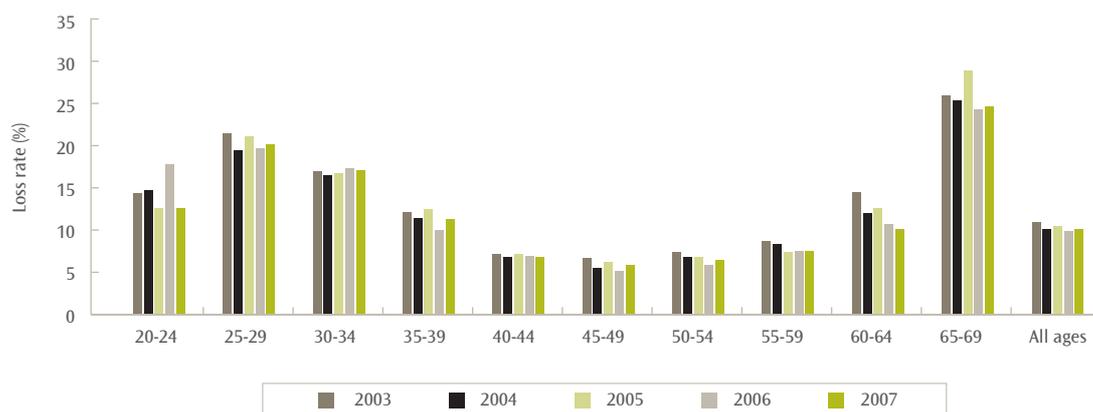
Teacher loss rates are measured in May of each year by comparing the teachers who were on the payroll in the previous May with those who are currently on the payroll. Staff who take leave without pay (including maternity leave) are regarded as losses.

Loss rates can be affected by many factors including the local labour market conditions, staff morale, and the age structure of the teaching workforce. While loss rates have increased from 2000 (when 9.8 percent of teachers left the teaching workforce) to 2007 (10.1 percent), they have varied quite considerably over this period. The data show:

- loss rates in the primary sector were 10.0 percent in 2000 and had increased to 10.5 percent in 2007. Loss rates peaked during this period at 11.1 percent in 2003
- secondary sector loss rates are generally lower than primary loss rates. They have shown similar trends to primary, increasing from 9.5 percent in 2000 to 9.9 percent in 2007. Loss rates peaked during this period at 11.1 percent in 2002
- loss rates are highest in the younger and older age groups. In the 25- to 29-year-old age group, 20.1 percent left the teaching workforce in 2007, compared to 45- to 49-year-olds who had the lowest loss rate of 5.9 percent. High loss rates in the younger ages are largely due to teachers going on leave without pay (maternity leave, for example), which accounts for 42.3 percent of losses in the 25- to 29-year-old age group, or to go overseas (28.1 percent of this group). In the older age groups, teachers are generally retiring (73.2 percent of those aged 65 plus who left teaching). (See Figure 8.1)
- earlier research has shown that the majority of teachers who are on leave without pay return to teaching. Sixty-one percent return after one year and around about 80 percent return within six years
- loss rates vary across the country, depending on changes in student rolls in the area and the local labour market conditions. Within regions, the primary and secondary sectors can show quite different patterns. In the primary sector in 2007, losses were highest in Taranaki, West Coast, Nelson, Marlborough, and Tasman regions. In the secondary sector in 2007, losses were highest in the West Coast, followed by Wellington and Auckland
- in the primary school sector in 2007, the higher the school decile the higher the loss rate. Low decile primary schools had a loss rate of 9.7 percent compared to 10.3 percent for medium decile schools and 11.3 percent for high decile schools. Secondary schools show little difference between the deciles.



**Figure 8.1:** Percentage of teaching staff who left the state teaching workforce by age range (May 2003 to 2007)



Source: Ministry of Education.

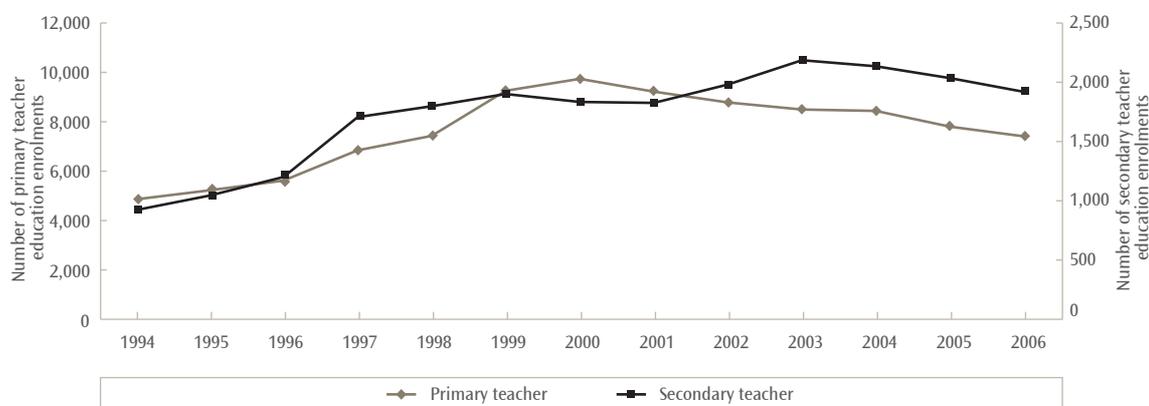
**Teacher education enrolments**

Teacher education enrolments change in response to the demand for teachers. However as many teaching qualifications can take three to four years study, the responsiveness of enrolments to demand can be slow. The data show:

- enrolments in primary teacher education are considerably higher than in secondary teacher education, reflecting the relative sizes of these sectors

- enrolments in both sectors have been declining; since 2000 for primary teaching and since 2003 for secondary teaching (see Figure 8.2).

**Figure 8.2:** Number of primary and secondary teacher education enrolments (1994 to 2006)



Source: Ministry of Education.



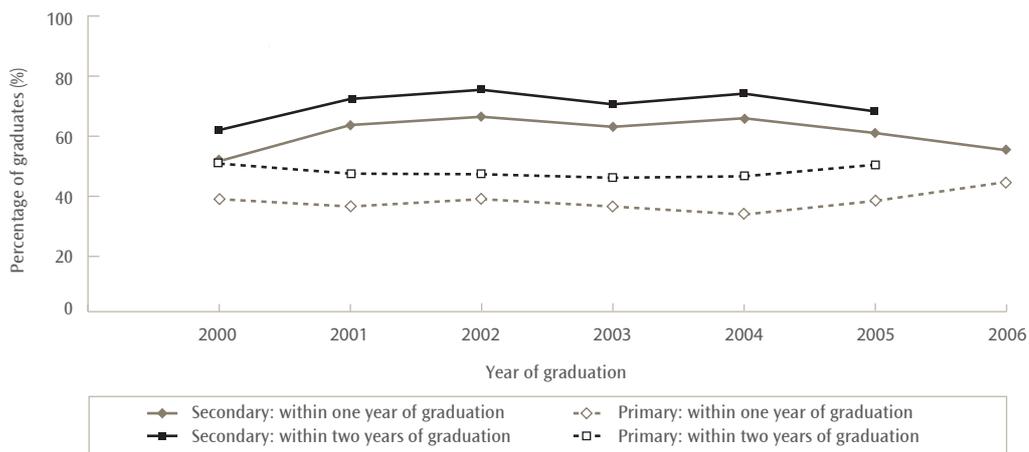


**New teachers in schools**

The number of new teachers in schools depends on the demand for teachers, the number of teacher education graduates that are available and a school's preference or need for more experienced teachers. The data show:

- since 2000, about half of all primary teacher education graduates have obtained teaching positions in New Zealand state schools. For secondary teacher education graduates the figure has been about 70 percent (see Figure 8.3). In both sectors, the majority of graduates that gained a position did so within a year of graduating
- in 2007, 3.4 percent of teachers were beginning teachers<sup>15</sup> compared to 3.5 percent in 2000
- while the majority of beginning teachers are under the age of 30, there are still a sizeable proportion of older beginning teachers (37.4 percent)
- regions most likely to hire beginning teachers are West Coast (beginning teachers make up 6.1 percent of the teaching workforce), Southland (4.2 percent), and Auckland (4.1 percent). Hawkes Bay is the region least likely to hire beginning teachers (2.4 percent).

**Figure 8.3:** Teacher education graduates gaining first time employment as teachers (2000 to 2006)



Source: Ministry of Education.

<sup>15</sup> Beginning teachers are those in their first year of teaching who are receiving a beginning teacher time allowance; overseas and retrained teachers are excluded. To receive the allowance teachers must have completed a registered course in teacher training, have completed less than 12 months teaching, and be appointed to a position for at least 10 weeks.

### *Adequacy of teacher supply*

All of the above elements are important aspects of the overall teaching workforce; however it is the way in which they interact that determines whether schools are able to be adequately staffed. One way of assessing this is to look at the extent to which schools have been able to use the majority of their government-funded staffing. The data show:

- only a very small percentage of schools (1.3 percent) had the degree of difficulty recruiting or retaining staff to the extent that one or more FTTE positions was not used during the course of the 2007 year
- in 2007, 82.1 percent of schools finished the school year with less than 0.25 of a funded FTTE unused. This compares to 87.4 percent in 2002
- primary schools were more likely to have adequate staffing levels, with 85.4 percent having less than 0.25 FTTE unused, compared to 74.9 percent of secondary schools. The lower percentage for secondary schools is likely to be a result of the greater level of demand for teachers due to roll growth in secondary schools and the greater degree of specialisation that teachers are required to have
- schools in the Otago, West Coast, and Gisborne regions were more likely to be fully staffed whereas those in the Auckland, Bay of Plenty, and Nelson regions were more likely to have some difficulties
- in addition to government-funded staffing, schools were also able to fund teachers themselves through their operational funding or fund raising, and so on. In 2007, 5.1 percent of the teaching workforce was employed over and above government staffing ratios, compared to 4.0 percent in 2000.

## Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)



Publications

Key  
publication  
series

- Teacher loss rates
- Monitoring teacher supply



## 9. Knowledge – Secondary Years

### What we have found

The Programme for International Student Assessment (PISA) study looks at the ability of 15-year-old (predominantly Year 11) students to apply their reading, mathematics, and science learning to real-life situations. In 2006, 15-year-old New Zealand students achieved significantly higher mean scores than the international mean for reading, mathematics, and science. Of the 30 Organisation for Economic Co-operation and Development (OECD) countries that participated in PISA:

- only two OECD countries achieved a significantly better mean reading literacy score than New Zealand
- only three OECD countries achieved a significantly better mean mathematical literacy score than New Zealand
- only one OECD country achieved a significantly better mean scientific literacy score than New Zealand.

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

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

### 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 student's wellbeing and his or her 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 everyday 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*

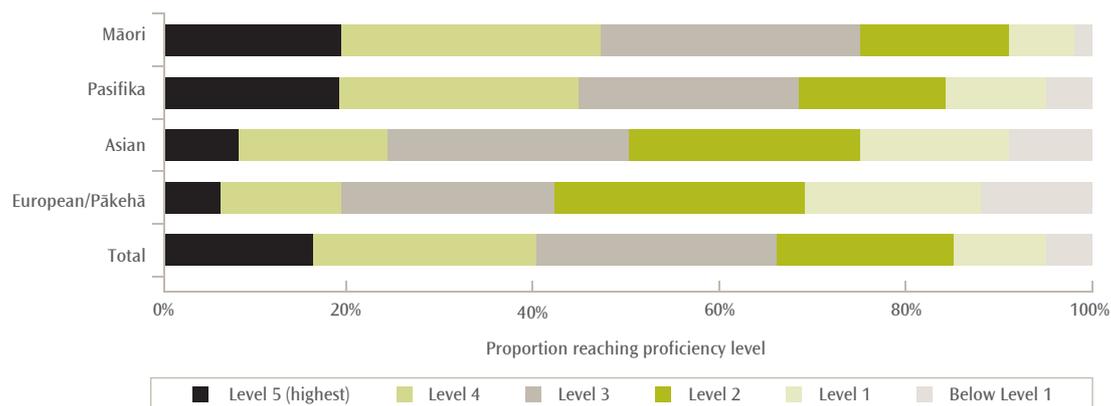
In 2006, PISA found New Zealand 15-year-old students had a mean reading achievement score significantly above the OECD mean. The data show:

- New Zealand students 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 high mean score
- more New Zealand students achieved at the top proficiency levels in reading than the OECD average. Sixteen percent of New Zealand students achieved at the highest level (level 5) compared to nine percent for the OECD average. Similarly, 40 percent of New Zealand students achieved at level 4 or above compared to an OECD average of 29 percent



- 15 percent of New Zealand students did not reach beyond the lowest level of reading literacy (level 1), which was statistically better than the average across the OECD countries (20 percent)
- girls in New Zealand achieved a significantly higher mean reading score than boys. Nineteen percent of girls achieved at the highest level of proficiency compared to 12 percent of boys. Correspondingly, while 10 percent of girls were unable to demonstrate proficiency above level 1, 20 percent of boys were unable to achieve above this level
- Māori and Pasifika students achieved significantly lower mean reading scores than their Asian and European/Pākehā counterparts. Asian students achieved a significantly lower mean reading score than European/Pākehā students (see Figure 9.1)
- between 2000 and 2006, there was no significant change in New Zealand's average performance; despite a slight decrease over the period, New Zealand's mean reading score was still significantly above that of the OECD.

**Figure 9.1:** Reading literacy proficiency levels by ethnic group (2006)



Source: Telford and Caygill (2007).

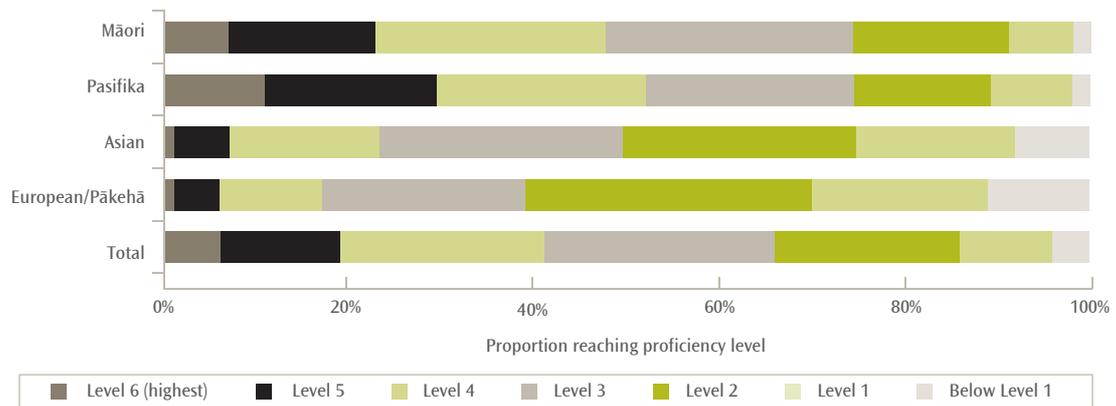
### *Mathematics achievement*

In 2006, PISA found 15-year-old New Zealand students had a mean mathematics score significantly above the OECD average. 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 high mean
- significantly more New Zealand students (19 percent) achieved at the top proficiency levels (level 5 or above) in mathematical literacy than the OECD average (13 percent)
- 14 percent of New Zealand students did not reach beyond the lowest level of mathematical literacy (level 1). This proportion was statistically better than the average across the OECD countries (21 percent)
- boys scored significantly higher than girls, a trend common to the majority of OECD countries
- the mean mathematics scores for Asian and European/Pākehā students were significantly higher than their Māori and Pasifika counterparts (see Figure 9.2)
- between 2003 and 2006, there has been no significant change in New Zealand's average student performance, with the New Zealand mean mathematics score still greater than the OECD mean.



**Figure 9.2:** Mathematics literacy proficiency levels by ethnic group (2006)



Source: Telford and Caygill (2007).

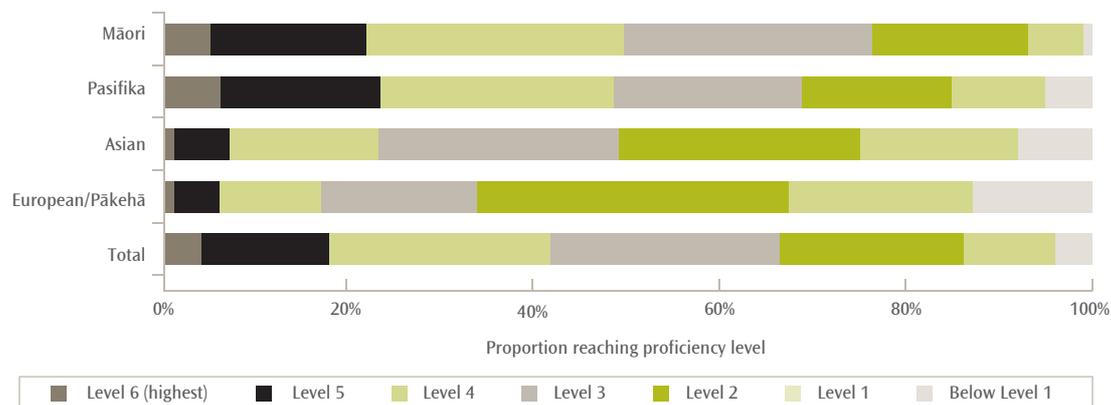
**Science achievement**

In 2006, PISA found 15-year-old New Zealand 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 high mean
- New Zealand and Finland had the largest proportion of students achieving the highest proficiency levels in scientific literacy, with 18 percent of New Zealand students reaching level 5 or above compared to the OECD average of nine percent
- 14 percent of New Zealand 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 (19 percent)
- there was no significant difference between the mean science scores of 15 year-old boys and girls
- Māori and Pasifika students achieved significantly lower mean science literacy scores than their European/Pākehā and Asian counterparts, while Asian students achieved significantly lower mean science literacy score than European/Pākehā students (see Figure 9.3)
- due to changes in the way scientific literacy has been assessed, no comparisons can be made with the results from the 2000 and 2003 PISA students.



