

2.04 Year 3, 5 and 7 literacy and numeracy

The proportion of Year 3, 5 and 7 students achieving national benchmarks for literacy and numeracy achievement

Data sources

Data for this indicator come from the 2004 National Report on Schooling in Australia, published by the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA 2004).

The benchmarks articulate nationally agreed minimum acceptable standards in literacy and numeracy for the year levels given above, and are part of a national literacy and numeracy plan agreed to by state, territory and Australian Government Ministers for Education. The benchmarks do not attempt to describe the whole of literacy and numeracy learning, nor the full range of what students are taught. They also do not try to describe the full range of student achievement. Instead, they represent important and essential elements of literacy and numeracy at a minimum acceptable level (Corporation 2006).

It should be noted that the question and method used to identify Indigenous students varied between jurisdictions. For example, in New South Wales and Western Australia, Indigenous students were those who answered 'yes' to the question: 'Are you an Aboriginal or Torres Strait Islander person?'. In Queensland, Indigenous students are those who answered 'yes' to either or both of the questions: 'Are you an Aboriginal person? Or are you a Torres Strait Islander person?'. In South Australia and the Australian Capital Territory, Indigenous students were identified through enrolment information provided to schools by parents/guardians. In the Northern Territory and Tasmania, Indigenous students are identified by schools at the time of enrolment or by self-identification. In Victoria, students are identified as Indigenous on enrolment forms at the commencement of school and also those that answer 'yes' to the question: 'Is this student Aboriginal or Torres Strait Islander on the front page of the student's test booklet.

When comparing results across states and territories, it is also important to note that there are many structural differences between the educational systems that influence the estimated proportions of students who are achieving the benchmarks. Relevant issues include major differences between jurisdictions in starting age, grade structures, and other arrangements that result in variations in the time students would have spent in relevant schooling prior to testing.

A description of the national benchmarks for reading, writing and numeracy for Years 3, 5 and 7 can be found at the following addresses:

<<http://online.curriculum.edu.au/litbench/intro.asp>>

<<http://online.curriculum.edu.au/numbench/index.htm>>.

Data analyses

Reading, writing and numeracy benchmarks

Reading

- Nationally in 2004, approximately 82.9% of Indigenous students achieved the Year 3 reading benchmark compared to 93.0% of all students; 69.4% of Indigenous students achieved the Year 5 reading benchmark compared to 88.7% of all students; and 71.0% of Indigenous students achieved the Year 7 reading benchmark compared to 91.0% of all students.

Writing

- Approximately 76.8% of Indigenous students achieved the Year 3 writing benchmark compared to 92.9% of all students; 81.7% of Indigenous students achieved the Year 5 writing benchmark compared to 94.2% of all students; and 78.8% of Indigenous students achieved the Year 7 writing benchmark compared to 93.6% of all students.

Numeracy

- Nationally in 2004, approximately 79.2% of Indigenous students achieved the Year 3 numeracy benchmark compared to 93.7% of all students; 69.4% of Indigenous students achieved the Year 5 numeracy benchmark compared to 91.2% of all students; and 51.9% of Indigenous students achieved the Year 7 numeracy benchmark compared to 82.1% of all students.

Reading, writing and numeracy benchmarks by state/territory

The proportion of Indigenous students and total students who achieved the reading, writing and numeracy benchmarks in 2004 are presented in Tables 2.04.1, 2.04.2 and 2.04.3 by state and territory.

Reading

- The proportion of Indigenous students who achieved the Year 3 benchmark ranged from 45% in the Northern Territory to 95% in the Australian Capital Territory and Queensland (Table 2.04.1).
- The proportion of Indigenous students who achieved the Year 5 benchmark ranged from 47% in the Northern Territory to 88% in Tasmania.
- The proportion of Indigenous students who achieved the Year 7 benchmark was lowest in the Northern Territory (39%) and highest in Queensland (86%).

