

APPENDIX B: REFERENCE TABLES AND FIGURES



Table B.1: Standard deviations and percentiles for Year 5 students in 2001 and 2005/2006, by ethnic grouping

| Ethnic grouping | Year | Standard deviation | Percentiles | | | | |
|------------------|-----------|--------------------|-------------|------------|-----------|------------|------------|
| | | | 5th | 25th | 50th | 75th | 95th |
| Pakeha/European | 2001 | 86 (2.3) | 398 (3.5) | 502 (8.6) | 560 (2.9) | 611 (2.8) | 681 (3.6) |
| | 2005/2006 | 80 (1.6) | 408 (5.5) | 503 (3.9) | 558 (2.0) | 606 (2.3) | 674 (6.9) |
| Māori | 2001 | 92 (3.8) | 327 (18.9) | 416 (4.4) | 486 (6.7) | 547 (10.3) | 628 (9.1) |
| | 2005/2006 | 88 (1.9) | 328 (9.2) | 425 (6.6) | 489 (4.5) | 545 (4.1) | 617 (5.5) |
| Pasifika | 2001 | 82 (5.3) | 339 (28.1) | 422 (32.5) | 490 (4.5) | 540 (6.7) | 603 (24.2) |
| | 2005/2006 | 77 (4.8) | 345 (22.4) | 428 (5.9) | 482 (5.1) | 532 (7.5) | 599 (7.3) |
| Asian | 2001 | 88 (10.5) | 386 (97.1) | 488 (14.1) | 551 (8.9) | 598 (7.6) | 661 (7.8) |
| | 2005/2006 | 76 (2.7) | 420 (5.1) | 502 (9.2) | 554 (6.6) | 603 (14.3) | 666 (23.0) |
| All New Zealand* | 2001 | 93 (1.9) | 360 (4.7) | 472 (5.9) | 537 (3.6) | 593 (4.5) | 668 (5.1) |
| | 2005/06 | 87 (1.3) | 374 (3.0) | 478 (2.5) | 539 (2.2) | 592 (2.1) | 664 (4.0) |

Notes

Standard errors are in parentheses.

The 2001 data for Asian and Pasifika students (in grey text) should be interpreted with caution due to the high level of uncertainty/variability, as indicated by the size of the standard errors.

* All Year 5 students, including students in Other ethnic groups.

Table B.2: Mean effect sizes in the reading literacy scores for Year 5 students in 2001 and 2005/2006, by ethnic grouping

| Reference group | Comparison group | | | | | | | |
|-----------------|------------------|---------|-------|---------|----------|---------|--------|---------|
| | Boys | | Māori | | Pasifika | | Asian | |
| | 2001 | 2005/06 | 2001 | 2005/06 | 2001 | 2005/06 | 2001 | 2005/06 |
| Girls | 0.287 | 0.278 | - | - | - | - | - | - |
| Pakeha/European | - | - | 0.804 | 0.837 | 0.838 | 0.919 | 0.149 | 0.018 |
| Māori | - | - | - | - | 0.009 | 0.056 | -0.635 | -0.788 |
| Pasifika | - | - | - | - | - | - | -0.701 | -0.937 |

Notes

$d < 0.35$: difference between means is *small*

$0.35 \leq d \leq 0.75$: difference between means is of *medium* size

$d > 0.75$: difference between means is *large*

An effect size of +1.0 indicates that the average score for the *comparison* group is one standard deviation below the reference group; if it is -1.0 then the *reference* group average score is one standard deviation below the *comparison* group.

Table B.3: Standard deviations and percentiles for Year 5 students in 2001 and 2005/2006, by gender

| Gender | Year | Standard deviation | Percentiles | | | | |
|-----------------|-----------|--------------------|-------------|-----------|-----------|-----------|-----------|
| | | | 5th | 25th | 50th | 75th | 95th |
| Girls | 2001 | 90 (2.4) | 379 (15.2) | 487 (7.7) | 550 (4.9) | 604 (7.7) | 679 (6.5) |
| | 2005/2006 | 81 (1.5) | 399 (6.8) | 494 (4.3) | 549 (2.0) | 599 (1.5) | 671 (7.0) |
| Boys | 2001 | 95 (2.6) | 345 (13.3) | 454 (6.6) | 527 (5.3) | 583 (7.7) | 657 (3.6) |
| | 2005/2006 | 90 (1.8) | 357 (3.9) | 462 (4.5) | 528 (3.8) | 584 (2.0) | 655 (4.9) |
| All New Zealand | 2001 | 93 (1.9) | 360 (4.7) | 472 (5.9) | 537 (3.6) | 593 (4.5) | 668 (5.1) |
| | 2005/2006 | 87 (1.3) | 374 (3.0) | 478 (2.5) | 539 (2.2) | 592 (2.1) | 664 (4.0) |

Note

Standard errors appear in parentheses.