**Figure 9.3:** Science literacy proficiency levels by ethnic group (2006)



Source: Telford and Caygill (2007).

### Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

Indicators

Education and learning

- Reading literacy achievement: senior secondary schooling
- Mathematics achievement: middle schooling
- Mathematics achievement: senior secondary schooling
- Science achievement: middle schooling
- Science literacy achievement: senior secondary schooling

Publications

Key publication series

- BES
- PISA
- TIMSS

- Quality teaching for diverse students in schooling
- PISA 2006



## 10. School Leavers – Qualifications

### What we have found

Since the introduction of National Certificate of Educational Achievement (NCEA),<sup>16</sup> proportionately more students have left school with qualifications than in previous years. Since 2002, there has been a large 73 percent decrease in the proportion of students leaving school with little or no formal attainment and a 22 percent increase in the proportion of students leaving with NCEA Level 1 or above.

Since 2003, there has been a 25 percent increase in the proportion of students leaving with NCEA Level 2 or above. In just the past two years, there has been a 22 percent increase in the proportion of school leavers attaining a university entrance standard qualification.

For all qualifications over the same period of time, the gap between Māori achievement and the achievement of the other ethnic groups closed. Pasifika achievement also made gains on other ethnic groups.

Girls continue to outperform boys but gaps are narrowing, with the exception of achievement in university entrance standard.

### Why this is important

School leaver data provides 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 many entry-level jobs.

### How we are going

The overall picture for 2007 school leavers is positive, with the evidence showing raised levels of achievement. Key indicators suggest that the introduction of NCEA has had a positive effect, with almost two in every five school leavers attaining a university entrance standard. The proportion of school leavers attaining a university entrance standard was almost eight times greater than the proportion of school leavers with little or no formal attainment (see Table 10.1).

<sup>16</sup> NCEA Level 1 was introduced in 2002, followed by Level 2 in 2003 and Level 3 in 2004.



**Table 10.1:** Highest attainment of school leavers (2007)

Highest attainment	Percentage of students					
	Māori	Pasifika	Asian	Other	European/ Pākehā	All school leavers
UE, Level 3 qualification or higher	18.3	20.2	65.7	36.5	44.0	<b>39.0</b>
Halfway to Level 3 qualification <sup>1</sup>	8.1	14.5	9.0	13.0	7.5	<b>8.5</b>
Level 2 qualification	17.5	21.2	9.5	17.5	19.1	<b>18.1</b>
Halfway to Level 2 qualification <sup>2</sup>	12.2	14.0	6.2	10.8	8.0	<b>9.2</b>
Level 1 qualification	9.2	4.0	1.8	3.7	7.3	<b>6.8</b>
Halfway to Level 1 qualification <sup>3</sup>	14.5	11.9	2.9	6.5	6.7	<b>8.3</b>
Less than halfway to Level 1 qualification <sup>4</sup>	10.0	7.8	2.4	5.3	3.9	<b>5.2</b>
Little or no formal attainment <sup>5</sup>	10.1	6.3	2.5	6.7	3.5	<b>4.9</b>
Total	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: Ministry of Education.

<sup>1</sup> 30+ credits at Level 3 or above

<sup>2</sup> 30+ credits at Level 2 or above

<sup>3</sup> 40+ credits at Level 1 or above

<sup>4</sup> 14–39 credits at Level 1 or above

<sup>5</sup> 0 credits or 1–13 at Level 1, 2 or 3

### *School leavers with little or no formal attainment*

In 2007, only five percent of all school leavers left school with little or no formal attainment.<sup>17</sup> Since the introduction of NCEA in 2002, all ethnic groups have seen reductions in the proportion of students leaving with little or no formal attainment (see Figure 10.1). The data show:

- between 2002 and 2007, the proportion of school leavers with little or no formal attainment decreased from 18 percent to five percent; a 73 percent decrease in the proportion of school leavers with little or no formal attainment
- since 2002 the proportions of each ethnic group leaving school with little or no formal attainment has decreased by between 71 and 76 percent
- approximately one in every 10 Māori students left school with little or no formal attainment in 2007, half

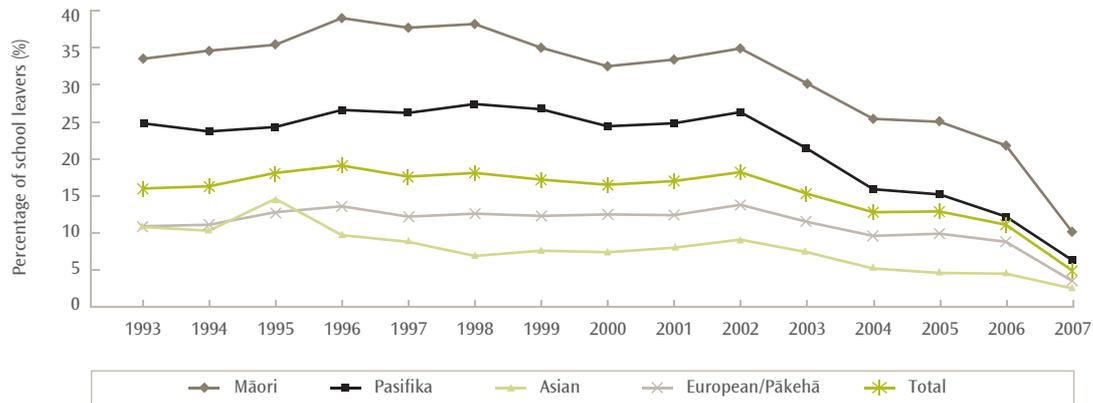
the rate of 2006. However, Māori were four times more likely than Asian (2.5 percent), almost three times more likely than European/Pākehā (3.5 percent), and one-and-a-half times more likely than Pasifika (6.3 percent) to leave school with little or no formal attainment

- the gap between boys' and girls' performance has continued to narrow, with 5.2 percent of boys and 4.7 percent of girls leaving school with little or no formal attainment
- leavers from decile 9 and 10 schools (1.8 percent) were half as likely as leavers from decile 5 and 6 schools (five percent) and five times less likely than leavers from decile 1 and 2 schools (10 percent) to leave with little or no formal attainment.

<sup>17</sup> 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 2007)



Source: Ministry of Education (2008g).

1. 1993-2001: No formal attainment or less than 12 credits at National Certificate.
2. 2002-2004: No formal attainment or 1-13 credits at NCEA level 1.
3. 2005-2006: No formal attainment or 1-13 credits at any NCEA level.

**School leavers with NCEA Level 1 or above**

NCEA Level 1 was introduced in 2002. Eighty-two percent of all school leavers in 2007 achieved at least an NCEA Level 1 or equivalent qualification (see Figure 10.2). The data show:

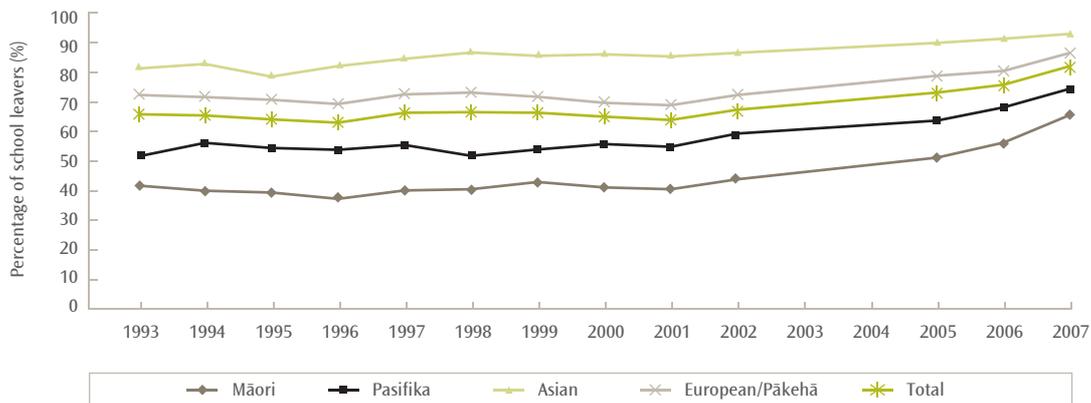
- between 2002 and 2007, the proportion of school leavers with NCEA Level 1 increased from 67 percent to 82 percent; a 22 percent increase
- in 2007, Māori had the lowest proportion of school leavers with at least NCEA Level 1 (65 percent) compared to Pasifika (74 percent), European/Pākehā (86 percent), and Asian (92 percent) school leavers
- since 2002, however, Māori have had the greatest increase of school leavers with at least NCEA Level 1;

at 49 percent, it is almost twice the rate of Pasifika (25 percent). These were followed by European/Pākehā (19 percent) and Asian (seven percent), which indicates that the disparities between the ethnic groups are reducing

- there was very little difference between girls (84 percent) and boys (79 percent) attaining NCEA Level 1 in 2007
- leavers from decile 9 and 10 schools (92 percent) were 35 percent more likely than leavers from decile 1 and 2 schools (68 percent) to achieve at least NCEA Level 1 in 2007.



**Figure 10.2:** Percentage of school leavers with NCEA Level 1 or above by ethnic group (1993 to 2007)



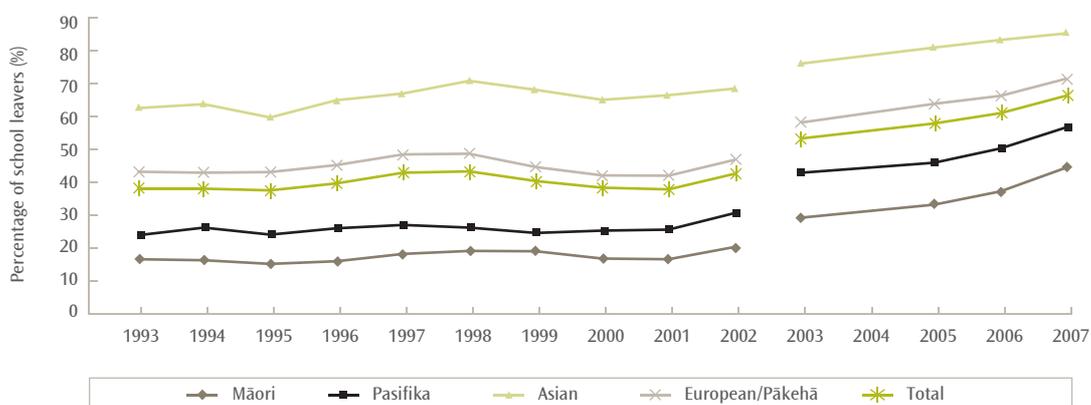
Source: Ministry of Education (2008h).

**School leavers with NCEA Level 2 or above**

NCEA Level 2 was introduced in 2003. Sixty-six percent of all school leavers in 2007 achieved at least an NCEA Level 2 or equivalent qualification (see Figure 10.3). The data show:

- between 2003 and 2007, the proportion of school leavers with NCEA Level 2 increased from 53 percent to 66 percent
- Asian students had the highest proportion of school leavers with at least NCEA Level 2 (84 percent). This was followed by European/Pākehā (71 percent), Pasifika (56 percent), and Māori (44 percent)
- since 2003, all ethnic groups have had an increase in the proportion of school leavers attaining at least an NCEA Level 2 qualification. During this period Māori school leavers had the largest proportional increase (52 percent), followed by Pasifika (32 percent), European/Pākehā (23 percent) and Asian (12 percent); which indicates the disparity between ethnic groups is reducing
- decile 9 and 10 school leavers (82 percent) were considerably more likely to attain at least NCEA Level 2 than decile 1 and 2 school leavers (48 percent).

**Figure 10.3:** Percentage of school leavers with NCEA Level 2 or above by ethnic group (1993 to 2007)



Source: Ministry of Education (2008i).

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 university entrance 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.



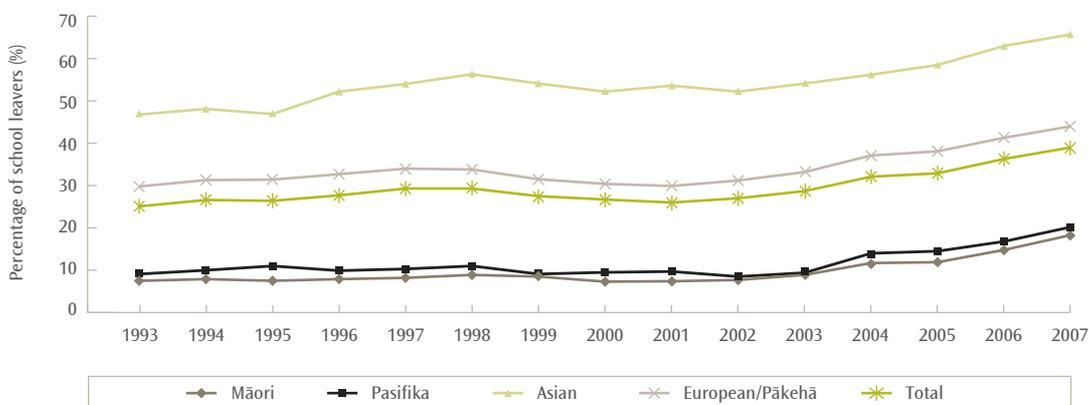


**School leavers achieving a university entrance standard**

Students attaining an entrance qualification are able to go directly into degree-level study. Thirty-nine percent of school leavers in 2007 achieved a university entrance standard (see Figure 10.4). The data show:

- between 2004, when NCEA Level 3 was introduced, and 2007, the proportion of school leavers achieving a university entrance standard increased by 22 percent
- Asian students had the highest proportion of school leavers achieving a university entrance standard in 2007, with 66 percent. This was followed by European/Pākehā (44 percent), Pasifika (20 percent), and Māori (18 percent)
- since 2004, the proportions of Māori and Pasifika school leavers achieving a university entrance qualification have increased by 56 percent and 44 percent respectively. Compared to European/Pākehā (19 percent) and Asian (17 percent) increases over the same period, the implication is that disparities between the ethnic groups are reducing
- girls (45 percent) were more likely than boys (33 percent) to achieve a university entrance standard. This gap has persisted since the early 1990s and has generally been steadily increasing
- decile 9 and 10 leavers (60 percent) were more than three times more likely than leavers from decile 1 and 2 schools (19 percent) to have the opportunity to enter directly into degree-level study.

**Figure 10.4:** Percentage of school leavers with a university entrance qualification by ethnic group (1993 to 2007)



Source: Ministry of Education (2008j).

**Where to find out more**

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

Indicators

Education and learning

- School leavers with little or no attainment
- School leavers with NCEA Level 1 or above
- School leavers with NCEA Level 2 or above
- School leavers with a University Entrance standard

Publications

Key publication series

- BES
- Quality teaching for diverse students in schooling



# 11. School Leavers – Transition to Tertiary

## What we have found

The proportion of school leavers who make a direct transition into tertiary education has increased steadily since 1998 for all ethnic groups.<sup>18</sup> The increase has been more pronounced for Māori and Pasifika school leavers than Asian and European/Pākehā school leavers.

There was a dramatic increase in the proportion of school leavers making a direct transition into industry training courses between 1998 and 2006. During this time the proportion of school leavers who made a direct transition into Level 4 certificate or Level 5-7 diploma courses also increased.

School leavers who obtained university entrance or a higher qualification were far more likely to enrol in a Level 7 bachelors degree course than any other level course. Two-thirds of school leavers making a direct transition into industry training attained a school qualification between NCEA Level 1 and halfway towards an NCEA Level 3.

## Why this is important

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. What level in tertiary they initially enter is highly correlated with the level of school qualification they achieve.

In order to maximise opportunities in tertiary education, clear pathways must be developed and maintained to help

young people make the transition from school to tertiary level study. Encouraging students to stay at school and providing appropriate, timely, useful careers guidance and advice about different learning programmes and pathways, better prepares students for tertiary education. It has also been found that school leavers enrolling directly from school are more likely to complete their studies and more likely to progress on to higher levels of study.<sup>19</sup>

<sup>18</sup> A student is regarded as having made a direct transition to tertiary when they start tertiary study by the end of the calendar year; that is the year after they leave school.

<sup>19</sup> Loader, M. & Dalgety, J. (2006).

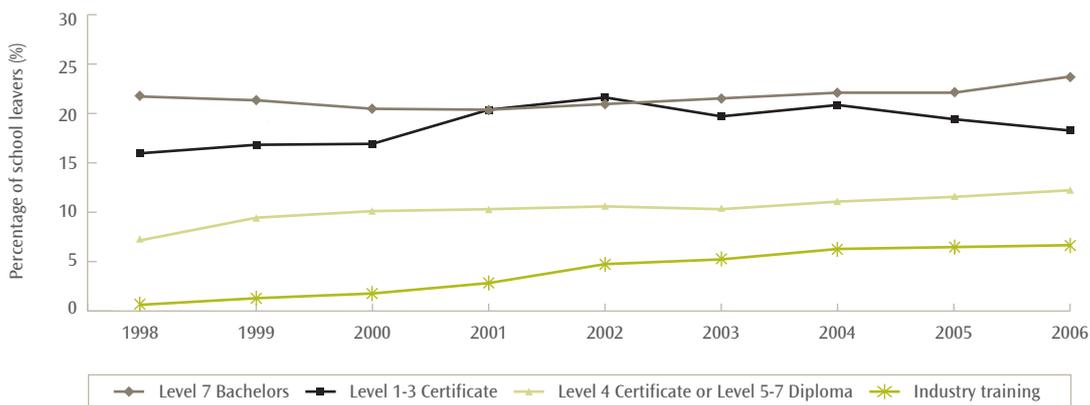


## How we are going

The number of students making a direct transition to tertiary education has increased since the late 1990s. The data show:

- almost two-thirds (64 percent) of all school leavers from 2006 made a direct transition into tertiary education, compared to 48 percent of all school leavers from 1998. This increase was largely due to school leavers enrolling in lower level certificate courses
- 25 percent of 2006 school leavers made a direct transition into Level 7 bachelors degree courses, 13 percent enrolled in Level 4 certificates or Level 5-7 diplomas, and 19 percent enrolled in Level 1-3 certificates (see Figure 11.1)
- there was an eight-fold increase in the proportion of school leavers making a direct transition into industry training courses; from 0.9 percent in 1998 to 7.2 percent in 2006 (see Figure 11.1).