Table 2.04.1: Proportion of Year 3, 5 and 7 Indigenous and total students achieving the reading benchmark, by state/territory, 2004

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	%	%	%	%	%	%	%	%	%
Indigenous									
Year 3	80.4 (± 4.4)*	76.6 (±5.2)*	94.6 (±1.3)*	84.1 (± 5.0)*	73.3 (±6.4)*	93.7 (±3.0)	94.6 (±5.3)	44.7 (±4.9)	82.9 (±3.6)
Year 5	75.7 (±2.8)*	71.4 (±5.6)*	65.0 (±4.2)*	74.2 (±3.9)*	60.3 (±5.2)*	88.1 (±3.9)*	86.7 (±7.0)*	47.1 (±4.5)	69.4 (±3.8)
Year 7	68.5 (±2.1)*	77.0 (±4.1)*	85.5 (±2.1)*	57.6 (±3.9)*	69.2 (±4.2)*	75.7 (±5.7)*	81.6 (±7.8)*	38.8 (±4.3)	71.0 (±2.8)
All students									
Year 3	92.2 (±1.8)*	90.5 (±1.9)*	97.0 (±1.7)*	95.6 (±1.4)*	90.9 (± 1.7)*	96.5 (±0.7)	95.2 (±0.9)	76.0 (±3.0)	93.0 (±1.5)
Year 5	90.9 (±1.0)*	87.6 (±2.1)*	83.4 (±2.3)*	93.7 (+1.0)*	90.0 (±1.2)*	94.0 (±1.0)*	96.5 (±0.6)*	77.2 (±2.5)	88.7 (±1.6)
Year 7	88.1 (±0.8)*	93.1 (±0.5)*	94.5 (±0.7)*	88.9 (±1.1)*	92.5 (±0.6)*	88.9 (±1.0)*	95.0 (±0.7)*	73.9 (±1.9)	91.0 (±0.7)

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

() Confidence interval.

Notes

1. The achievement proportions reported in the table include 95% confidence intervals, for example, 80% (± 2.7) means that there is a 95% chance that the true percentage lies between 77.3% and 82.7%.
2. Students who were absent or withdrawn from testing are not classified as assessed students and are not included in the benchmark calculations. The proportion of absent and withdrawn students varies considerably across jurisdictions. Hence readers are urged to be cautious when comparing results.

Source: MCEETYA 2004.

Writing

- The proportion of Indigenous students who achieved the Year 3 benchmark ranged from 57% in Western Australia and the Northern Territory to 96% in the Australian Capital Territory (Table 2.04.2).
- The proportion of Indigenous students who achieved the Year 5 benchmark was lowest in the Northern Territory (50%) and highest in Queensland (93%).
- The proportion of Indigenous students who achieved the Year 7 benchmark ranged from 42% in the Northern Territory to 92% in Queensland.

Table 2.04.2: Proportion of Year 3, 5 and 7 Indigenous and total students achieving the writing benchmark, by state/territory, 2004

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	%	%	%	%	%	%	%	%	%
Indigenous									
Year 3	86.9 (±2.7)*	93.5 (±1.2)*	75.0 (±5.7)*	56.9 (±5.4)*	62.1 (±6.0)*	86.2 (±3.9)	95.9 (±4.6)	56.7 (±5.3)*	76.8 (±4.3)*
Year 5	87.4 (±4.2)*	82.2 (±4.2)*	92.6 (±1.4)*	59.2 (±4.6)*	69.7 (±5.8)*	83.0 (±4.7)*	78.7 (±9.4)*	49.5 (±4.2)*	81.7 (±3.5)*
Year 7	81.8 (±4.9)*	87.1 (±3.4)*	92.3 (±1.7)*	58.2 (±3.9)*	59.4 (±6.3)*	75.2 (±6.2)*	79.7 (±9.4)*	42.4 (±4.2)*	78.8 (±3.8)*
All students									
Year 3	95.8 (±0.8)*	97.1 (±0.1)*	88.4 (±3.2)*	85.5 (±2.9)*	90.0 (±2.3)*	91.4 (±1.5)	95.5 (±0.9)	83.8 (±2.5)*	92.9 (±1.5)*
Year 5	95.9 (±1.4)*	93.4 (±0.7)*	97.1 (±1.4)*	87.4 (±1.9)*	92.7 (±1.4)*	91.6 (±1.6)*	92.8 (±2.4)*	81.8 (±1.9)*	94.2 (±1.1)*
Year 7	93.7 (±2.0)*	96.0 (±0.7)*	97.3 (±0.4)*	86.6 (±1.4)*	88.0 (±2.1)*	86.5 (±1.9)*	93.1 (±2.1)*	79.4 (±1.9)*	93.6 (±1.3)*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

() Confidence interval.