Table B.4: Mean differences between Year 5 girls' and boys' reading literacy scores in 2005/2006, by ethnic grouping

| Ethnic grouping | Mean difference between girls and boys achievement | |
|-------------------------|--|------------------------------------|
| | Above the international scale mean | Below the international scale mean |
| Pākehā/European | 6 (2.9) | 23 (6.4) |
| Māori | 3 (5.1) | 20 (6.3) |
| Pasifika | 8 (7.1) | 8 (9.4) |
| Asian | 10 (7.6) | 9 (12.2) |
| All New Zealand* | 6 (2.5) | 18 (4.0) |

Notes

Standard errors appear in parentheses.

* All Year 5 students, including students in Other ethnic groups.

Table B.5: Percentage of students reaching the PIRLS international reading benchmarks in 2001, by gender and ethnic grouping

| Year 5 student group | Percentages of students reaching PIRLS international benchmarks | | | |
|-------------------------|---|------------|--------------------|-----------|
| | Advanced (625) | High (550) | Intermediate (475) | Low (400) |
| Girls | 17 (1.2) | 50 (2.3) | 79 (1.8) | 93 (1.1) |
| Boys | 11 (1.4) | 40 (1.9) | 69 (1.7) | 87 (1.5) |
| Pākehā/European | 19 (1.5) | 55 (1.9) | 83 (1.4) | 95 (0.7) |
| Māori | 6 (1.3) | 24 (2.7) | 55 (2.7) | 80 (2.6) |
| Pasifika | 2 (1.6) | 21 (3.8) | 57 (4.3) | 80 (3.7) |
| Asian | 15 (3.6) | 50 (5.7) | 78 (4.6) | 95 (2.8) |
| All New Zealand* | 14 (1.2) | 45 (1.6) | 74 (1.4) | 90 (1.0) |

Notes

Standard errors appear in parentheses.

* All Year 5 students, including students in Other ethnic groups.

Table B.6A: Odds ratio for the Year 5 lower-achievers group in 2005/2006

| Variable: demographic/home/school | Odds ratio | Confidence interval | Significance |
|---|------------|---------------------|--------------|
| Sex = boys | 1.84 | (1.56, 2.17) | $p < 0.000$ |
| Ethnic = Māori | 3.32 | (2.71, 4.06) | $p < 0.000$ |
| Ethnic = Pasifika | 3.00 | (2.31, 3.90) | $p < 0.000$ |
| Ethnic = Asian | 0.58 | (0.4, 0.85) | $p < 0.006$ |
| Ethnic = Pākehā/European | 0.32 | (0.26, 0.39) | $p < 0.000$ |
| Test language spoken at home = Sometimes/rarely | 1.62 | (1.31, 1.99) | $p < 0.000$ |
| Ed aids = not all | 2.63 | (2.27, 3.03) | $p < 0.000$ |
| Decile = Low | 3.81 | (2.95, 4.92) | $p < 0.000$ |
| Decile = Medium | 0.76 | (0.59, 0.96) | $p < 0.023$ |
| Decile = High | 0.32 | (0.25, 0.41) | $p < 0.000$ |

Note

The odds ratio was significant when $p \leq 0.05$.

Table B.6B: Odds ratios for the Year 5 lower-achievers group in 2005/2006, by gender and ethnic grouping

| Year 5 student group | Odds ratio | Confidence interval | Significance |
|-----------------------|------------|---------------------|--------------|
| Māori boys | 3.95 | (3.12, 5.0) | $p < 0.000$ |
| Pasifika boys | 3.23 | (2.35, 4.45) | $p < 0.000$ |
| Pasifika girls | 2.49 | (1.86, 3.35) | $p < 0.006$ |
| Māori girls | 1.89 | (1.48, 2.43) | $p < 0.000$ |
| Pākehā/European boys | 0.79 | (0.65, 0.96) | $p < 0.0206$ |
| Asian boys | 0.77 | (0.49, 1.24) | $p < 0.279†$ |
| Asian girls | 0.41 | (0.22, 0.75) | $p < 0.0048$ |
| Pākehā/European girls | 0.28 | (0.28, 0.35) | $p < 0.000$ |

Notes

The odds ratio was significant when $p \leq 0.05$.