**Figure 11.1:** Percentage of school leavers making a direct transition to tertiary education by award level and year of enrolment (1998 to 2006)



Source: Ministry of Education (2007d).

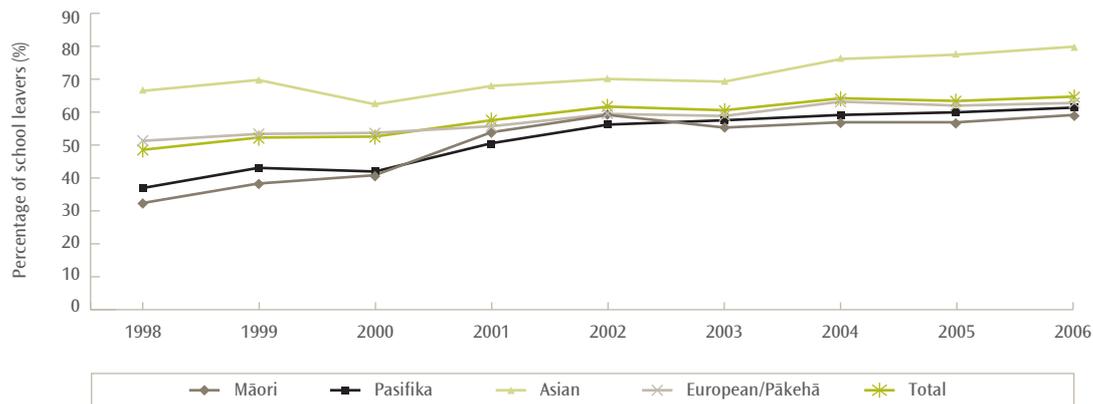
1. New Zealand Agency for International Development (NZAID) and foreign fee-paying students are excluded.

The data show:

- 79 percent of Asian school leavers from 2006 made a direct transition into tertiary study compared to 63 percent of European/Pākehā school leavers: an increase of more than 20 percent between 1998 and 2006 for both of these ethnic groups (see Figure 11.2)
- between 1998 and 2006, the number of Māori and Pasifika school leavers making a direct transition into tertiary education increased from 59 percent to 82 percent and from 61 percent to 66 percent respectively (see Figure 11.2)
- school leavers from decile 9 and 10 schools (72 percent) were more likely than students from decile 1 and 2 schools (53 percent) to make a direct transition into tertiary education.



**Figure 11.2:** Percentage of school leavers making a direct transition to tertiary education by ethnic group and year of enrolment (1998 to 2006)



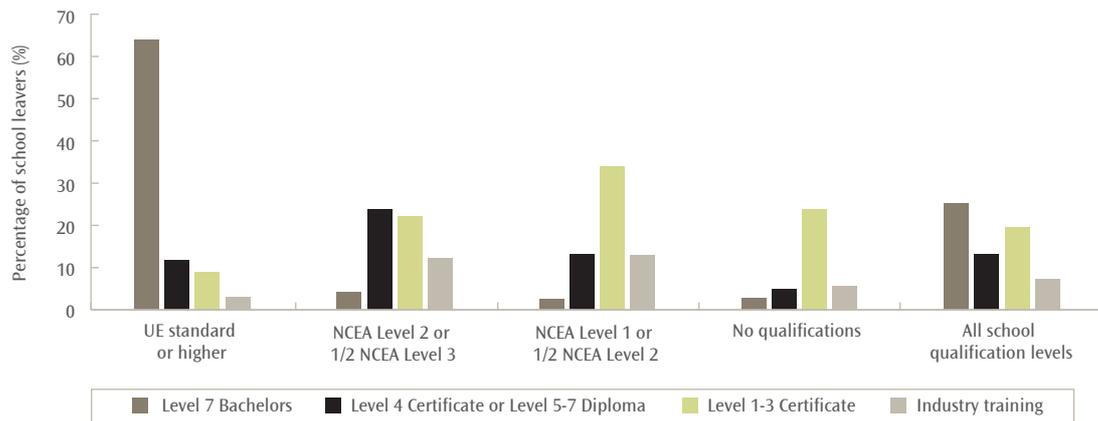
Source: Ministry of Education (2007d).

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

In 2006, school leavers who obtained university entrance or higher were far more likely to enrol in a Level 7 bachelors degree course than any other level course. Those who obtained NCEA Level 2 or were halfway towards an NCEA Level 3 were more likely to enrol in Level 4 certificate, Level 5-7 diploma, or Level 1-3 certificate courses. Those who obtained an NCEA Level 1, were halfway towards an NCEA Level 2, or obtained no qualifications were more likely to enrol in Level 1-3 certificate courses. The data show:

- 87 percent of 2006 school leavers who obtained a university entrance standard or higher enrolled for tertiary education (see Figure 11.3)
- of those 2006 school leavers who left with a school qualification between NCEA Level 1 and halfway towards an NCEA Level 3, just over 60 percent enrolled for tertiary education
- only 36 percent of 2006 school leavers with no qualifications made a direct transition into tertiary education
- of school leavers who obtained a university entrance standard and made a direct transition into tertiary education in 2006, 73 percent enrolled for a Level 7 bachelors degree, 23 percent enrolled in Level 4 certificate, Level 5-7 diploma or Level 1-3 certificate courses, and 3.4 percent undertook industry training
- in 2006, two-thirds of the school leavers who made a direct transition into industry training had previously attained a school qualification between NCEA Level 1 and halfway towards an NCEA Level 3.

**Figure 11.3:** Percentage of school leavers making a direct transition to tertiary education by tertiary award level and highest school qualification (2006)



Source: Ministry of Education (2007d).

1. New Zealand Agency for International Development (NZ Aid) and foreign fee-paying students are excluded.
2. A small proportion of school leavers with no qualifications appear to have made a direct transition to Level 7 bachelors degree study. This relates to a small number of students who do not have a qualification on the National Qualifications Framework, although they are likely to have an overseas qualification that allows direct entrance to university.

## Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

Indicators

Education and learning

- School leavers entering tertiary education

Publications

Key publication series

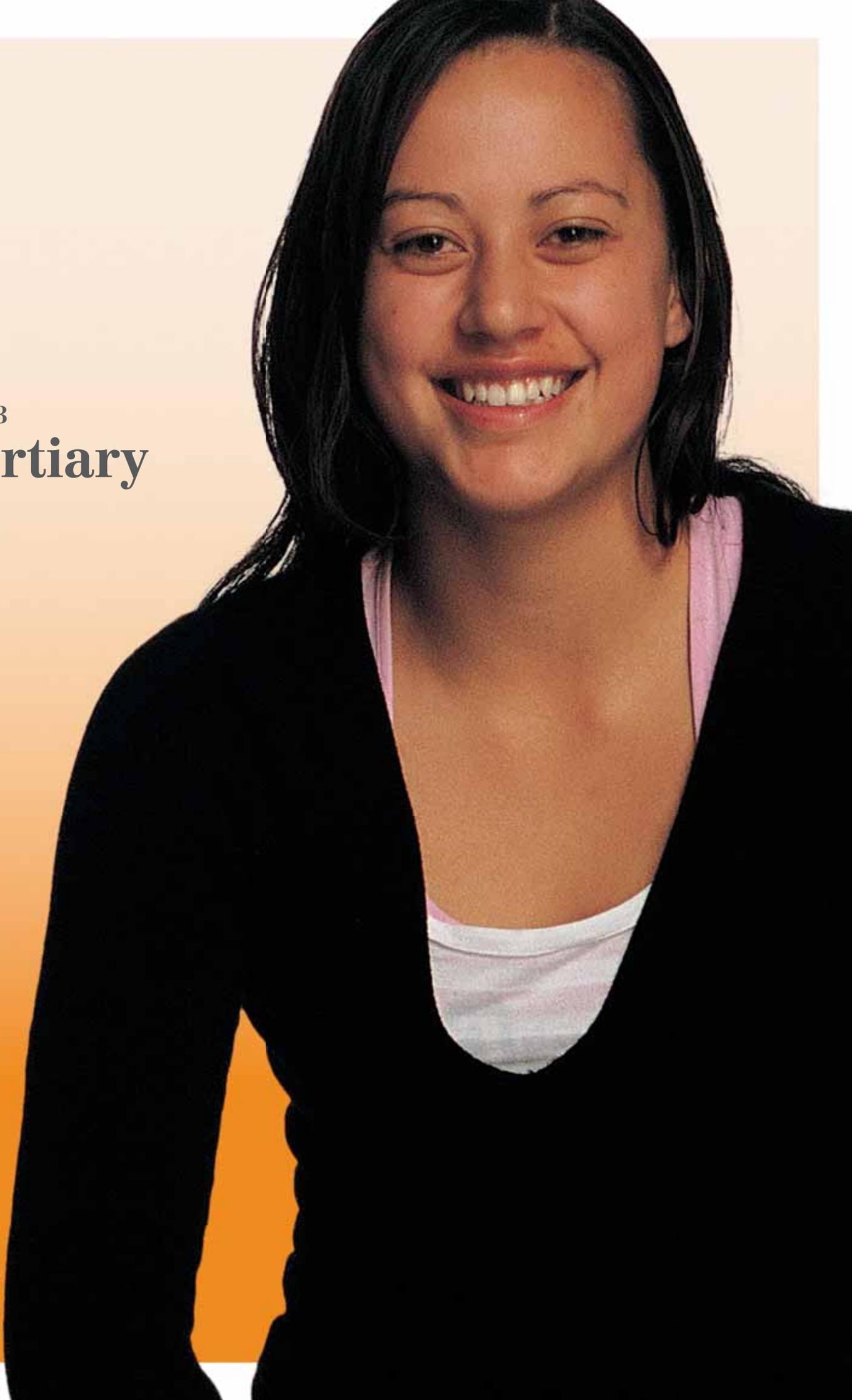
- BES
- Quality teaching for diverse students in schooling

- Profile and trends



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 improved health, better income and standards of living.

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

In 2007 there were 579,000 students enrolled at tertiary education providers and 194,000 workplace-based learners. Just over 13 percent of New Zealanders aged 15 years and over were enrolled at a tertiary education provider in 2007, and six percent were undertaking formal learning in the workplace. A strong economy, coupled with increases in the number of people in employment, led to workplace-based learning continuing its strong upward trend in 2007, while the participation rate in tertiary education institutions declined slightly.

The participation rate of Māori and Asians in formal tertiary education has decreased in recent years in part as a result of the decline in enrolments in lower level qualifications. For Europeans/Pākehā, the rate has remained static. The participation rate in tertiary study by Pasifika peoples increased in 2007, after a decrease in 2006.

The proportion of students who, after completing, continued with a higher level qualification was up slightly, and Pasifika students now have the highest progression rate to higher study.

The affordability of tertiary education improved slightly on average in 2007, due primarily to average weekly incomes rising faster than tuition fees.

### Why this is important

Participation in tertiary education is an important indicator that measures how well the population accesses 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 implies continued participation in learning and education over a person's lifetime. With rapid changes in society, the economy, and technology, skills can quickly become outdated. It is important that people continue to learn new skills after they have completed their initial education.

### How we are going

#### *Tertiary participation rates*

Participation rates show the proportion of the New Zealand domestic population, or sub-group of that population, participating in tertiary education. After substantial increases in the number and proportion of people enrolled in formal tertiary education since 1998, the decrease experienced in 2006 continued into 2007. This was largely due to reductions in certificate-level tertiary education. In 2007, 444,000 New Zealand students were enrolled in tertiary education. The data show:

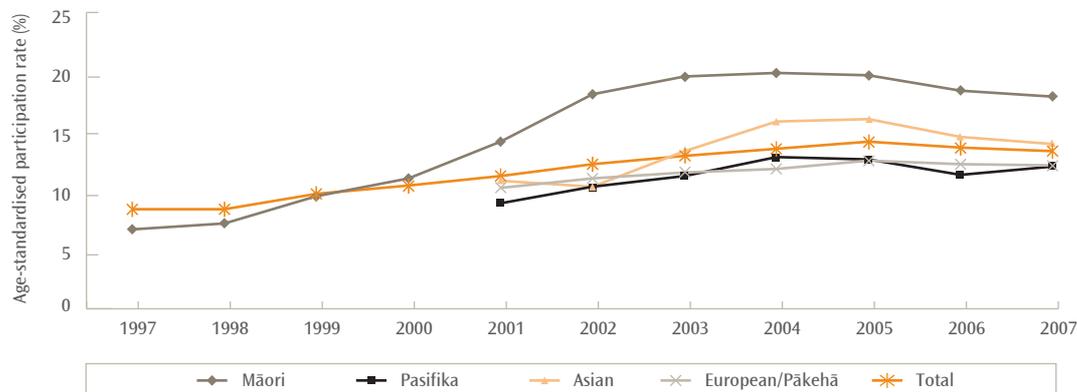
- 13 percent of the population aged 15 and over participated in some form of formal tertiary education during 2007. This is an increase of two percentage points from 11 percent in 2001, but down from a peak of 14 percent in 2005





- the main increase in participation since 2001 has been at certificate levels 1-3. From 2001 to 2005, the number of students enrolled in certificates increased by 68 percent from 129,000 to 217,000, but fell by 13 percent from 2005 to 2007 to 188,000 students. The participation rate in certificates remained relatively static at six percent in 2007
- since 1999, participation in tertiary education by Māori has grown at more than twice the rate of non-Māori, resulting in about 18 percent of Māori aged 15 years and over participating in some form of tertiary education in 2007 (see Figure 12.1). While all ethnic groups showed an overall decline in participation since 2005, Pasifika increased in 2007
- 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. Pasifika have the lowest participation rates at degree level and above
- female participation rates have been higher than males, with the difference reaching a maximum of four percentage points in 2004. While overall participation rates have fallen from 2005, male participation rates have fallen less sharply. The difference in participation rate between the genders was just two percentage points in 2007.

**Figure 12.1:** Age-standardised participation rates in tertiary education of the population aged 15 years and over by ethnic group (1997 to 2007)



Source: Ministry of Education (2008k).

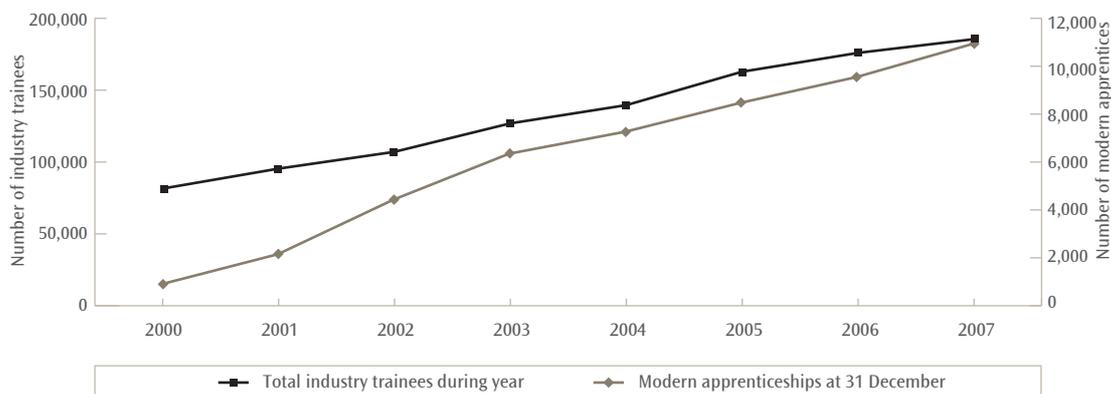
1. Participation rates are not available for the Other ethnic group.
2. Separate participation rates are not available for Pasifika, Asian, and European/Pākehā ethnic groups prior to 2001.
3. Total includes students whose ethnic group was unknown.

**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 those in modern apprenticeships) increased by 95 percent between 2001 and 2007 (see Figure 12.2)
- the 186,000 industry trainees in 2007 now account for about a quarter of all people in formal tertiary education
- the 10,850 modern apprentices as at 31 December 2007 represent an increase of 15 percent over the previous year
- in 2007, nine percent of all employed people in the labour force were undertaking workplace learning through industry training, up from six percent in 2002.

**Figure 12.2:** Number of trainees in industry training and modern apprenticeships (2000 to 2007)



Source: Ministry of Education (2008l).

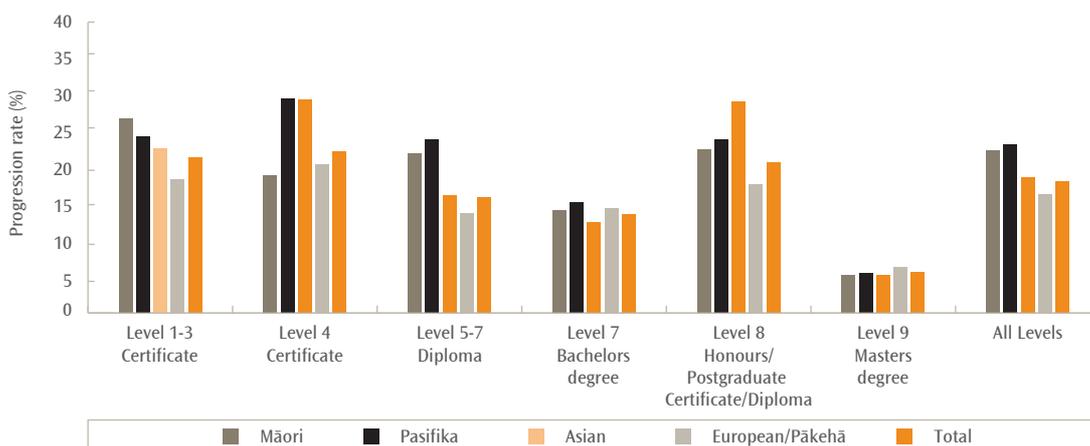
**Tertiary student progression**

Progression refers to the proportion of students continuing tertiary study in the year after completing a tertiary qualification. 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 go on to study at lower levels of qualifications. The data show:

- of those students who completed a tertiary qualification in 2006, 35 percent went on to further study in 2007
- of those students who completed a tertiary qualification in 2006, 18 percent went on to study at a higher level in 2007

- progression to a higher level qualification was highest for students completing certificates, and generally reduces with increasing level of qualification completed
- historically, Māori and Pasifika students have the highest rates of progression to higher levels of study while European/Pākehā students have the lowest rate (see Figure 12.3). For students finishing in 2006, Pasifika students had the highest rate
- overall, female students have slightly higher progression rates to higher level study, at 18 percent compared with 17 percent for male students
- Female progression rates are generally higher in certificate and diploma levels, while male rates are slightly higher at degree level and above.