Notes

1. The achievement proportions reported in the table include 95% confidence intervals, for example, 80% (± 2.7) means that there is a 95% chance that the true percentage lies between 77.3% and 82.7%.
2. Students who were absent or withdrawn from testing are not classified as assessed students and are not included in the benchmark calculations. The proportion of absent and withdrawn students varies considerably across jurisdictions. Hence readers are urged to be cautious when comparing results.

Source: MCEETYA 2004.

Numeracy

- The proportion of Indigenous students who achieved the Year 3 benchmark ranged from 68% in Western Australia and South Australia to 92% in the Australian Capital Territory (Table 2.04.3).
- The proportion of Indigenous students who achieved the Year 5 benchmark was lowest in the Northern Territory (39%) and highest in Victoria (86%).
- The proportion of Indigenous students who achieved the Year 7 benchmark ranged from 27% in the Northern Territory to 68% in Tasmania.

Table 2.04.3: Proportion of Year 3, 5 and 7 Indigenous and total students achieving the numeracy benchmark, by state/territory, 2004

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia
	%	%	%	%	%	%	%	%	%
Indigenous									
Year 3	89.5 (±2.4)*	88.2 (±2.5)*	74.3 (±4.2)*	68.1 (±6.8)*	68.0 (±6.4)*	89.1(±4.4)	91.8 (±7.7)	69.0 (±5.7)*	79.2 (±4.1)*
Year 5	77.0 (±3.6)*	85.8 (±3.4)*	71.7 (±3.6)*	56.6 (±4.2)*	62.4 (±5.4)*	81.9 (±5.0)*	72.0 (±10.6)*	38.8 (±3.8)*	69.4 (±3.9)*
Year 7	46.6 (±1.1)*	62.9 (±4.5)*	60.6 (±2.1)*	47.8 (±2.8)*	59.1 (±5.6)*	67.9 (+5.0)*	65.0 (±10.8)*	26.8 (±3.7)*	51.9 (±2.8)*
All students									
Year 3	95.8(±0.8)*	96.0 (±0.5)*	90.5 (±1.8)*	89.9 (±2.6)*	91.5 (±1.8)*	93.7 (±1.4)	95.3 (±1.2)	88.0 (±2.5)*	93.7 (±1.2)*
Year 5	92.2 (±1.2)*	94.7 (±0.7)*	89.3 (±1.6)*	87.1 (±1.6)*	90.0 (±1.3)*	89.2 (±1.5)*	92.1 (±1.2)*	71.5 (±2.5)*	91.2 (±1.2)*
Year 7	76.1 (±0.9)*	85.8 (±0.7)*	84.6 (±0.6)*	84.6 (±0.8)*	87.3 (±1.0)*	80.9 (±1.3)*	87.7 (±1.1)*	66.1 (±2.1)*	82.1 (±0.8)*

* Represents results with statistically significant differences in the Indigenous/non-Indigenous comparisons.

() Confidence interval.

Notes

1. The achievement proportions reported in the table include 95% confidence intervals, for example, 80% (± 2.7) means that there is a 95% chance that the true percentage lies between 77.3% and 82.7%.
2. Students who were absent or withdrawn from testing are not classified as assessed students and are not included in the benchmark calculations. The proportion of absent and withdrawn students varies considerably across jurisdictions. Hence readers are urged to be cautious when comparing results.

Source: MCEETYA 2004.

Reading, writing and numeracy benchmarks by remoteness

Reading, writing and numeracy benchmarks by remoteness area are not available for the Indigenous population but are available for the total Australian population and are presented in Table 2.04.4.

- In 2004, the proportion of students who achieved the Year 3, Year 5 and Year 7 reading, writing and numeracy benchmarks were highest in metropolitan areas and lowest in very remote areas of Australia.
- For example, the Year 3 reading, writing and numeracy benchmarks were each 94% in metropolitan areas and 78%, 67% and 72% respectively in very remote areas.
- The Year 5 reading, writing and numeracy benchmarks were 90%, 95% and 92% respectively in metropolitan areas compared to 64%, 70% and 59% in very remote areas.
- The Year 7 reading, writing and numeracy benchmarks were 92%, 94% and 83% respectively in metropolitan areas compared to 63%, 66% and 51% in very remote areas.

A much higher proportion of the population living in very remote areas of Australia are Indigenous Australians (45%) than the proportion of people living in major cities, where only 1% of the population is Indigenous.