† Not significant

Table B.7: Absolute mean differences between Year 5 girls' and boys' achievement in the purposes for reading and the processes of comprehension in 2005/2006, by ethnic grouping

| Ethnic grouping | Overall reading | Purposes for reading | | Processes of comprehension | |
|------------------|-----------------|---------------------------------|-------------------------|--|---|
| | | Reading for literary experience | Reading for information | Retrieving and straightforward inferencing | Interpreting, integrating, and evaluating |
| Pākehā/European | 23 (3.6) | 23 (3.6) | 22 (3.4) | 22 (3.8) | 23 (3.5) |
| Māori | 30 (6.1) | 29 (5.6) | 30 (5.5) | 27 (5.9) | 31 (5.3) |
| Pasifika | 15 (8.6)† | 11 (8.6)† | 19 (8.6) | 14 (8.7)† | 16 (8.0) |
| Asian | 21 (7.8) | 20 (8.0) | 20 (7.3) | 18 (7.2) | 19 (7.2) |
| All New Zealand* | 24 (3.1) | 23 (3.1) | 23 (2.9) | 22 (3.1) | 24 (2.8) |

Notes

Interpretation: Pākehā/European girls scored an average of 23 scale points higher than their male counterparts on the *interpreting, integrating, and evaluating process*. Pasifika girls scored an average of 19 scale score points higher than their male counterparts on *informational reading*. Standard errors of the differences appear in parentheses.

† Not statistically significant.

* All Year 5 students, including students in Other ethnic groups.

Table B.8: Year 5 students' mean scores for *reading for literary purposes* in 2001 and 2005/2006, by gender and ethnic grouping

| Year 5 student group | Mean scores for reading for literary purposes | | Change from 2001 to 2005/2006 |
|----------------------|---|-----------|-------------------------------|
| | 2001 | 2005/2006 | |
| Girls | 546 (4.7) | 539 (2.3) | -7 (5.2) |
| Boys | 517 (4.6) | 516 (2.9) | -1 (5.4) |
| Pākehā/European | 555 (3.6) | 549 (2.4) | -6 (4.3) |
| Māori | 485 (6.1) | 479 (3.5) | -6 (7.1) |
| Pasifika | 482 (7.7) | 472 (6.4) | -10 (10.0) |
| Asian | 534 (9.8) | 539 (5.5) | +5 (11.2) |
| All New Zealand* | 531 (3.9) | 527 (2.1) | -4 (4.4) |

Notes

Standard errors appear in parentheses. Because results are rounded some figures may appear inconsistent.

None of the changes between 2001 and 2005/2006 were statistically significant.

Year 5 students' performance in 2005 was significantly better on *informational reading* than on *literary reading*. In 2001 Year 5 students' performance was significantly better on *literary reading* than on *informational reading*.

* All Year 5 students, including students in Other ethnic groups. The mean for Other ethnic groups in 2005 was 531 (8.8). The grouping was too small to report achievement in 2001.

Table B.9: Year 5 students' mean scores for *reading for informational purposes* in 2001 and 2005/2006, by gender and ethnic grouping

| Year 5 student group | Mean scores for reading for informational purposes | | Change from 2001 to 2005/2006 |
|-------------------------|--|------------------|-------------------------------|
| | 2001 | 2005/2006 | |
| Girls | 536 (4.5) | 545 (2.2) | +10 (5.0) |
| Boys | 514 (4.4) | 522 (3.0) | +8 (5.3) |
| Pākehā/European | 548 (3.7) | 552 (2.6) | +4 (4.5) |
| Māori | 477 (5.4) | 486 (3.7) | +9 (6.5) |
| Pasifika | 485 (9.0) | 487 (6.5) | +2 (11.1) |
| Asian | 544 (9.3) | 560 (5.0) | +16 (13.6) |
| All New Zealand* | 525 (3.8) | 534 (2.2) | +9 (4.4) |

Notes

Standard errors appear in parentheses. Because results are rounded some figures may appear inconsistent.

None of the changes between 2001 and 2005/2006 were statistically significant.

Year 5 students' performance in 2005 was significantly better on *informational reading* than on *literary reading*. In 2001 Year 5 students' performance was significantly better on *literary reading* than on *informational reading*.