**Figure 12.3:** Higher level progression rates for domestic students completing a tertiary qualification by ethnic group and qualification level (2006)



Source: Ministry of Education (2008m).

1. All rates are estimates.





**Affordability of tertiary education**

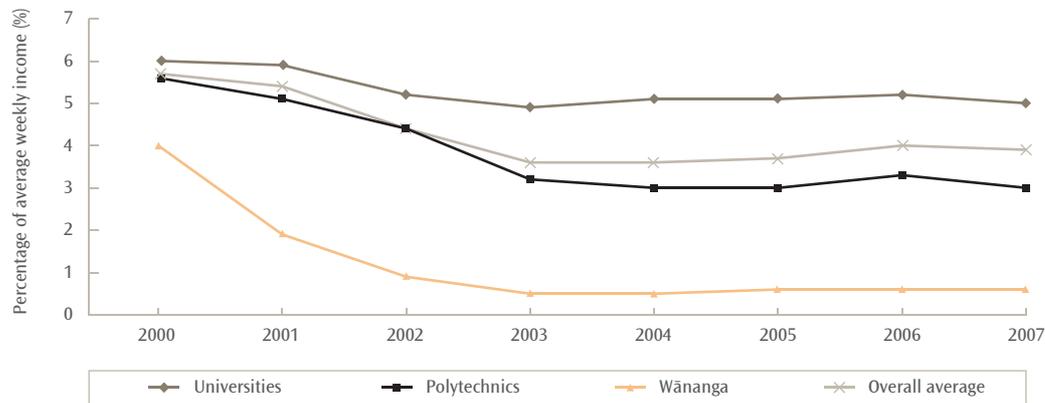
A full understanding of affordability needs to take account of the availability of student financial support arrangements that mitigate direct costs and the wages people forego by taking time out from work to study. This is particularly important given a large proportion of tertiary participants are older students, part-time study, and students who combine 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. The data show:

- in 2001, the average full-year, full-time tuition fee at a tertiary education institution was equivalent to 5.4 weeks' gross earnings at the average weekly wage for employed people. In 2007, it was equivalent to 3.9 weeks. This reflects in part the changing course mix over this period, with more lower-cost certificate-level

provision, and more providers offering courses with discounted or zero fees

- in 2007, the average cost of fees as a proportion of average family income decreased in all sub-sectors, after increasing across all sectors from 2003 to 2006 (see Figure 12.4). The previous increase reflects 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 were reducing after increasing significantly between 2000 and 2003. The fall seen in 2007 is primarily the result of average weekly incomes increasing faster than tuition fees
- the average amount borrowed per student through the student loan scheme has increased by three percent, from \$6,565 in 2006 to \$6,747 in 2007.

**Figure 12.4:** Average domestic fee at tertiary institutions as a percentage of average weekly income by sub-sector (2000 to 2007)



Source: Ministry of Education (2008o).

## Where to find out more

Visit <a href="http://www.educationcounts.govt.nz">www.educationcounts.govt.nz</a>		
Indicators	Student participation	<ul style="list-style-type: none"> <li>Participation rates in tertiary education</li> <li>Participation in industry training</li> </ul>
	Education and learning	<ul style="list-style-type: none"> <li>Tertiary student progression</li> </ul>
	Family and community engagement	<ul style="list-style-type: none"> <li>Affordability of tertiary education</li> </ul>
Publications	Key publication series	<ul style="list-style-type: none"> <li>Profile and trends</li> <li>Student loan scheme annual report</li> </ul>
	Tertiary	<ul style="list-style-type: none"> <li>Participation in tertiary education: a birth cohort approach</li> <li>A changing population and the New Zealand tertiary education sector</li> </ul>



# 13. Achievement

## What we have found

Sixty percent of students starting bachelors degree qualifications eventually complete their degree or a higher level qualification. A further seven percent complete a certificate or diploma instead.

Completion rates are higher for postgraduate-level students and lower for students studying at certificate or diploma level.

Thirty-five percent of industry training learners attain at least one programme completion within five years of starting workplace-based learning.

Full-time students do noticeably better than part-time students. Intramural students do better than extramural. Students who are combining work with study are also much less likely to complete than those coming directly from school.

Demographic characteristics make a difference to tertiary completion. Qualification completion rates are higher for women, but the gap reduces at higher qualification levels. Asian students have the highest rates of completion of any ethnic group, while rates are lower for Pasifika and Māori students (in particular at postgraduate level).

Younger students apparently achieve better than older students at bachelors degree level. However older students do better once adjusted 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. Having said this, it should be recognised that there are many factors outside the tertiary education system that will have an effect on outcomes, and that 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*

Fifty percent of all students who started a qualification in 1999 went on to complete that qualification or a higher qualification by 2006 (see Table 13.1). The data show:

- 52 percent of students starting bachelors degree qualifications have completed their degree or a higher-level qualification after five years. Sixty percent have completed after eight years. Another seven percent have completed a certificate or diploma instead
- not all students enrol with the intention of completing a qualification; just over 30 percent of students starting a degree leave study without gaining any qualification. About seven percent of all students



studying for a bachelors degree (and 12 percent of part-time bachelors degree students) pass every course (or paper) they enrolled in, but leave without gaining a qualification at any level

- 50 percent of students starting a diploma or post-secondary-level certificate have completed a qualification after five years. This includes five percent who completed a higher level qualification to the one they started, and nine percent who completed a lower level qualification
- 58 percent of students starting their masters degrees have completed the qualification after five years. Sixty-one percent have completed a masters or higher degree after eight years. A further 10 percent left with a lower level qualification instead
- although just 33 percent of doctorate students have completed their qualification after five years, 60 percent have completed it after eight years, and 63 percent have completed it 10 years after first starting. A further eight percent have left with a lower level qualification instead.

Full-time students have significantly higher qualification pass rates than part-time students. International students have higher completion rates than domestic students. Asian students and female students have higher overall completion rates than their relevant counterparts;

however there are differences at specific levels of study. The data show:

- about 75 percent of bachelors degree students studying full-time continuously complete a bachelors degree or higher-level qualification, compared with 47 percent for students studying part-time
- over all tertiary levels, Asian students have the highest rate of five-year qualification completion, while Māori and Pasifika have the lowest
- while younger students have higher degree completion rates than older students, once differences are adjusted for (such as the fact that older students are more likely to be studying part-time and extramurally) older students do better
- females complete qualifications at a higher rate than males, across all levels except masters degrees and doctorates (see Figure 13.1)
- international students do better 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:** Eight-year qualification completion rates for students starting qualifications in 1999 by qualification level and ethnic group

Level of study	Eight-year qualification completion rate (%)				
	European/ Pākehā	Māori	Pasifika	Asian	Total
Levels 1-3 Certificates	42	51	44	54	45
Level 4 Certificate	36	44	30	36	37
Levels 5-7 Diplomas	41	40	32	44	40
Level 7 Bachelors degree	64	47	41	67	60
Level 8 Honours/Postgraduate Certificate/Diploma	68	59	49	58	65
Level 9 Masters degree	61	44	53	71	61
Level 10 Doctorates	60	54	note 2	56	60
<b>Total</b>	<b>51</b>	<b>48</b>	<b>41</b>	<b>57</b>	<b>50</b>

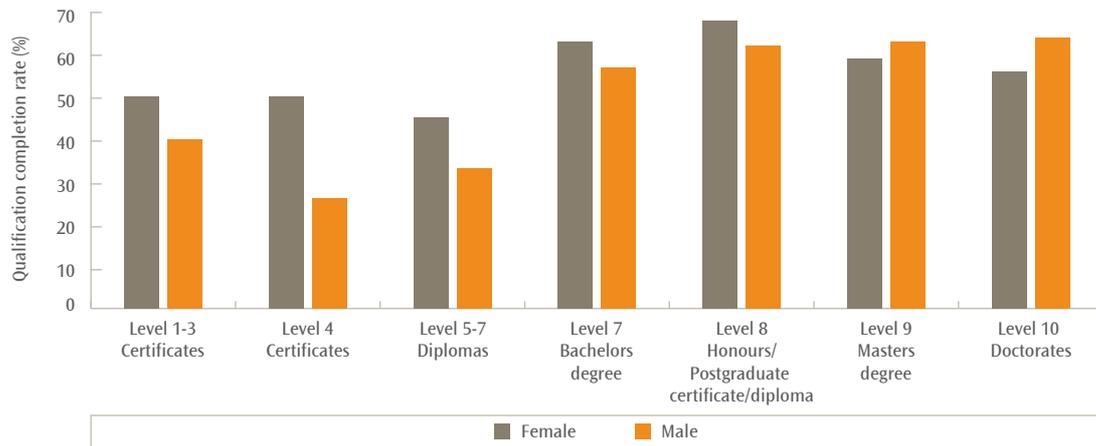
Source: Ministry of Education (2008p).

1. The qualification completion rate refers to the percentage of students starting a qualification in 1999 who went on to complete any qualification at the same level or higher over the next eight years (i.e. by the end of 2006).

2. Rates are not reported for groups of fewer than 30 students (in this case for Pasifika students starting doctorates in 1999).



**Figure 13.1:** Eight-year qualification completion rates for students starting a qualification in 1999 by qualification level and gender



Source: Ministry of Education (2008p).

1. The qualification completion rate refers to the percentage of students starting a qualification in 1999 who had completed a qualification at the same level or higher by the end of 2006.

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

- 30 percent of bachelors degree students leave without completing any qualification. Just under a quarter of students starting degrees are no longer enrolled in a degree after their first year
- for sub-degree-level certificates and diplomas, about 50 percent of students will eventually leave without gaining any qualification; 35 percent leave in the first year. However, of those who leave without any qualification, 40 percent have passed every course or paper they enrolled in
- about 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 rates become more comparable with rates in Australia, United States, and the United Kingdom.

#### *Completion of tertiary education courses*

Course (i.e. paper or module) 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 more than 80 percent for degree-level courses, 66 percent for certificate-level courses and 73 percent for diploma-level courses (see Table 13.2)
- course completion rates are highest for universities (82 percent) and lower for polytechnics (70 percent), private training establishments (69 percent), and wānanga (64 percent)
- 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.

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

Sub-sector	Course completion rate estimate (%)	Qualification completion rate estimate (%)
Universities	82	59
Institutes of technology & polytechnics	70	38
Wānanga	64	48
Private training establishments	69	42
<b>Total</b>	<b>73</b>	<b>46</b>

Source: Ministry of Education.

1. The qualification completion rate refers to the percentage of students starting a qualification in 2000 who went on to complete a qualification (not necessarily the one they started) at the same level or higher as 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.
3. Universities include former colleges of education.

### *Achievement in workplace-based training*

Industry training is learning that occurs within the workplace. It differs from provider-based tertiary education in several important ways. Most importantly, industry training learners' main activity is their job, and learning and assessment occurs around each learner's employment schedule.

Industry training learners learn and are assessed on skills that are directly relevant to their employment. They undertake programmes of learning consisting of unit standards on the National Qualifications Framework. Each learner earns, on average, 53 credits while involved in industry training. The data show:

- during 2007, a total of 3.6 million credits were attained by industry training learners
- most learners study in programmes that potentially lead to national certificates. During 2007, more than 29,000 national certificates were attained by industry training learners
- 35 percent of learners in industry training attain at least one programme completion within five years of commencing their learning, while 37 percent of learners in total attain a national certificate
- industry training learning mostly occurs at Levels 3 and 4 of the National Qualifications Framework. These rates of attainment and completion are similar to those for the learners in provider-based tertiary education at equivalent levels.

## Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)



Indicators

Education and learning

- Completion of tertiary education
- Tertiary student progression

Publications

Key publication series

- Profile and trends

Tertiary

- Retention, completion and progression in tertiary education in New Zealand



# 14. International Education

## What we have found

After rapid growth between 2000 and 2004, the number of international students enrolled at tertiary education providers has declined slightly over the past three years but remains high. International students now make up eight percent of all formal tertiary students.

About 40 percent of all international students enrolled in formal tertiary education come from China.

International students contributed \$330 million in fees to the revenue of public tertiary education institutions in 2007 (nine percent of the institutions' 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. Nine percent of revenue of public tertiary education institutions came from international students in 2007.

International education generates a considerable amount of revenue for New Zealand providers through fees. It contributed over \$2 billion dollars in added economic value in 2007/08 through, for example, the costs of living paid by students while studying in New Zealand.

## 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 2007, there were 39,900 international students enrolled in formal tertiary education in New Zealand
- nearly one in 12 students enrolled in formal tertiary education were international students during 2007,

an increase from one in 20 students during 2000 but down from one in 10 in 2006

- in 2007, for the third consecutive year, the number of international students studying in formal tertiary education in New Zealand declined, after strong growth since 1998 (see Figure 14.1)
- Chinese students made up 41 percent of all international students. The next largest sources are India, South Korea, the United States, Malaysia, and Japan
- during 2007, 60 percent of international students enrolled in formal tertiary education in New Zealand were studying at degree level or above, compared with 40 percent during 2001 (see Figure 14.2)
- most international students (more than 80 percent) studying at a tertiary level during 2007 were at public tertiary education institutions; 58 percent were at universities, and 24 percent were at polytechnics.

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. According to the Statistics New Zealand Survey of English Language Providers, a total of 39,700 international students were enrolled for the year ended 31 March 2008. This was a five percent increase on the figure for the year ended 31 March 2007.

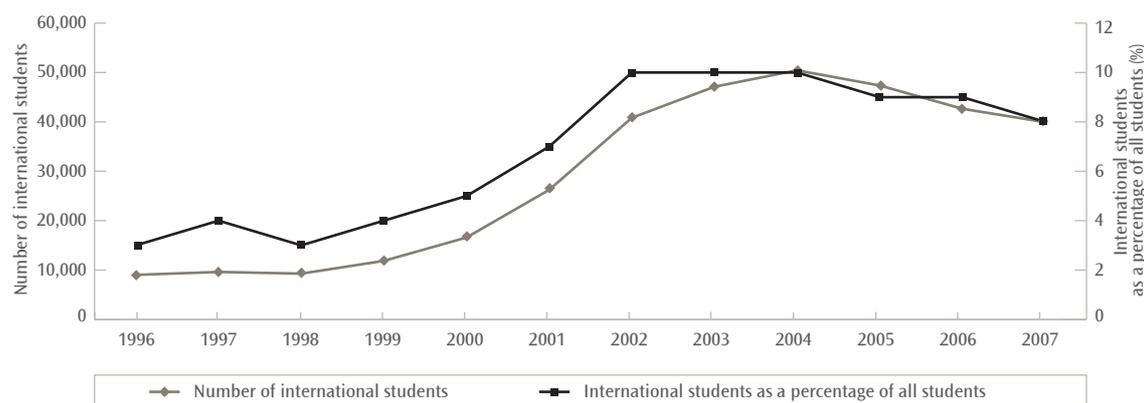


**Revenue from international students**

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

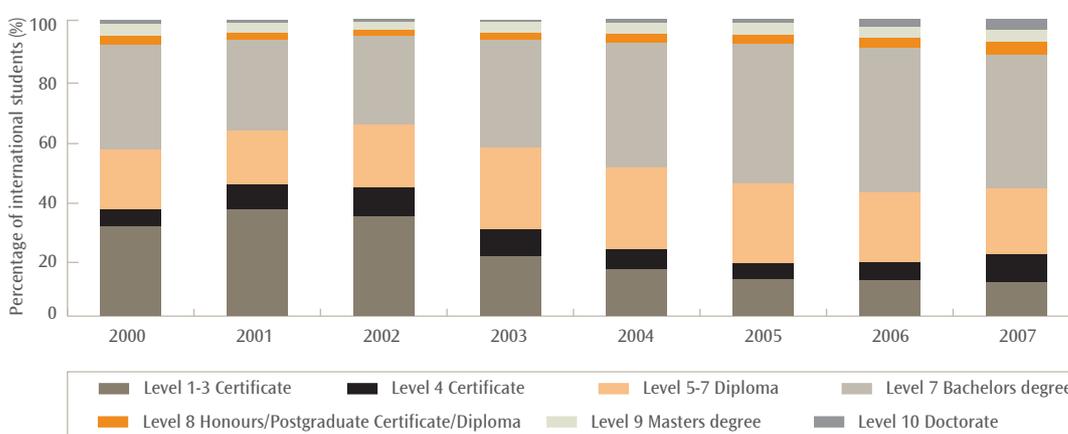
- international students contributed \$330 million (exclusive of GST) in fees to the revenue of public tertiary education institutions in 2007. This equated to 8.9 percent of the total revenue of public tertiary education institutions
- the fees charged to international students have increased significantly on an equivalent full-time student basis. Between 2002 and 2007 the average international tuition fee per equivalent full-time student in tertiary education institutions increased by 29 percent, from \$13,000 (inclusive of GST) to \$16,700. In real terms, the increase was 13 percent. This partly reflects an increase in international students studying at degree level and above.
- as a result of the continued decline in the number of international students, total international tuition fee revenue for tertiary education institutions decreased between 2006 and 2007 by 11 percent, from \$371 million to \$330 million.

**Figure 14.1:** International student numbers enrolled in formal tertiary education (1996 to 2007)



Source: Ministry of Education (2008q).