Table 2.04.4: Proportion of Year 3, 5 and 7 students achieving the numeracy benchmark, by remoteness area, 2004

	Metropolitan	Provincial	Remote	Very remote
Reading				
Year 3	93.6 (±1.4)	92.2 (±1.8)	90.3 (±3.2)	78.7 (±4.6)
Year 5	89.7 (±1.5)	87.7 (±1.8)	82.9 (±3.6)	64.2 (±5.4)
Year 7	91.9 (±0.7)	90.1 (±0.9)	83.0 (±3.0)	63.0 (±4.9)
Writing				
Year 3	93.6 (±1.4)	92.5 (±1.8)	83.4 (±4.2)	66.9 (±5.9)
Year 5	95.0 (±1.1)	93.9 (±1.3)	87.8 (±3.1)	70.2 (±4.6)
Year 7	94.4 (±1.2)	92.8 (±1.5)	84.4 (±3.5)	65.8 (±5.0)
Numeracy				
Year 3	94.2 (±1.1)	93.7 (±1.4)	87.4 (±3.7)	71.6 (±6.2)
Year 5	92.1 (±1.1)	90.6 (±1.5)	82.0 (±3.7)	59.1 (±4.9)
Year 7	83.4 (±0.8)	80.2 (± 1.1)	73.3 (±3.4)	50.8 (±4.9)

() Confidence interval.

Notes

1. The achievement proportions reported in the table include 95% confidence intervals, for example, 80% (± 2.7) means that there is a 95% chance that the true percentage lies between 77.3% and 82.7%.
2. Students who were absent or withdrawn from testing are not classified as assessed students and are not included in the benchmark calculations. The proportion of absent and withdrawn students varies considerably across jurisdictions. Hence readers are urged to be cautious when comparing results.

Source: MCEETYA 2004.

Time series analysis

Data on students achieving reading and writing benchmarks for Year 3 and Year 5 are available from 1999 onwards and for Year 7 from 2001 onwards. Data on students achieving numeracy benchmarks for Year 3 and Year 5 are available from 2000 onwards, and for Year 7 from 2001 onwards. These data are presented in Table 2.04.5 and Figures 2.04.1, 2.04.2 and 2.04.3.

Reading

- Between 1999 and 2004 there was a significant increase in the proportion of Indigenous students achieving the Year 3 and Year 5 reading benchmarks. The fitted trend implies an average yearly increase of around 1.7% for Year 3 and 2.0% for Year 5 reading benchmarks.
- Between 2001 and 2004 there was a significant increase in the proportion of Indigenous students achieving the Year 7 reading benchmark. The fitted trend implies an average yearly increase of around 3.4%.
- Between 1999 and 2004 there was a significant increase in the proportion of total students achieving the Year 3 reading benchmark and between 2001 and 2004, there was a significant increase in the proportion of total students achieving the Year 7 reading benchmark.

Writing

- Between 1999 and 2004 there was a significant increase in the proportion of Indigenous students achieving the Year 3 and Year 5 writing benchmarks. The fitted trend implies an average yearly increase of around 2.6% for Year 3 and 1.4% for Year 5 writing benchmarks.
- Over the same period there was a significant increase in the proportion of total students achieving the Year 5 writing benchmark, with an average yearly increase of around 0.3%.

Numeracy

- Between 2000 and 2004 there was a significant increase in the proportion of Indigenous students achieving the Year 5 numeracy benchmark, with an average yearly increase of around 1.8%.
- Over the same period there was also a significant increase in the proportion of total students achieving the Year 5 numeracy benchmark, with an average yearly increase of around 0.4%.

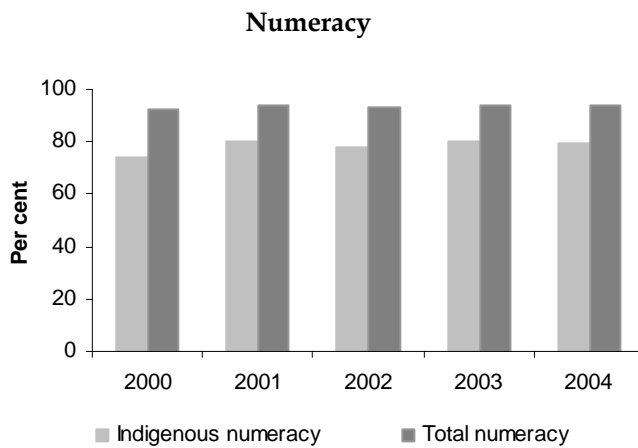
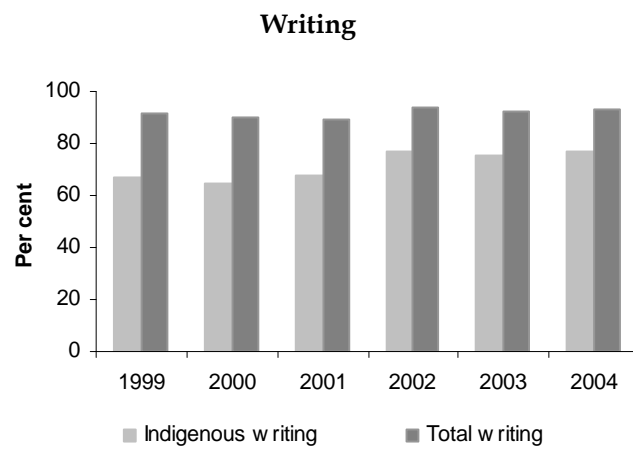
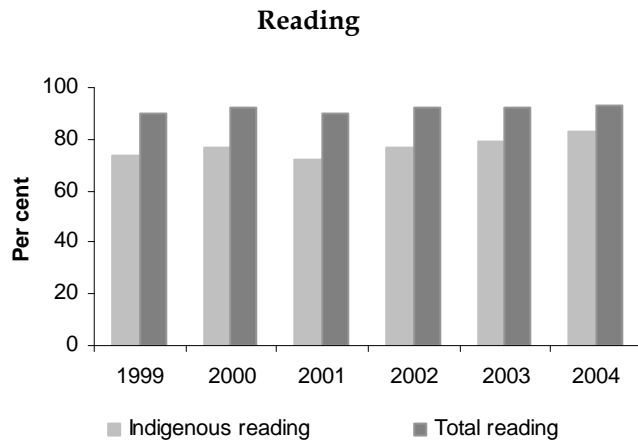
Table 2.04.5: Proportion of students achieving reading, writing and numeracy benchmarks, by Indigenous status, 1999–2004

	1999	2000	2001	2002	2003	2004	Annual change ^(a)
Reading							
Indigenous							
Year 3	73.4	76.9	72.0	76.7	78.8	82.9	1.7*
Year 5	58.7	62.0	66.9	68.0	67.7	69.4	2.0*
Year 7	n.a.	n.a.	60.1	65.3	66.5	71.0	3.4*
All students							
Year 3	89.7	92.5	90.3	92.3	92.4	93.0	0.5*
Year 5	85.6	87.4	89.8	89.3	89.0	88.7	0.6
Year 7	n.a.	n.a.	88.4	89.1	89.4	91.0	0.8*
Writing							
Indigenous							
Year 3	66.9	65.0	67.8	77.1	75.2	76.8	2.6*
Year 5	74.6	74.3	79.9	76.4	79.6	81.7	1.4*
Year 7	n.a.	n.a.	74.3	71.6	74.4	78.8	1.6
All students							
Year 3	91.9	90.0	89.5	93.6	92.2	92.9	0.5
Year 5	93.0	92.5	94.0	93.6	94.1	94.2	0.3*
Year 7	n.a.	n.a.	92.6	90.7	92.1	93.6	0.4
Numeracy							
Indigenous							
Year 3	n.a.	73.7	80.2	77.6	80.5	79.2	1.1
Year 5	n.a.	62.8	63.2	65.6	67.6	69.4	1.8*
Year 7	n.a.	n.a.	48.6	51.9	49.3	51.9	0.7
All students							
Year 3	n.a.	92.7	93.9	92.8	94.2	93.7	0.2
Year 5	n.a.	89.6	89.6	90.0	90.8	91.2	0.4*
Year 7	n.a.	n.a.	82.0	83.5	81.3	82.1	-0.2

* Represents results with statistically significant increases or declines at the p<.05 level over the periods for which data are available.

(a) Average annual change in proportions determined using linear regression analysis.