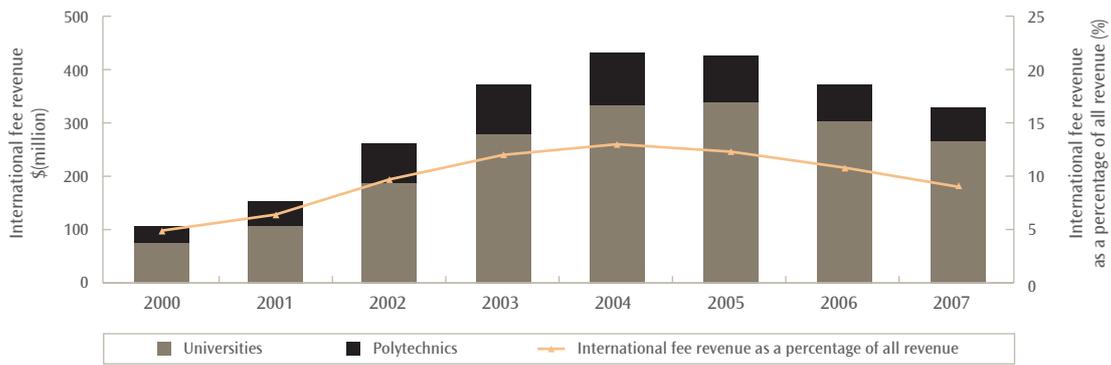
**Figure 14.2:** Distribution of formal international students by qualification level (2000 to 2007)



Source: Ministry of Education (2008q).



**Figure 14.3:** International fee revenue in tertiary education institutions (2000 to 2007)



Source: Ministry of Education (2008q).

1. International fee revenue is exclusive of GST.



## Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)



<b>Indicators</b>	<b>Student participation</b>	<ul style="list-style-type: none"> <li>▪ International students enrolled in tertiary education</li> </ul>
<b>Publications</b>	<b>Key publication series</b>	<ul style="list-style-type: none"> <li>▪ Profile and trends</li> <li>▪ International students trends reports</li> </ul>
	<b>International</b>	<ul style="list-style-type: none"> <li>▪ The economic impact of foreign fee-paying students</li> </ul>

# 15. Tertiary Research

## What we have found

The number of students being awarded doctorates is increasing. In addition, the long-term completion rate for those students who start a doctorate is rising over time.

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, about 33 percent of New Zealand's PBRF-eligible staff was assessed as having produced original and innovative research, up from 29 percent in the 2003 evaluation. Around seven percent of PBRF-eligible staff produced highly original and innovative research that was esteemed by the international academic community – up from six percent in the previous evaluation.

The academic effect of New Zealand university research is highest in the broad subject area of 'health'.

The share of world-indexed publications and citations produced by New Zealand tertiary education institutions increased between 1998 to 2002 and again between 2003 to 2007.

## 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 is responsible for training most of the researchers who will contribute to innovation in New Zealand, producing graduates from research degrees with the required skills, knowledge, and attributes to help achieve economic productivity. 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. Universities are responsible for more than 60 percent of New Zealand's research papers.<sup>20</sup>

## How we are going

### *University research contract income*<sup>21</sup>

Universities report the income they have earned from research contracts on an annual basis. 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.<sup>22</sup>

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:

<sup>20</sup> Ministry of Research, Science and Technology. (2006).

<sup>21</sup> 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 has been combined with the university data.

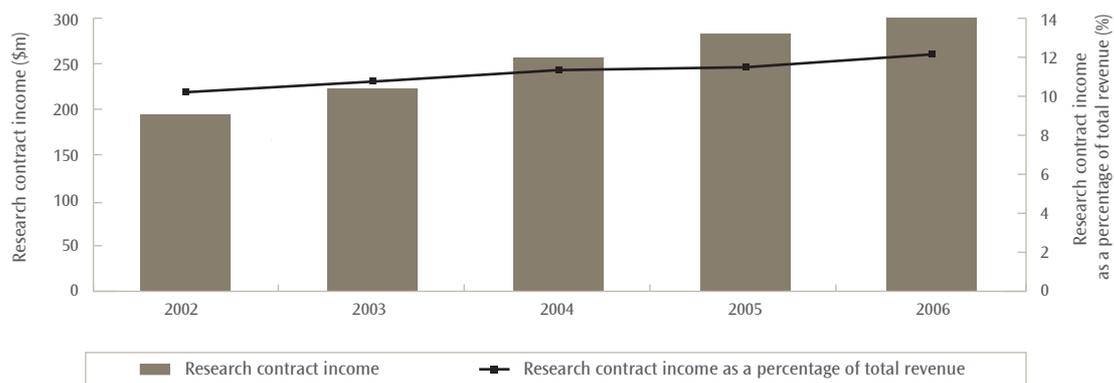
<sup>22</sup> It needs to be noted that some research funding is commissioned by industry or by public sector agencies and is not won in competitive tender. The capacity of providers to maintain income from these sources over time, however, depends on their reputation for delivery of research of high quality. It should also be noted that the main public research funds are oriented towards certain types of disciplines or outcomes; this moderates the extent to which external research earnings can be used as a measure of research quality.





- total research contract income increased substantially at universities between 2002 and 2006. During this period, research contract income increased by 55 percent from \$194 million to \$301 million (see Figure 15.1). In real terms this amounts to an increase of 40 percent<sup>23</sup>
- after adjusting for the size of the academic workforce and inflation, there has still been a substantial rise in research contract income at the universities. On a per full-time equivalent academic staff member basis, research contract income increased by 34 percent in real terms between 2002 and 2006
- the importance of research contract income to universities increased between 2002 and 2006. As a percentage of all university income, research contract income increased from 10 percent in 2002 to 12 percent in 2006 (see Figure 15.1).

**Figure 15.1:** University research contract income (2002 to 2006)



Source: Ministry of Education (2008n).

**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.<sup>24</sup> The data show:

- the number of students awarded doctorate degrees increased by 40 percent from 456 in 2000 to 639 in 2006
- the seven-year completion rates for doctoral students increased from 49 percent for students who began their doctorate degrees in 1998 to 54 percent for students who started in 2000. The long-term completion rate for doctoral students is more than 60 percent.<sup>25</sup>

<sup>23</sup> Sums quoted in real terms have been adjusted for the effects of inflation over time.

<sup>24</sup> Scott, D. (2005a); Scott, D. (2005b).

<sup>25</sup> The 10-year completion rate for students that started their doctorate degrees between 1995 and 1997 is between 60 and 62 percent.

### Researcher quality based on the Performance-Based Research Fund (PBRF)

The quality of researchers in the tertiary education sector has been 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 with which they are held by their peers; and their contribution to the research environment. Through a peer review process, each PBRF-eligible staff member is then assigned a quality category. There have been two quality evaluations. The first took place in 2003, followed by a second in 2006.

In the quality evaluations, one of four quality categories (A, B, C, or R) was assigned to each PBRF-eligible staff member who submitted an evidence portfolio. A staff member 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

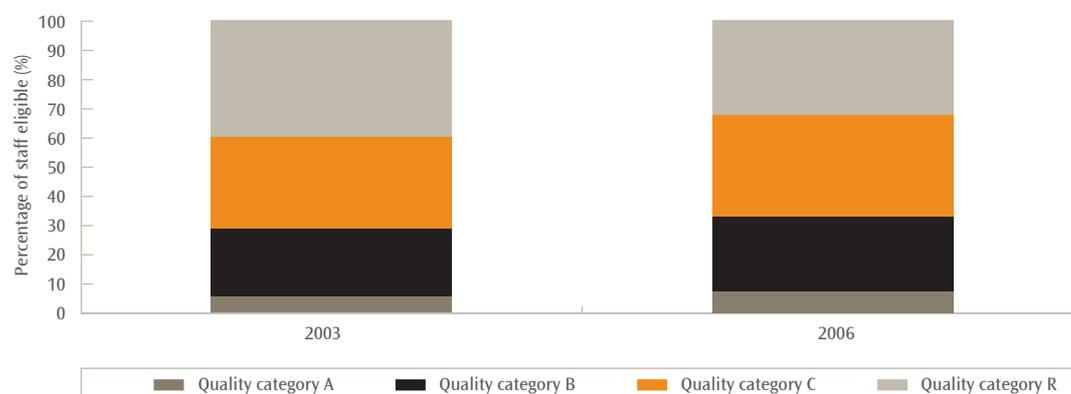
- a 'C' quality category was assessed as producing research that applied existing research methodologies with acknowledgement by their peers of a sound research basis.<sup>26</sup>

An 'R' quality category was assigned to a researcher who did not meet the standard of a 'C' quality category.<sup>27</sup>

The results of the 2006 quality evaluation show that 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. 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.

As a percentage of all PBRF-eligible staff, about 33 percent of staff produced original and innovative research in 2006, compared with 29 percent in 2003. About 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).

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



Source: Tertiary Education Commission (2004, 2007).

<sup>26</sup> This quality category includes those new and emerging researchers who received a C(NE) quality category in the 2006 quality evaluation.

<sup>27</sup> This quality category includes those new and emerging researchers who received an R(NE) quality category in the 2006 quality evaluation.



**Academic effects of tertiary education institution research**

The academic effects of research by New Zealand tertiary education institutions can be measured by counting the number of times a research publication is cited by subsequent researchers.<sup>28</sup> The greater the number of citations a publication receives, the greater the effect that this research has had on the research community.

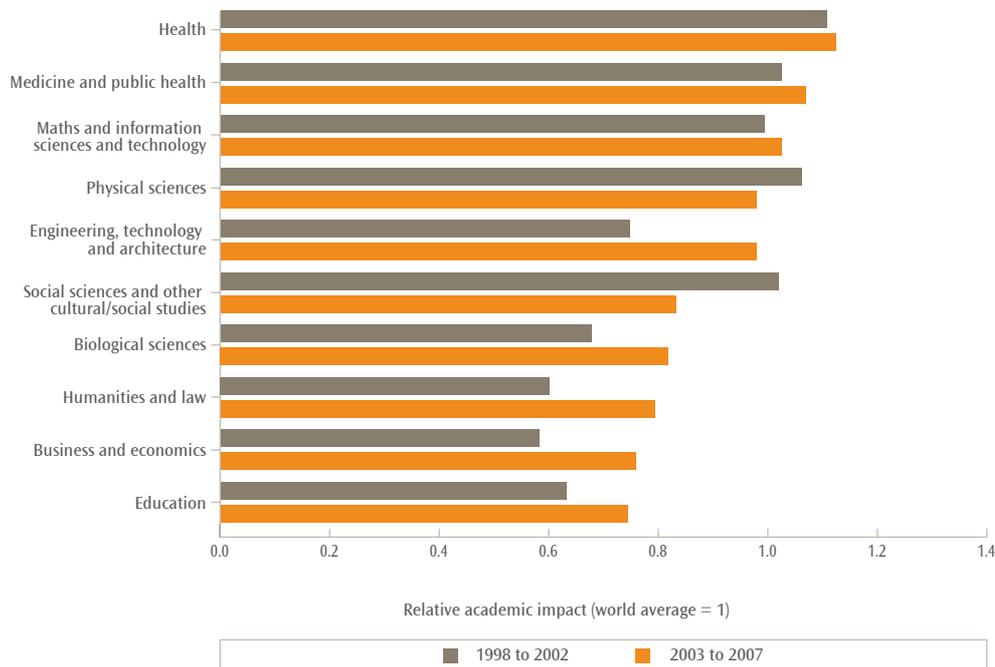
As the rates of citation differ between subjects and are also rising over time, academic effect is expressed as the ratio of New Zealand tertiary education institution citations per publication to world citations per publication. A value greater than one indicates that the academic effect of the New Zealand tertiary education institution

research was above the world average. A value below one indicates the academic effect of the research was below the world average.

The data<sup>29</sup> shows that:

- research in the ‘health’ subject area achieved the highest research effect during the period from 2003 to 2007. This was followed by research in the ‘medicine and public health’ area and the ‘mathematical and informational sciences and technology’ area
- the relative academic effect of research increased in eight of the 10 broad subject areas between 1998 to 2002 and 2003 to 2007.

**Figure 15.3:** Relative academic impact of tertiary education institution research by subject area (1998 to 2002 and 2003 to 2007)



Source: Ministry of Education (2008n).

<sup>28</sup> 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 effect of research in these areas. A detailed discussion of this and other important caveats can be found in Smart and Weusten (2007).

<sup>29</sup> A bibliometric dataset provided by Thomson Reuters is used to measure the relative academic effects of research.

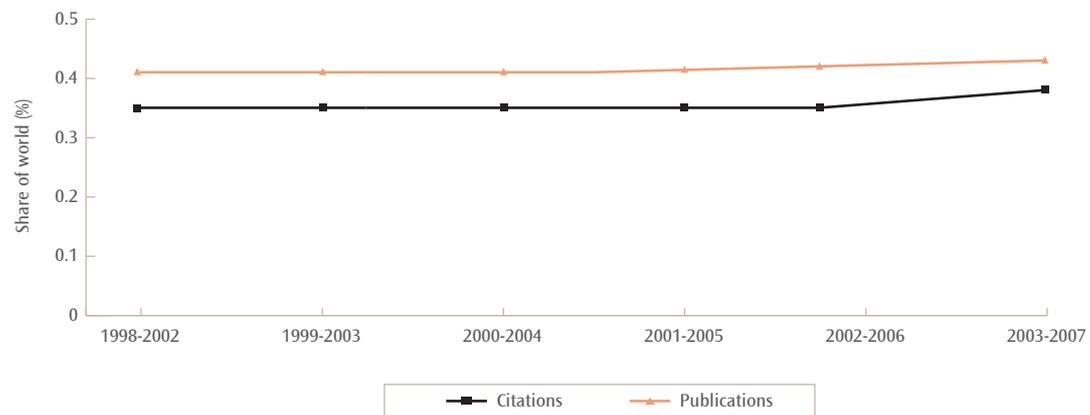


**Share of world indexed publications and citations**

The share of world indexed publication and the citations attached to those publications is another indicator of research performance. The data show that:

- the share of world publications by New Zealand tertiary education institutions increased from 0.41 percent in 1998 to 2002 to 0.44 percent in the period 2003 to 2007
- the share of world indexed citations by New Zealand tertiary education organisations increased from 0.35 percent in the period 1998 to 2002 to 0.40 percent in the period 2003 to 2007.

**Figure 15.4:** Share of world indexed publications and citations by tertiary education institutions (1998-2002 to 2003-2007)



Source: Ministry of Education (2008n).



## Where to find out more

Visit <a href="http://www.educationcounts.govt.nz" style="color: white;">www.educationcounts.govt.nz</a>		
<b>Indicators</b>	<b>Quality education providers</b>	<ul style="list-style-type: none"> <li>▪ University research contract income</li> <li>▪ Research degree completion rates</li> <li>▪ Performance-based Research Fund staff receiving an A or B quality rating</li> </ul>
<b>Publications</b>	<b>Key publication series</b>	<ul style="list-style-type: none"> <li>▪ Profile and trends</li> </ul>
	<b>Tertiary</b>	<ul style="list-style-type: none"> <li>▪ (ex)Citing research: A bibliometric analysis of New Zealand university research 1981-2005</li> <li>▪ An analysis of funding allocations for staff and research degree completions in the Performance-Based Research Fund</li> <li>▪ Quality vs. impact: A comparison of Performance-Based Research Fund quality scores with citations</li> <li>▪ Research Measures: Comparing seven new measures of research performance in tertiary education</li> <li>▪ Research Measures: Comparing the old with the new</li> <li>▪ What determines the research performance of staff in New Zealand's tertiary education sector?</li> </ul>



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

Between 2004 and 2007, there was a slight increase in the percentage of youth aged 15 to 19 who are inactive – that is, not in employment, or in formal study, or in a care-giving role. This compares with a slight decrease in the percentage of the population aged 20 to 24 not in employment, formal study or a care-giving role.

When examining the data for men and women separately, the percentage of both males and females aged 15 to 19 not in employment, formal study, or a care-giving role increased between 2004 and 2007. However, for the population aged 20 to 24, the situation of women has improved. There was a decrease in the percentage of women not in employment, formal study, or a care-giving role, compared with an increase for males.<sup>30</sup>

## Why this is important

The proportion of people aged between 15 and 24 years not in employment and/or study is an indicator of 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.

## How we are going

The employment, study, and care-giving status of the youth population is reported in Statistics New Zealand's *Household Labour Force Survey*.<sup>31</sup> The data show:

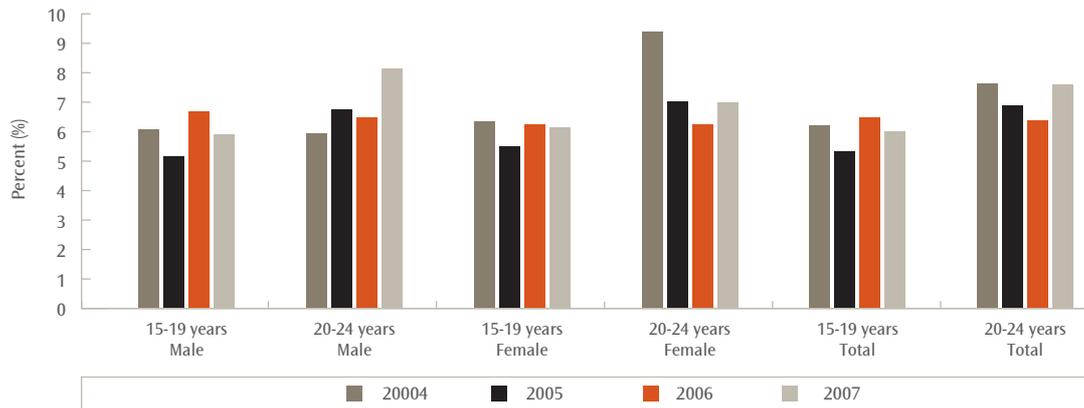
- the percentage of the population aged 15 to 19 who were not in employment, study, or in a care-giving role increased from 7.9 percent in 2004 to 8.8 percent in 2007
- the percentage of the population aged 20 to 24 who were not in employment, formal study, or in a care-giving role decreased from 8.7 percent in 2004 to 8.4 percent in 2007
- the percentage of the male population aged 15 to 19 who were not in employment, study, or in a care-giving role increased from 7.7 percent in 2004 to 9.2 percent in 2007. For females, the percentage increased slightly from 8.1 to 8.5 in the same period
- the percentage of the male population aged 20 to 24 not in employment, study, or in a care-giving role increased from 6.8 percent in 2004 to 8.6 percent in 2007. For females, the percentage decreased from 10.6 in 2004 to 8.1 percent in 2007.