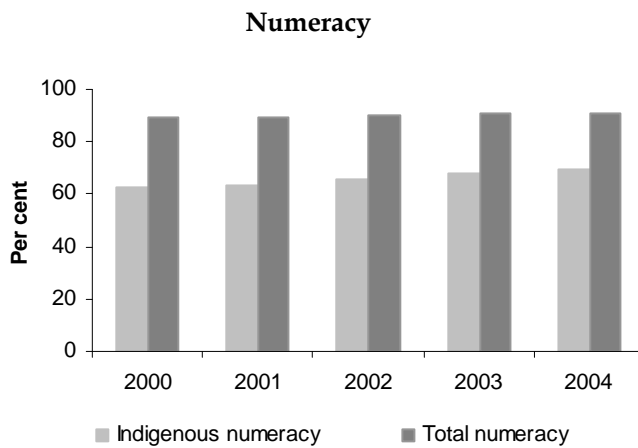
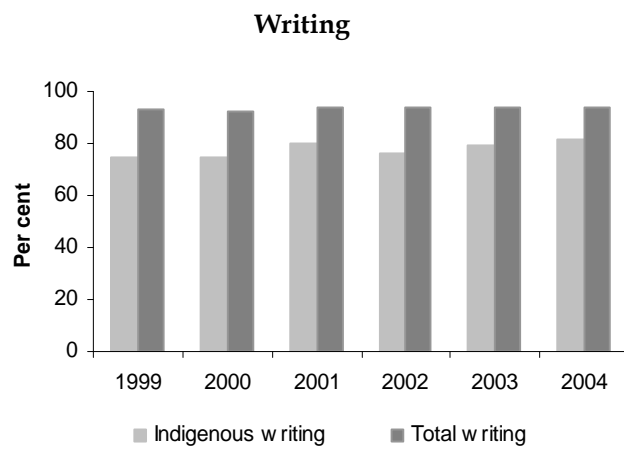
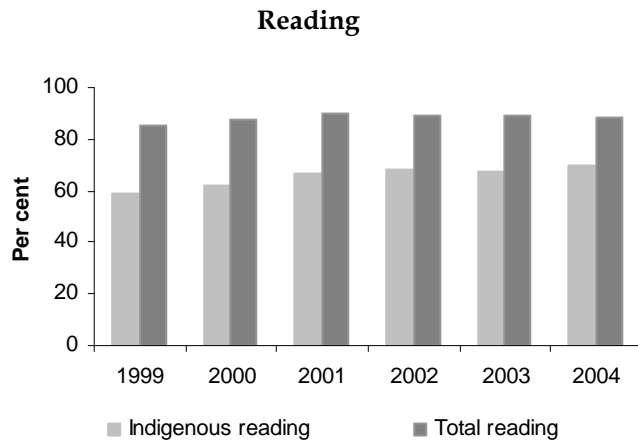
Source: AIHW analysis of National Report on Schooling in Australia 2004 available through MCEETYA.



Note: Year 3 numeracy benchmark not available for 1999.

Source: AIHW analysis of National Report on Schooling in Australia 2004, available through MCEETYA.

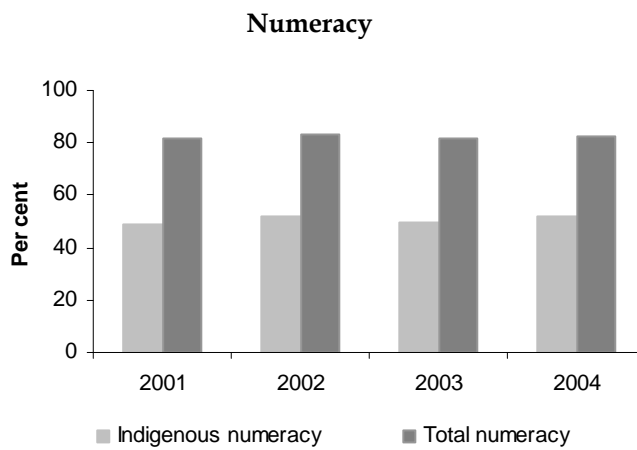
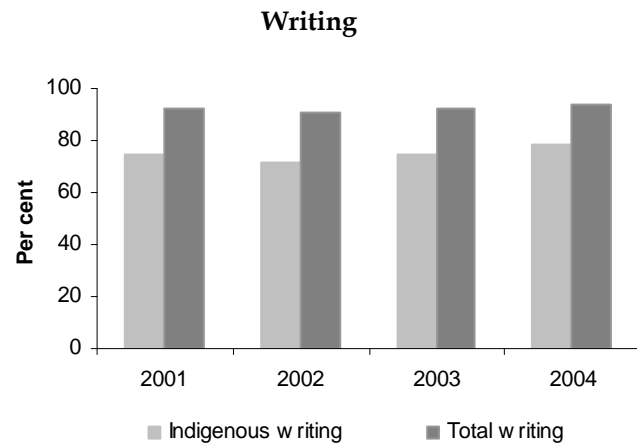
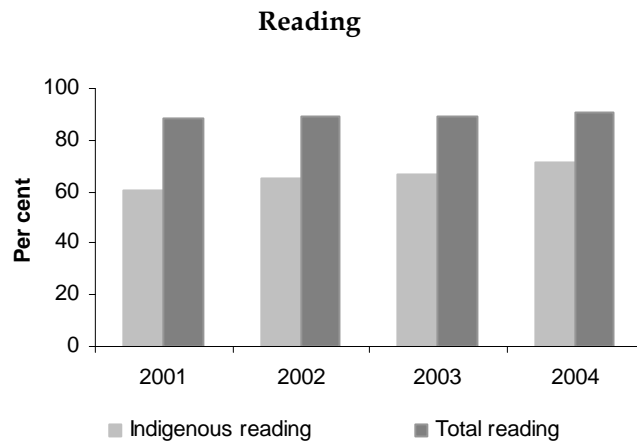
Figure 2.04.1: Proportion of Year 3 students achieving the reading, writing and numeracy benchmark, by Indigenous status, 1999-2004