<sup>30</sup> The inactive group include those individuals who are not employed and/or study and do not include those classified as caregivers.

<sup>31</sup> 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 eight and 10 percent. Therefore, caution must be used when looking at this result.



**Figure 16.1:** Percentage of the youth population not in employment, study or in a care-giving role by age group (2004 to 2007)



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



## Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)



Publications

Key publication series

▪ Profile and trends

# 17. Effects of Education on Income

## What we have found

The higher the level of qualification a person holds, the greater the likelihood that he or she will have a higher income. There are disparities in earnings between men and women, with men generally earning more than women who hold the same qualification. However, these disparities in earnings are reducing over time among those with tertiary qualifications. Ethnic disparities in earnings continue to exist even at higher qualification levels.

## Why this is important

One of the important marks of the success of an education system is the opportunity 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

### *The effects of level of highest qualifications on income*

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

- between 1997 and 2007, the real median weekly income for those with bachelors degrees or higher tertiary qualifications was approximately two and a half times that of people with school qualifications or no formal school qualifications (see Figure 17.1)
- between 1997 and 2007, the median weekly income of holders of non-degree level tertiary qualifications

was twice that of those with school qualifications or no formal school qualifications

- for men, the percentage gain from holding bachelors degrees or higher qualifications, compared with those with no qualifications, decreased from 197 percent in 1997 to 149 percent in 2007. 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 145 percent<sup>32</sup>
- the percentage gain for men holding non-degree level tertiary qualifications over men with no qualifications fell from 117 percent to 99 percent. Women in that category experienced an increase in premium from 55 percent to 61 percent over the same period, according to Statistics New Zealand data.

While there are gender disparities in earnings, these are reducing over time for those with tertiary qualifications (see Figure 17.2). The data show:

- the earnings gap between men and women has decreased since 1997 for those with a bachelors degree or higher qualification. The premium in median weekly income experienced by men over women was 67 percent in 1997. The premium decreased to 42 percent in 2007. While the earnings gap slightly decreased for those with other tertiary qualifications, it increased for those with school qualifications or no qualification.

Ethnic disparities in earnings continue to exist at higher qualification levels (see Figure 17.3).

<sup>32</sup> Statistics New Zealand. *Household Labour Force Survey* (June quarter, 1997-2007).



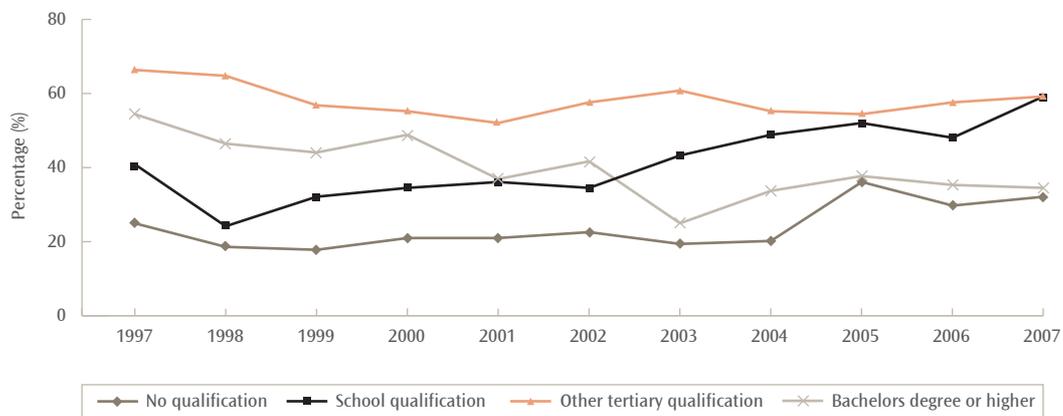
**Figure 17.1:** Real median weekly income from all sources for the population aged 15 years and over by highest qualification (1997 to 2007)



Source: Statistics New Zealand (2007).

1. Median weekly income is standardised using CPI deflator.

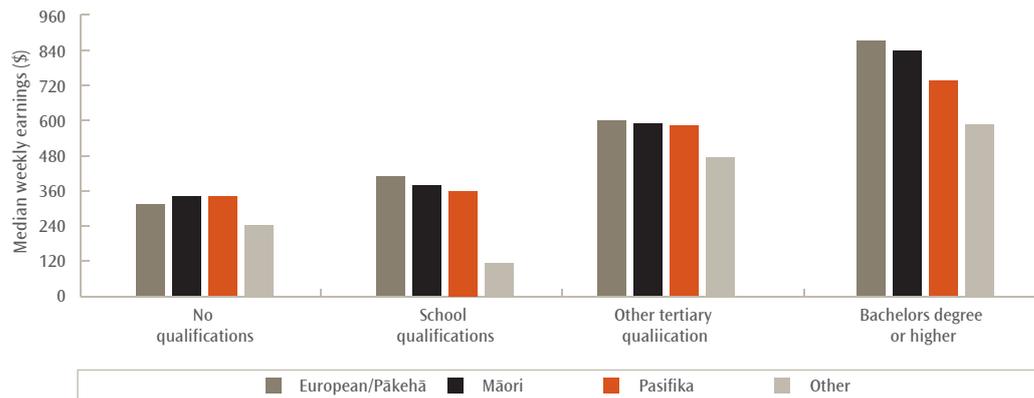
**Figure 17.2:** Earnings premium of men over women by highest qualification median weekly income (1997 to 2007)



Source: Statistics New Zealand (2007).



**Figure 17.3:** Median weekly income for the population aged 15 and over by highest qualification and ethnicity (2007)



Source: Statistics New Zealand (2007).

### Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)



<b>Indicators</b>	<b>Education and learning</b>	<ul style="list-style-type: none"> <li>▪ Impact of education on income</li> </ul>
<b>Publications</b>	<b>Key publication series</b>	<ul style="list-style-type: none"> <li>▪ Profile and trends</li> </ul>
	<b>Tertiary</b>	<ul style="list-style-type: none"> <li>▪ Tertiary education of New Zealanders: a census analysis</li> </ul>



# 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. But within each level of study, completion does make 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 certificate is lower, reflecting the type of work that certificate holders typically undertake. A masters degree has a low premium, reflecting 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.

The premium paid for completion of a bachelors degree is higher among Māori and Pasifika; this means 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 people's skills and knowledge. Both indicate the extent to which the education system serves the economy.

Because people with higher levels of education are more likely to participate in the labour market, they 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.<sup>33</sup> The labour market pays the highest income premium for completion of bachelors degrees. The data show:

- the premium for completion of most qualification types is evident from the point of leaving study and, in most cases, is still visible nine years after leaving

<sup>33</sup> In Chapter 17 – Effect 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 concluded here.



- the premium for completion of a bachelors degree remains at around 30 percent or more over the first nine years following study
- the premium for completion of a bachelors degree is even higher at lower levels in the income distribution<sup>34</sup>
- the premium for completion of a level 1 to 3 certificate is lower, but still enduring – among those who left study in 1997, the premium nine years after leaving was 10 percent, while the 2000 leavers had a premium of nearly 20 percent in 2006
- the premium for completing a postgraduate qualification is lower, largely because holders of postgraduate qualifications had already earned a premium for their bachelors degree
- there is also a substantial premium for completing a level 5 to 7 diploma – about 14 percent nine years after leaving.

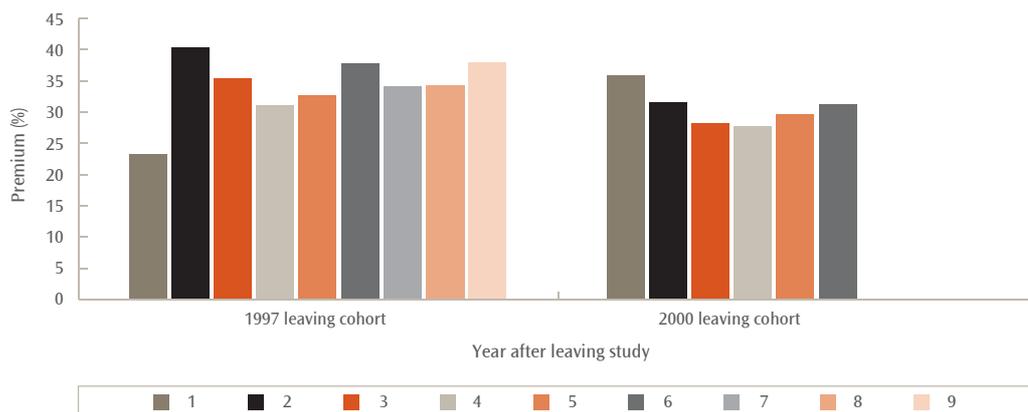
**Demographic factors and the premium for completion**

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 to 3 certificates reduces these disparities. The data show:

- women have been enjoying similar earnings premiums to men in recent years. In 2006, for those who had left study in 1997 having studied at bachelors degree level, the premium among the women was 44 percent, compared with 41 percent for men. In 2006, after six years in the workforce, women who had completed a bachelors degree enjoyed a premium of 36 percent, marginally higher than men (35 percent)
- 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 those two ethnic groups and European/Pākehā people.



**Figure 18.1:** Premium for completion of a bachelors degree (1997 leaving cohort and 2000 leaving cohort)

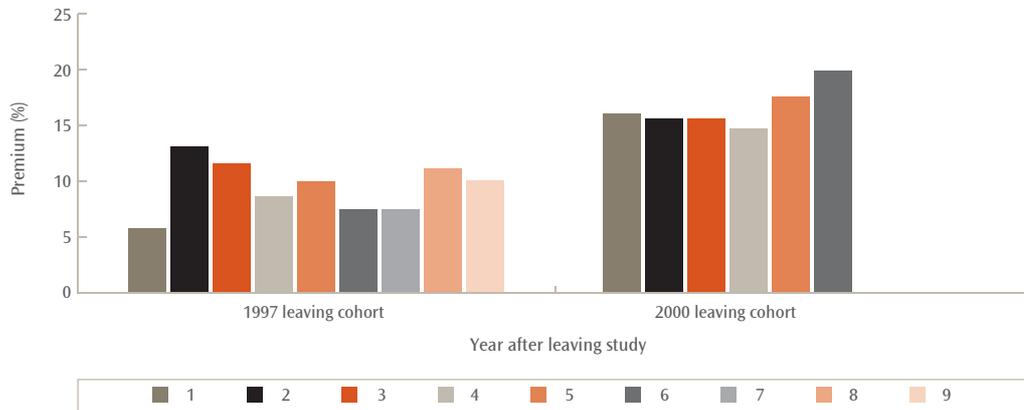


Source: Ministry of Education.

<sup>34</sup> If we take all students who completed a bachelors degree and compare the income of the student at the 25th percentile with the corresponding student for those who started by failed to complete a bachelors degree, then the premium for completion was nearly 70 percent nearly nine years after leaving study.

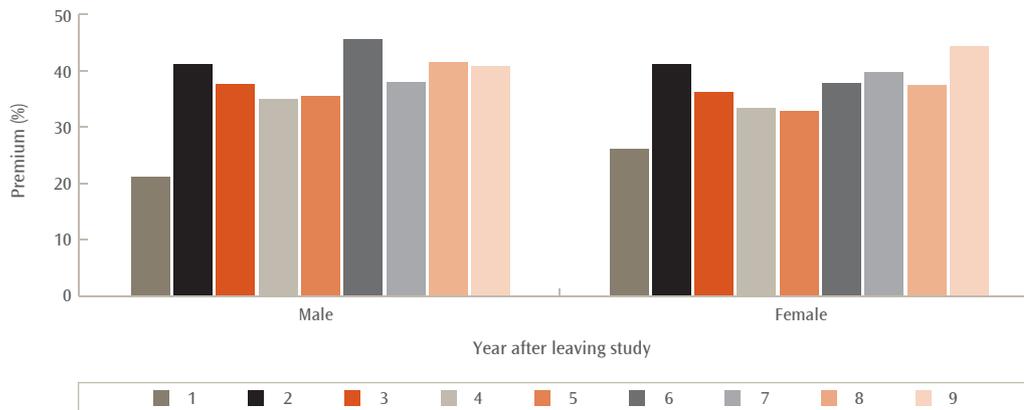


**Figure 18.2:** Premium for completion of a level 1-3 certificate (1997 leaving cohort and 2000 leaving cohort)



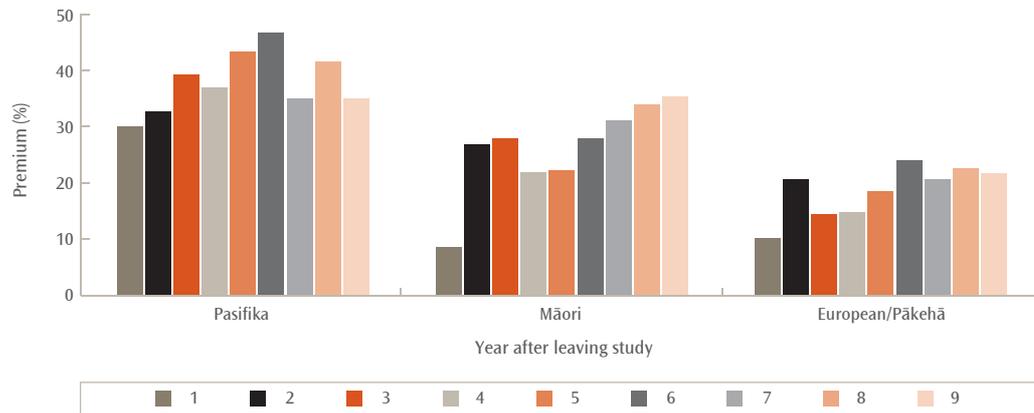
Source: Ministry of Education.

**Figure 18.3:** Premium for completion of a bachelors degree after leaving study by gender, for those who last studied in 1997



Source: Ministry of Education.

**Figure 18.4:** Premium for completion of a bachelors degree after leaving study by ethnic group, for those who last studied in 1997



Source: Ministry of Education.

## Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

<b>Indicators</b>	<b>Education and learning</b>	<ul style="list-style-type: none"> <li>▪ Graduate income premium</li> </ul>
<b>Publications</b>	<b>Tertiary</b>	<ul style="list-style-type: none"> <li>▪ How do graduates' earnings change over time?</li> <li>▪ Income of student loan scheme borrowers</li> <li>▪ Outcomes of the New Zealand tertiary education system – a synthesis of the evidence</li> </ul>

# 19. Unemployment Rates

## What we have found

The unemployment rate remained stable for those with higher qualification levels compared to those with no qualification. The unemployment rate among those with no qualifications rose in 2007 after reaching its lowest level in 2006. There is still an ethnic disparity in unemployment rates. The gender disparity in unemployment rate reduced among those with bachelors degree or higher qualification levels.

## 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 past 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 rose between 2005 and 2007 for those with no qualifications, whereas it remained stable for those with non-degree tertiary qualifications and for those with bachelors degrees or higher qualifications. The overall unemployment rate has also decreased since 1998 as a result of the strong New Zealand economy.<sup>35</sup> The data show:

- in the 16 years since 1991, people with tertiary qualifications have been considerably more likely than those with only school qualifications to be in employment. Unemployment rates for those with non-degree tertiary qualifications are now very similar to those with bachelors degrees or higher qualifications (see Figure 19.1)
- after reaching its lowest level in 2006, the unemployment rate for those with no qualifications started to rise again in 2007.

The disparities in the unemployment rates of different ethnic groups holding tertiary qualifications reduced between 1991 and 2007. The gap between ethnic groups has narrowed especially among those with bachelors degrees or higher qualifications. The data show:

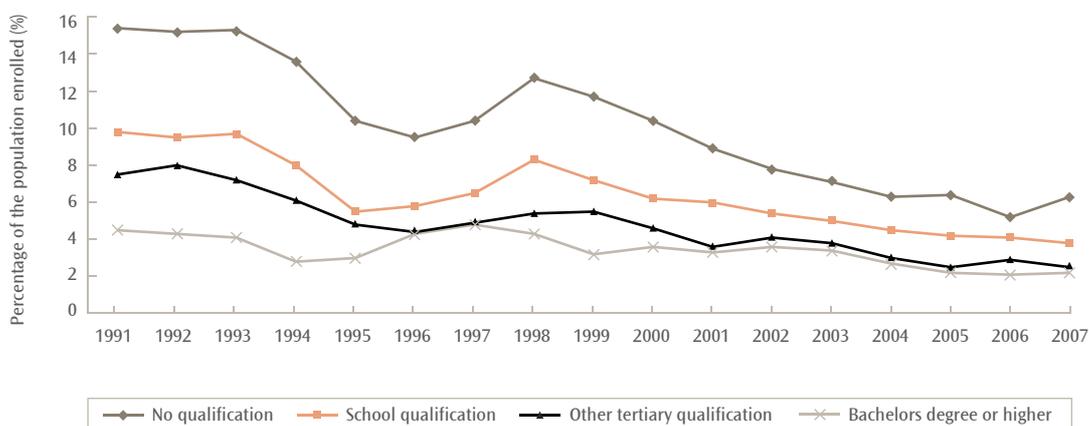
- the unemployment rate is lowest among people of European/Pākehā ethnicity. Their unemployment rate decreased from 3.6 percent in 1991 to 1.9 percent by 2007 for those holding a bachelors degree or higher qualification levels. The unemployment rate of the 'other' ethnic group category (which includes Asian and other immigrants) peaked at 15.4 percent in 1991 before falling to 3.5 percent in 2007

<sup>35</sup> In 2007, out of 27 OECD countries, New Zealand ranked fourth (after Norway, South Korea, and the Netherlands) with a standardised unemployment rate of 3.6 percent, compared with the OECD average of 5.6 percent.