Note: Year 5 numeracy benchmark not available for 1999.

Source: AIHW analysis of National Report on Schooling in Australia 2004, available through MCEETYA.

Figure 2.04.2: Proportion of Year 5 students achieving the reading, writing and numeracy benchmark, by Indigenous status, 1999-2004



Note: Year 7 reading, writing and numeracy benchmarks only available from 2001.

Source: AIHW analysis of National Report on Schooling in Australia 2004, available through MCEETYA.

Figure 2.04.3: Proportion of Year 7 students achieving the reading, writing and numeracy benchmark, by Indigenous status, 2001-2004

Data quality issues

Reading, writing and numeracy data

Points to be considered when interpreting the National Report on Schooling in Australia data (MCEETYA 2004) are discussed below:

Comparisons involving remote and very remote students must be made with caution as the small numbers of students tested means that measurement uncertainty is relatively high.

When comparing results across states and territories, it is important to note that there are many structural differences between the educational systems that influence the estimated proportions of students who are achieving the benchmarks. Relevant issues include major differences between jurisdictions in starting age, grade structures, and other arrangements that result in variations in the time students would have spent in relevant schooling prior to testing.

There are differences between states and territories in relation to factors known to influence measured literacy and numeracy achievement. For example, achievement in literacy and numeracy is strongly correlated with the socioeconomic circumstances of students. As well, students who do not usually speak English, or who have just begun to speak English, would be expected to be at some disadvantage during assessment of aspects of English literacy. There are variations in the proportions of such students between states and territories, and also in the policies regarding their inclusion in the testing programs.

Comparable national benchmarks are prepared using a nationally agreed procedure that was designed to equate state and territory tests. It is important to recognise that there are inevitable limits in the extent to which the measuring instruments can be assured to be perfectly comparable across time and jurisdictions. For example, it is not feasible for testing programs to fully assess the complete range of valued literacy and numeracy outcomes. As such, each state and territory's testing program includes a sample of valued outcomes, and this sampling can lead to variations in the outcomes, both over time and across states and territories.

It should be noted that absent or withdrawn students are not included in the benchmark calculations.

Exempted students however are reported as falling below the benchmark and are included in the benchmark calculation. The report provides information on the proportions of students exempted from testing as footnotes on the relevant tables.

The publication of confidence intervals with the benchmark results reflects the uncertainty associated with the measurement of student achievement and provides a way of making inferences about the achievement of students. The confidence intervals are calculated at 95% and account for three components of uncertainty: error associated with the location of the benchmark cut-score, sampling error (where applicable) and measurement error. Error associated with the location of the benchmark cut-score is the largest component.

An additional component of error known as 'equating error' also potentially results. These sources of error are not currently reflected in the published confidence intervals.

References

Corporation, C. Literacy benchmarks; numeracy benchmarks. Viewed 30 May 2006, <www.online.curriculum.edu.au/>.

MCEETYA (Ministerial Council on Education, Employment, Training and Youth Affairs) 2004. National Report on Schooling in Australia 2004: national benchmark results – reading, writing and numeracy, Year 3, 5 and 7. Melbourne: MCEETYA.