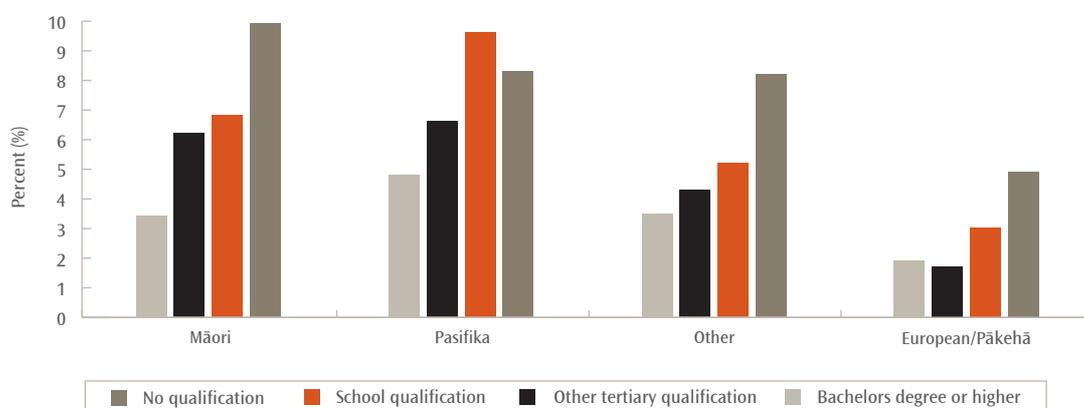
- among Māori with a bachelors degree or higher qualification, the unemployment rate dropped from 13 percent in 1992 to 3.4 percent in 2007. Among Pasifika, the drop was more significant – from 10 percent in 1991 to less than five percent in 2007
- the unemployment rate also narrowed gradually between ethnic populations holding non-degree level qualifications. The unemployment rate dropped for European/Pākehā with non-degree level qualifications from six percent to less than two percent between 1991 and 2007
- among Māori, the unemployment rate fell from 19 percent to six percent between 1991 and 2007. For Pasifika it went down from 20 percent to 6.5 percent in the same period.

**Figure 19.1:** Unemployment rate in the population aged 15 years and over by highest qualification (1991 to 2007)



Source: Statistics New Zealand. *Household Labour Force Survey* (June quarter, 2007).

**Figure 19.2:** Unemployment rate in the population aged 15 years and over by highest qualification and ethnic group (2007)

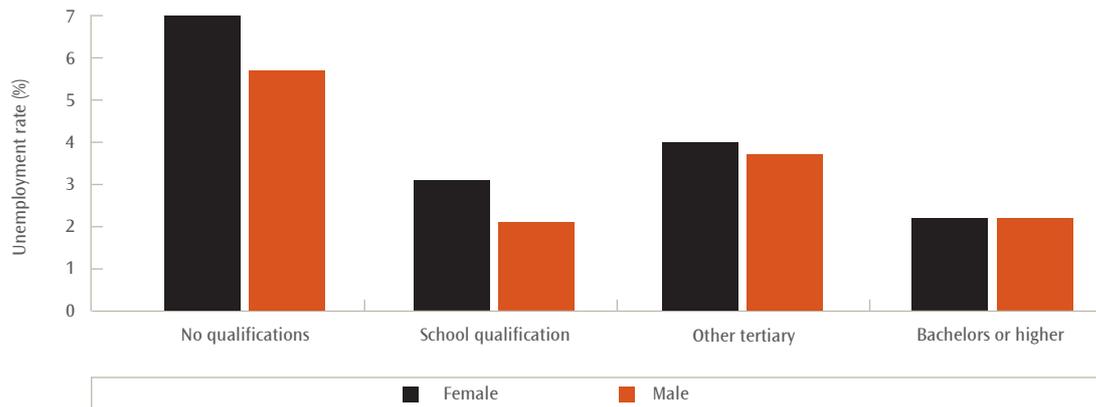


Source: Statistics New Zealand, *Household Labour Force Survey* (June quarter), 2007.

1. 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 eight and 10 percent. Therefore, caution must be used when looking at the unemployment rate of bachelors degree for Māori and Pasifika, which are highly subject to sampling error due to very small sample size.



**Figure 19.3:** Unemployment rate in the population aged 15 years and over by highest qualification and gender (2007)



Source: Statistics New Zealand. *Household Labour Force Survey* (June quarter, 2007).

The gender disparity in the unemployment rate is lowest among those with tertiary qualifications. In 2007, men and women with a bachelors degree or higher had the same unemployment rate of 2.2 percent (see Figure 19.3).

Women with school level qualifications and those with no qualifications had higher unemployment rates than men with similar qualification levels.

### Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

<b>Indicators</b>	<b>Education and learning</b>	<ul style="list-style-type: none"> <li>▪ Unemployment rate by highest qualification</li> </ul>
<b>Publications</b>	<b>Key publication series</b>	<ul style="list-style-type: none"> <li>▪ Profile and trends</li> </ul>
	<b>Tertiary</b>	<ul style="list-style-type: none"> <li>▪ Tertiary education of New Zealanders: a census analysis</li> </ul>



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. Education Expenditure

### What we have found

As a percentage of gross domestic product (GDP), New Zealand's education expenditure is one of the highest in the OECD. Contributing to this is the proportion of the population in the compulsory schooling age group where participation is greatest, and the proportion of international students in New Zealand the second highest in the OECD.

Public education expenditure as a proportion of total government spending has risen over the last decade in line with international trends. It forms a larger share of total government expenditure than the OECD average.

### Why this is important

Debate continues about whether 'money matters'; that is, whether or not the allocation of additional resources to the education process can be expected to make a difference to education outcomes. Measuring education expenditure provides a basis for that debate.

Although the effect of expenditure can be unclear, higher levels of expenditure are commonly interpreted positively and are seen as demonstrating commitment to the education process. Measuring expenditure and its trend over time provides a basis for assessing that commitment and comparing it with other countries.

In considering the international comparisons there are a number of factors that may be relevant:

- demographic factors such as the age structure of the population that affects the demand for education
- participation rates, particularly beyond the compulsory schooling age group, which similarly affects the demand for education
- international students, commonly included in many international education indicators that nevertheless have a domestic focus
- accounting treatment of transfer payments such as student loans, which have become a common funding mechanism as demand for tertiary education increases.

### 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. The data show:

- at 5.3 percent in 2007/08, government expenditure was at the same level as that for the period 2002/03 to 2004/05, and slightly above that of the five years prior to that (see Table 20.1)
- in 2007/08 the level of government expenditure was below the levels of 2005/06 and 2006/07, both of which reflect significant student loan write-downs related to the interest-free student loan policy and new international financial reporting standards
- in 2007/08 education expenditure was 16.8 percent of total government expenses, a percentage point higher than it had been a decade ago
- education expenditure grew as a percentage of total government expenses, though the trend has been volatile. This also reflects the effect of student loan write-downs in 2005/06 and 2006/07.



**Table 20.1:** Government expenditure on education in New Zealand (1996/97 to 2007/08)

Financial year	Expenditure on education (\$ m)	GDP (\$ m)	Percentage of GDP	Total government expenditure (\$ m)	Percentage of total government expenses
1996/97	4,817	99,043	4.9	31,368	15.2
1997/98	5,162	101,592	5.1	32,982	15.7
1998/99	5,337	104,730	5.1	33,939	15.5
1999/00	5,712	111,080	5.1	34,829	16.5
2000/01	6,136	118,403	5.2	36,559	16.7
2001/02	6,473	125,758	5.1	37,513	17.0
2002/03	7,016	132,334	5.3	39,897	16.8
2003/04	7,585	142,251	5.3	41,882	18.2
2004/05	7,930	150,789	5.3	44,895	17.2
2005/06	9,914	156,933	6.3	49,320	19.7
2006/07	9,269	168,106	5.6	54,003	18.6
2007/08	9,551	180,077	5.3	56,997	16.8

Source: The Treasury.

***International comparisons of New Zealand's educational expenditure***

International comparisons of our education expenditure are presented in the OECD's annual publication of education indicators, *Education at a Glance*. The publication includes an array of financial indicators. Some of these relate expenditure to the size of the economy, expressing education expenditure as a percentage of GDP, while others compare levels of expenditure per student.

In absolute terms New Zealand's expenditure on education per student in 2007/08 was below the OECD mean. However, a greater proportion of New Zealand's resources was directed towards education overall than most countries. The data show:

- early childhood education expenditure was \$4,778 per student, two percent below the OECD mean
- primary education expenditure was \$4,780 per student, 24 percent below the OECD mean
- secondary education was \$6,278 per student, 20 percent below the OECD mean

- tertiary education was \$10,262 per student, 11 percent below the OECD mean
- these results reflect New Zealand's relative economic wealth within the OECD. In 2006, its GDP was 16 percent below the OECD mean. In all cases the expenditure levels were below those of countries with similar education systems, such as Australia, Ireland, and the United Kingdom, with which we often compare ourselves.

When education expenditure is compared to GDP, New Zealand's expenditure appears considerably larger. It consistently rates as one of the top countries in terms of expenditure as a percentage of GDP. The data show:

- over all levels<sup>36</sup> of education, New Zealand's expenditure<sup>37</sup> of 6.7 percent of GDP<sup>38</sup> in 2006 was the fifth highest in the OECD and 0.9 percent above the OECD average of 5.8 percent. This places it well above United Kingdom (6.2 percent), Australia (5.8 percent), and Ireland (4.6 percent)

<sup>36</sup> Excluding pre-primary education (early childhood education).

<sup>37</sup> Expenditure measured is expenditure on educational institutions, which consists of direct purchases of resources for education. Core services, research, and ancillary services such as transport to schools, are included in this measure of expenditure, while transfer payments to private entities in the form of loans and private expenditure on materials are not included.

<sup>38</sup> This figure should be distinguished from the series presented in Table 20.1 which records public expenditure only, thus excluding private expenditure, but also recording public-private transfer payments, notably student loans.



- the margin above the OECD average was most marked across compulsory schooling years – at primary to upper secondary level New Zealand's expenditure was 4.5 percent of GDP compared to the OECD mean of 3.7 percent. At tertiary education level,<sup>39</sup> New Zealand's expenditure was line with the OECD average of 1.5 percent of GDP.

The interpretation of this result is that a greater proportion of New Zealand's resources were directed towards education overall than most other OECD countries. Two factors should be considered in assessing this result: demographic and international student factors.

New Zealand's demographic structure has an effect on expenditure. New Zealand has a relatively high proportion of its population in the compulsory schooling years where participation and expenditure per capita is high. If New Zealand had the same proportion of 5- to 19-year-olds (approximating compulsory schooling years) as the OECD average, its percentage of GDP spent on schools would be 0.5 percent of GDP lower. On the other hand, were New Zealand to have the same proportion of 20- to 29-year-olds as the OECD average, its expenditure on tertiary education would have been 0.1 percent of GDP higher.

All OECD expenditure indicators include expenditure by international students, of which New Zealand has a high proportion, the second highest (to Australia) in the OECD. In 2006/07, international students contributed six percent of education expenditure, amounting 0.4 percent of GDP. The majority of this expenditure occurred at the tertiary education level, where international students' expenditure accounts for 0.3 percent of GDP. These amounts were included in the overall percentage of GDP spent on education.

### *Public and private expenditure compared to the OECD*

Most education expenditure in OECD countries is met by public sources over the compulsory schooling years. In the early childhood and tertiary education sectors, the increased level of private funding is more noticeable. The data show:

- between 2000 and 2005, public funding of education grew internationally by 19 percent. Growth was most obvious at tertiary education level, at 26 percent. In New Zealand, growth in public funding over the same period was significant although more modest – 10 percent overall and 18 percent at tertiary education level
- overall, 78 percent of education expenditure on education institutions was from public sources, below the OECD average of 86 percent. Yet if international students were to be excluded, the New Zealand percentage rises to 85 percent, and if the implicit subsidy on fees through the student loan scheme were accounted for, the percentage would rise to 90 percent
- the effect of these factors was most marked at the tertiary education level. New Zealand's share of private funding at the tertiary education level (40.3 percent) was sixth highest in the OECD, notably lower than Australia. Adjusting for international students and implicit student loan subsidies reduces that figure substantially to just 16 percent. The unadjusted OECD average was 26.9 percent
- the growth in public spending as a proportion of total government expenses (see Table 20.1) was paralleled in data presented in *Education a Glance*. While there are some issues with definitions, a consistent picture emerges. New Zealand's public education expenditure as measured by OECD grew from 16.5 percent of total public expenditure in 1995 to 19.4 percent in 2005. These are significantly higher figures than the comparable OECD averages of 11.9 percent and 13.2 percent respectively.

<sup>39</sup> In OECD terms this means degree and diploma level programmes and excludes programmes at lower levels.





### *New Zealand government expenditure<sup>40</sup> on early childhood education*

The free early childhood education policy (*20 Hours ECE*) came into effect on 1 July 2007. This policy initiative provides up to 20 hours per week for three- and four-year-olds in teacher-led services. Since *20 Hours ECE* came into effect, there have been significant changes in early childhood participation, with more children now attending early childhood education services, and children attending services for a greater number of hours per week. As a result of this, and the high level of births observed in recent years, expenditure on early childhood education has increased significantly. Over the coming years, further increases in expenditure are expected from further funding changes, and the higher under-five population. The data show:

- expenditure on early childhood education increased from \$316 million in 1999/00 to \$874 million in 2007/08, which in nominal terms represents an increase of 176 percent. In real terms, the expenditure increase is 123 percent
- expenditure on early childhood education is forecast to exceed \$1.1 billion in 2011/12.

### *New Zealand government expenditure on schools*

Education expenditure on New Zealand schools increased between 1996/97 and 2007/08. The data show:

- funding on schools increased from \$3.2 billion in 1996/07 to \$6.4 billion in 2007/08. This represents a doubling in nominal terms and a 57 percent increase in real terms. It is estimated that by 2011/12 the total funding on schools will reach \$6.5 billion
- total operational expenditure on schools increased in nominal terms by over 100 percent from \$2.5 billion in 1996/97 to \$5.2 billion in 2007/08. This was a 63 percent increase in real terms. It is estimated that operational expenditure on schools will reach to \$5.3 billion in 2011/12
- teacher salaries made up about 62 percent of all operational expenditure on schools in 2007/08. The amount spent on teacher salaries has almost doubled

in the past 10 years. In real terms expenditure on teacher salaries has increased by 50 percent since 1996/97

- approximately one-fifth (18 percent) of all funding on schools in 2007/08 was funding provided to schools for their operation. This operational funding has increased by 75 percent in nominal terms and 38 percent in real terms since 1996/97
- capital funding on property made up 18 percent of all funding on schools in 2007/08. Property funding has increased by 71 percent in nominal terms and 34 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 seven years. The data show:

- in 2007/08, total operating expenditure on tertiary education was \$3.3 billion. This was a 55 percent increase on the total operating expenditure of \$2.2 billion in 2000/01. In real terms, this increase amounts to 28 percent
- tuition subsidies<sup>41</sup> are the largest component of tertiary education operating expenditure. In 2007/08, tuition subsidies were \$2.1 billion, compared with \$1.2 billion in 2000/01. This represents an increase of 76 percent in nominal terms and 45 percent in real terms
- expenditure on industry training and targeted training<sup>42</sup> increased from \$215 in 2000/01 to \$356 million in 2007/08. This represents an increase of 66 percent in nominal terms and 37 percent in real terms
- between 2006 and 2007, the number of student places funded by government<sup>43</sup> increased by 1.9 percent, from 218,416 to 222,586 equivalent full-time student units. The number of funded places remains below the peak in 2005
- between 2006 and 2007, average tuition funding per equivalent full-time student for tertiary education organisations increased by 7.1 percent, from \$7,863 to \$8,417.

<sup>40</sup> 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.

<sup>41</sup> For trend analysis purposes this includes expenditure on tuition subsidies, the Performance-Based Research Fund, adult and community education, and provider capability.

<sup>42</sup> Industry training and targeted training includes expenditure on the Industry Training Fund, Modern Apprenticeships, Skill Enhancement, Youth Training, Training Opportunities, Gateway, and Ngā Kaiarataki Pathfinders.

<sup>43</sup> Student places in course classification 5.1 community education are excluded from this data. They ceased being funded out of the student component in 2006.

**Student support services**

The government provides a 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 2007.

The removal of interest on student loans for borrowers from April 2006 was accompanied by a significant increase in borrowers in the 2007 year. In addition, the number of new borrowers increased as did the uptake rate of those students eligible for student loans. The data show:

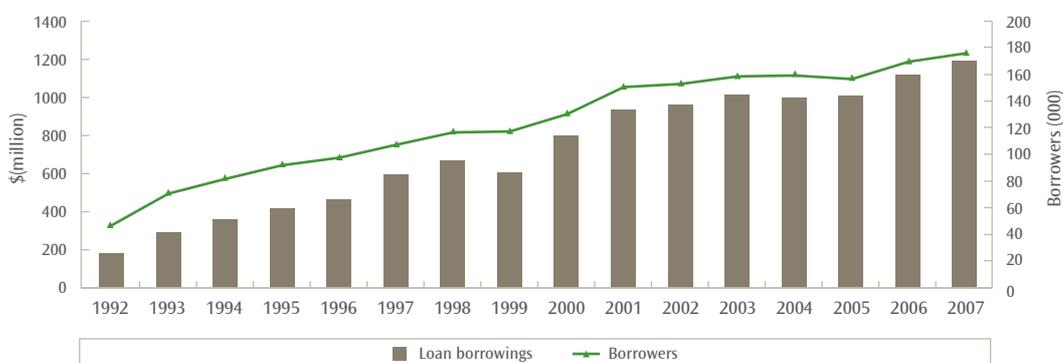
- the number of students who borrowed under the loan scheme in the academic year 2007 was 173,791 (see Figure 20.1). This was 6,366 or 3.8 percent more than in 2006. It is estimated that 57,604 of those were first-time borrowers
- the overall uptake rate of student loans increased from 56 percent in 2006 to 66 percent in 2007. The significant increase in the uptake rate was the result of an overall increase in borrowing levels coupled with a decrease in the number of eligible students that had resulted from a government policy that aligns student support with funded qualifications
- in 2007, the total amount borrowed increased by \$72.8 million (6.6 percent) from \$1,099.8 million in 2006 to \$1,172.6 million (see Figure 20.1). The average amount borrowed increased by 2.8 percent or \$182 from \$6,565 in 2006 to \$6,747 in 2007

- the total amount borrowed for course fees increased by \$47 million (6.8 percent) from \$689 million in 2006 to \$736 million in 2007. The average amount borrowed for course fees consequently increased by 3.8 percent from \$6,565 to \$6,747
- the total amount borrowed for course-related costs remained unchanged from the 2006 level of \$98 million while the average amount borrowed marginally decreased
- the total amount borrowed for living costs increased by \$26 million (8.3 percent) from \$312 million in 2006 to \$338 million in 2007. The average amount borrowed for living costs increased marginally from \$3,839 in 2006 to \$3,866 in 2007.

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 revalued each year according to the required accounting standards. This includes testing for impairment or a change in the value of the asset based on objective evidence. The data show:

- during 2007/08, \$1.201 billion was lent to students through the student loan scheme. This was written down to 59.75 percent or \$0.717 billion, representing the estimated fair value of that lending

**Figure 20.1:** Total loan borrowings and borrowers by year (1992-2007)



Source: Ministry of Social Development and Ministry of Education.





- at the end of 2007/08, there was a revaluation of the loan scheme leading to a reversal of previous impairment costs. This amounted, in total, to a reversal of \$230.6 million
  - at the end of 2007/08, student loan debt totalled \$9.573 billion and was valued in the financial statements of government at \$6.741 billion.
  - expenditure on allowances grew by three percent to \$386 million in 2007
  - the average allowance was \$6,200
  - three out of four allowance recipients also receive an accommodation benefit. In 2007, 46,000 students received the accommodation benefit, which increased by 5.8 percent in 2007 to an annual average of \$1,100
  - the proportion of allowance recipients under the age of 25, the threshold for parental income testing, grew slightly to 58 percent in 2007
  - about 81 percent of allowance recipients also borrowed under the student loan scheme, which represents 29 percent of all student loan borrowers
  - the government paid a total of \$20.1 million on scholarships, a \$7.3 million increase from 2006.
- The number of student allowance recipients increased in 2007, while the average allowance decreased marginally. The increase in recipients followed an increase in 2006 and declines in the previous four years. This principally reflects the effects 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:
- the number of student allowance recipients grew by five percent in 2007 to 62,500

### Where to find out more

Visit <a href="http://www.educationcounts.govt.nz">www.educationcounts.govt.nz</a>		
Indicators	Resources	<ul style="list-style-type: none"> <li>■ Total investment in education</li> <li>■ Annual expenditure per student</li> <li>■ Government funding of tertiary education</li> </ul>
Publications	Key publication series	<ul style="list-style-type: none"> <li>■ New Zealand schools: Ngā Kura o Aotearoa</li> <li>■ Profile and trends</li> </ul>

# 21. Financial Performance

## What we have found

In general, state and state-integrated schools have sustained higher levels of working capital and public equity in 2007, indicating a generally healthy financial position in the school sector. Most schools have experienced operating surpluses in 2007.

Overall, tertiary financial performance in 2007 was satisfactory and an improvement on what was achieved in the previous year. In particular, universities are maintaining a sound financial position. The financial performance of polytechnics showed improvement, with four of the 20 polytechnics running operating deficits in 2007 compared with eight in 2006. One of the three wānanga experienced operating deficits in 2007.

## Why this is important

The effect 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 and position of public education providers, specifically public schools (state schools and state-integrated schools<sup>44</sup>) 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 (2007)* and public tertiary institutions' financial performance as considered in *Profile and Trends:*

*New Zealand's Tertiary Education Sector (2007)*. More detailed information is available in these publications.

### *Financial performance of state and state-integrated schools*

The collective financial performance of state and state-integrated schools was reasonably strong in 2007 (estimated<sup>45</sup>) and shows improvement compared to 2006. Overall, schools are being capably governed and managed, and are in financially healthy positions. The data show:

- government funding<sup>46</sup> as a percentage of schools' revenue has increased slightly since 2003. In 2007, 89 percent of primary schools' revenue and 83 percent of secondary schools' revenue came from government funding
- the net operating surplus<sup>47</sup> as a percentage of revenue increased slightly from 0.8 percent in 2006 to 0.9 percent in 2007. The surplus at primary schools declined from 1.3 percent of revenue in 2006 to 1.0 percent in 2007. The surplus at secondary schools increased from 0.1 percent in 2006 to 0.7 percent in 2007

<sup>44</sup> 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.

<sup>45</sup> At the most recent data extraction, the ministry received 94.3 percent of schools' 2007 financial accounts. The remaining schools, where applicable, were estimated using their financial accounts provided in previous years. Financial data have been converted to compatible formats for estimations to take place.

<sup>46</sup> Government funding represents what schools have received from government directly (including teachers' salaries). This does not represent all funding provided by the government as some payments were made to third parties for the benefit of schools which do not go through schools' accounts directly.

<sup>47</sup> Operating surplus is the difference between revenue and normal operating expenditure (including depreciation).



- despite the increase in average net operating surplus, there were slightly more schools in operating deficits in 2007. In 2006, 42 percent of schools had operating deficits compared to an estimated 44 percent of schools in 2007
- schools have steadily increased their working capital<sup>48</sup> over the past five years. Ninety-four percent of primary schools and 86 percent of secondary schools had healthy working capital ratios in 2007
- public equity<sup>49</sup> has increased gradually each year over the past five years. Eighty percent of primary schools and 76 percent of secondary schools expanded their public equity between 2003 and 2007.

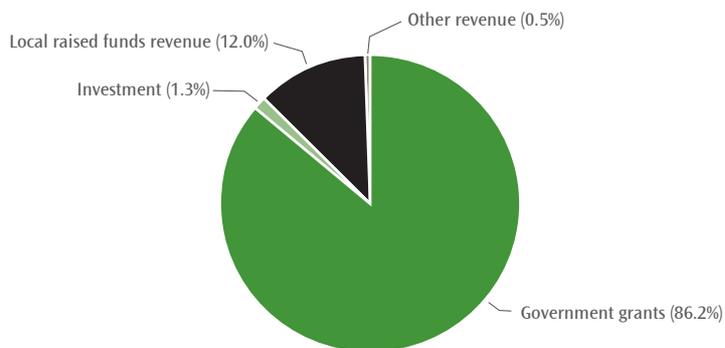
**Table 21.1:** Financial indicators of schools in real 2007 terms (2003, 2006, and estimated 2007)

Financial indicators	2003	2006	2007 (estimated)
Government funding as a percentage of revenue	85.4	86.6	86.2
Net operating surplus as a percentage of revenue	1.4	0.8	0.9
Working capital <sup>1</sup> (\$m)	408.7	486.3	518.3
Public equity <sup>1</sup> (\$m)	1,249.5	1,477.3	1,521.8

Source: Ministry of Education.

1. The dollar amounts for working capital and public equity have been inflated to 2007 dollars using June CPI values.

**Figure 21.1:** Breakdown of estimated revenue for state and state-integrated schools (2007)



Source: Ministry of Education.

**Financial performance of public tertiary education institutions**

The collective financial performance of 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. In 2007, there was an improvement in the financial performance of tertiary education institutions.

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

This improvement in financial performance reflects factors such as an increase in the number of enrolments funded by the government. The data show:

<sup>48</sup> Working capital measures the difference between total current assets (including investments) and total current liabilities. A 'healthy' working capital means that the school has enough money or liquid assets to cover its short-term debt.

<sup>49</sup> Public equity represents net worth of the school. It is the difference between total assets and total liabilities.



- in 2007, there was an operating surplus of 3.4 percent of income. Universities had the largest operating surplus as a percentage of income (3.7 percent) while polytechnics had the lowest (2.7 percent)
- liquid assets provide a buffer against variability in the operating environment. In public tertiary institutions, liquidity strengthened from 2000 to 2006, although it dropped from 18 percent in 2004 to 13 percent in 2007
- asset productivity indicates how efficiently tertiary education institutions generate income on each dollar of assets. The tertiary sector continues to perform above the minimum threshold
- net cash flows (the amount of cash institutions have left over after meeting their expenses) for the sector decreased slightly from 2006 to 2007, but remained above the minimum threshold (see Table 21.2).

**Table 21.2:** Financial indicators of the tertiary sector (2000, 2006 and 2007)

Financial indicators	Percentage			
	Benchmark	Performance in 2000	Performance in 2006	Performance in 2007
Liquid assets	100	110	130	107
Surplus as a percentage of revenue	100	81	63	113
Asset productivity	100	132	118	116
Net cash flow	100	119	118	155

Source: Ministry of Education (2008n).

1. Performance data has been scaled to form an index. The Tertiary Education Commission benchmark for prudent operation has been scaled to 100.
2. Surplus is before abnormal items.

## Where to find out more

Visit [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)

<b>Indicators</b>	<b>Quality education providers</b>	<ul style="list-style-type: none"> <li>■ Key financial performance indicators for public tertiary education institutions</li> </ul>
	<b>Resources</b>	<ul style="list-style-type: none"> <li>■ Total investment in education</li> <li>■ Annual expenditure per student</li> <li>■ Government funding of tertiary education</li> </ul>
<b>Publications</b>	<b>Key publication series</b>	<ul style="list-style-type: none"> <li>■ New Zealand schools: Ngā Kura o Aotearoa</li> <li>■ Profile and trends</li> </ul>





Part 6

# Appendices



# Glossary

## *Bachelors or higher degree*

The term “bachelors or higher degree” includes bachelors degree, advanced diploma, postgraduate diploma, and masters and doctorate degrees.

## *Board of trustees*

A school’s board of trustees is its governing body, elected by parents and caregivers. Boards establish a charter, which sets out the aims and objectives of the school.

## *Cognitive skills*

Cognitive skills include thinking, reasoning, problem solving, and other intellectual abilities.

## *Colleges of education*

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

College of Education	Amalgamated with
Auckland College of Education	University of Auckland
Hamilton College of Education	University of Waikato
Massey University College of Education	Massey University
Wellington College of Education	Victoria University
Christchurch College of Education	University of Canterbury
Dunedin College of Education	University of Otago

## *Decile*

Students from low socio-economic communities face more barriers to learning than students from high socio-economic communities. Schools that draw their roll from low socio-economic communities are given greater funding to combat these barriers. School decile is used to calculate and allocate the additional funding.

Schools are assigned a socio-economic score based on five census-derived socio-economic factors. Schools are then ranked in order of this score and divided into 10 even groups called deciles. The 10 percent of schools with the lowest scores are considered decile 1 schools, the next 10 percent of schools are considered decile 2 schools, and so on. Decile 1 schools have the highest proportion of students from low socio-economic communities, decile 10 schools have the least (Note: this does not mean students from decile 10 schools are ‘rich’).

Deciles are also used in many of the indicators used by the Ministry of Education as a proxy for socio-economic status. These indicators are found on the Education Counts website.

## *Early leaving exemption*

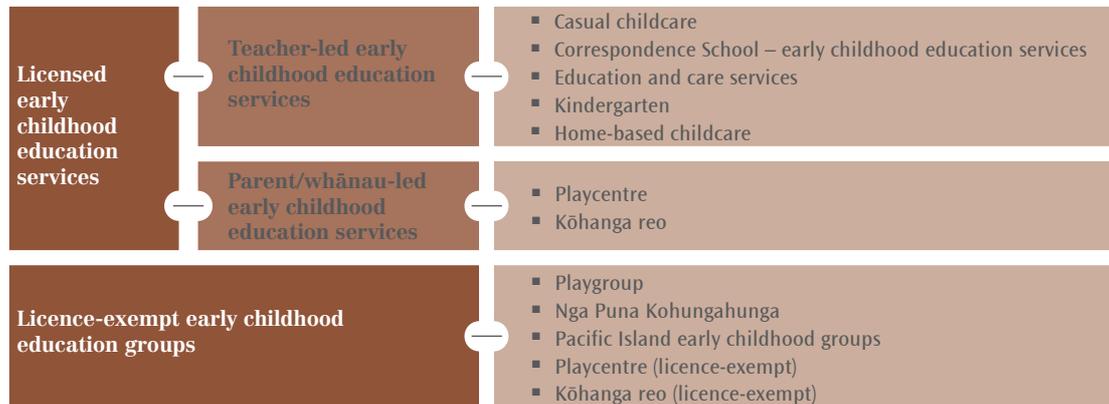
Parents may apply for permission for students to leave school before their sixteenth birthday. The application must be based on the students’ educational problems or conduct, or the estimated benefit of their staying at school. Students granted early leaving exemptions can take up training courses, or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

## *Early Childhood Education (ECE) services*

Early childhood education services are services providing education and care for infants and young children before they begin school. The majority of children in early childhood services are under five; however, children may attend early childhood services up to their sixth birthday, when schooling becomes compulsory. Early childhood education services can be provided and organised in a range of ways.



### Early Childhood Education service types



### Education and care services

Educate and care 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 required to meet the teacher registration targets.

### Employment

The official measure of employment is the number of people in work for one hour or more per week.

### Equivalent full-time students (EFTS)

EFTS 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 subject to exclusion 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 subject to expulsion 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

To be classified as a frequent truant, a student must be unjustifiably absent for three or more days during the week of the Ministry of Education two-yearly attendance survey.

### Graduate income premium

See **Income premium**.

### Home-based childcare services

Home-based childcare services are early childhood services 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)

The HLFS is a quarterly survey conducted by Statistics New Zealand to monitor labour force activity in New Zealand.

### Income

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

### Income premium

Income premium refers to 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 Apprenticeships 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) is characterised by a diversity of vocational and professional programmes. They are usually known as polytechnics or institutes of technology.

### ***Kindergartens***

Kindergartens are teacher-led early childhood services represented by the New Zealand Kindergartens Inc. or the New Zealand Federation of Free Kindergartens that provide sessional programmes for mainly three- and four-year-old children.

### ***License-exempt early childhood groups***

License-exempt early childhood groups are 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***

Licensed early childhood services are 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 scheme***

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 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 a 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)***

The NZIS is 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 past 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 past five years in New Zealand. Provisional registration is given to beginning teachers (newly graduated teachers who have not been early childhood qualified teachers before).

### ***Organisation for Economic Cooperation and Development (OECD)***

The Organisation for Economic Cooperation and Development is an international organisation helping governments tackle the economic, social, and governance challenges of a globalised economy. New Zealand is one of 30 member countries of the OECD.

### ***Playcentres***

Playcentres are 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 early childhood education services or licence-exempt early childhood education 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*

Retention rate is 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 removed from a state school for a specified period. The school principal can decide whether a student should be stood-down and 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 a stand-down, the student automatically returns 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 reducing suspensions.

### *Trends in International Mathematics and Science Study (TIMSS)*

TIMSS is 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 official measure of unemployment is the number of people who are not in work, but who are available for and actively seeking work.

### *University*

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

### *University Entrance*

University Entrance qualification is 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 term “ethnicity” refers to 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 that 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 section 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 as most data is collected in a disaggregate 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

#### Enrolment 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 enrolment 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 some children, the enrolment 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 enrolment rate. However, no information on the type of service is collected here.

The prior participation rate is essentially the participation rate for four-year-olds, 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 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 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 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.

#### **Student Engagement Initiative (SEI) –**

The Student Engagement Initiative (SEI, formerly known as the Suspension Reduction Initiative) was introduced in 2001 to help reduce the disproportionately high number of Māori student suspensions, trancies, and early leaving exemptions. The SEI is a long-term initiative being run over 15 years with a goal of reducing Māori suspension rates to those of non-Māori students by 2016.

Secondary schools with high suspension rates for Māori students are invited to participate. Nationally about 80 schools per annum are involved in the SEI, although the actual figure varies as new schools enter and other schools leave.

Funding of \$2.2 million per annum is available to schools. Each school plans what activities it intends to do to reduce suspensions, and what its expected results will be. Once this plan is agreed with the Ministry of Education, the school receives funding to support its initiatives.

Schools employ a wide range of initiatives to reduce suspensions, and usually use a combination of approaches rather than focusing on one. Initiatives range from providing academic support to drug education/intervention programmes and providing personal development for teachers. Restorative processes may be used, mentoring programmes established, or pastoral care networks used. Families/whānau can be involved, as well as the community and external agencies.

### *Chapter 7 – Participation*

#### **Apparent retention rate: interpretation issues –**

This measure is calculated from aggregate roll return data which capture the age of the student in whole years. Therefore, a student aged 16 on 1 July, which is the date the data are captured, could be between 16 years and zero 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 and so on, 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 and Trade (MFAT) 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 the Non-Enrolled Truancy Service (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 standard. 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 standard, 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 thirty 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 *State of Education in New Zealand 2006* –

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 the New Zealand Standard Classification of Education (NZSCED) field of study assigned to qualifications. As a result, a number of qualifications had their level and field of study revised, and between 1,000 and 2,000 enrolments a year were 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 week's 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 affects 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. In addition, there was an apparent discontinuity in system completion and attrition rates using individual student identifiers: before 2003 rates were based on Student Number (SN) as allocated by individual providers; from 2003 onwards, rates were based on National Student Numbers (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.

Due to delays in the provision of 2007 data, completion information was not available for 2007. The information contained in this chapter will be released on the Education Counts website as soon as it is available.

### 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 – Effect 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 after study, there was a difference in the premiums for men and women of six percentage points when the mean was used. Using the median, the difference in the premium reduced to three percentage points. Five years after study, the difference was 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, and so on.

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



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