* All Year 5 students, including students in Other ethnic groups. The mean for Other ethnic groups in 2005 was 541 (10.4). The grouping was too small to report achievement in 2001.

Table B.10: Year 5 students' mean scores for the *retrieving and straightforward inferencing* processes in 2001 and 2005/2006, by gender and ethnic grouping

| Year 5 student group | Mean scores for retrieving and straightforward inferencing | | Change from 2001 to 2005/2006 |
|-------------------------|--|------------------|-------------------------------|
| | 2001 | 2005/2006 | |
| Girls | 534 (5.0) | 535 (2.4) | +1 (5.6) |
| Boys | 510 (4.4) | 513 (3.1) | +3 (5.3) |
| Pākehā/European | 543 (4.1) | 544 (2.7) | 0 (4.9) |
| Māori | 479 (5.9) | 475 (3.6) | -4 (6.9) |
| Pasifika | 472 (8.9) | 470 (6.0) | -3 (10.7) |
| Asian | 534 (12.7) | 540 (5.1) | +6 (13.7) |
| All New Zealand* | 522 (3.7) | 524 (2.3) | +2 (4.3) |

Notes

Standard errors appear in parentheses. Because results are rounded some figures may appear inconsistent.

The differences between 2001 and 2005/2006 were not statistically significant.

As was the case in 2001, Year 5 students' performance in 2005 was relatively better on *interpreting, integrating and evaluating processes* than on *retrieving and making straightforward inferences*.

* All Year 5 students, including students in Other ethnic groups. The mean for Other ethnic groups in 2005 was 531 (8.8). The grouping was too small to report achievement in 2001.

Table B.11: Year 5 students' mean achievement scores for *interpreting, integrating, and evaluating processes* in 2001 and 2005/2006, by gender and ethnic grouping

| Year 5 student group | Mean scores for interpreting, integrating, and evaluating | | Change from 2001 to 2005/2006 |
|-------------------------|---|------------------|-------------------------------|
| | 2001 | 2005/2006 | |
| Girls | 550 (4.6) | 550 (2.3) | 0 (5.1) |
| Boys | 521 (4.4) | 526 (2.9) | +5 (5.3) |
| Pākehā/European | 558 (3.9) | 556 (2.7) | -2 (4.7) |
| Māori | 487 (5.5) | 493 (3.7) | +6 (7.3) |
| Pasifika | 493 (8.3) | 490 (6.1) | -3 (10.3) |
| Asian | 545 (8.8) | 559 (5.4) | +14 (10.3) |
| All New Zealand* | 535 (3.8) | 538 (2.2) | +3 (4.4) |

Notes

Standard errors appear in parentheses. Because results are rounded some figures may appear inconsistent.

The differences between 2001 and 2005/2006 were not statistically significant.

As was the case in 2001, Year 5 students' performance in 2005 was relatively better on *interpreting, integrating, and evaluating processes* than on *retrieving and making straightforward inferences*.

* All Year 5 students, including students in Other ethnic groups. The mean for Other ethnic groups in 2005 was 544 (8.6). The grouping was too small to report achievement in 2001.

Table B.12: Mean reading literacy scores for Year 5 students who were assessed in English in 2005/06, by frequency with which they spoke English in the home

| Year 5 ethnic grouping | Year 5 students always speak English in the home | | Year 5 students sometimes/never speak English in the home | | Difference in mean achievement (English spoken–English rarely spoken) |
|-------------------------|--|------------------|---|------------------|---|
| | Percentage of Year 5 students | Mean score | Percentage of Year 5 students | Mean score | |
| Pākehā/European | 87 (0.7) | 555 (2.3) | 13 (0.7) | 549 (5.3) | +6 (5.0) |
| Māori | 67 (1.7) | 498 (5.2) | 33 (1.7) | 494 (5.2) | +4 (7.2) |
| Pasifika | 41 (8.6) | 489 (8.6) | 59 (2.8) | 480 (5.6) | +9 (9.0) |
| Asian | 25 (2.4) | 557 (10.0) | 75 (2.4) | 549 (5.4) | +8 (9.9) |
| All New Zealand† | 74 (1.0) | 543 (2.1) | 26 (1.0) | 524 (3.0) | +19 (3.3) * |

Notes

Standard errors appear in parentheses. Because results are rounded, some figures may appear inconsistent.

† All Year 5 students assessed in English.

* Difference between means statistically significant at the 5 percent level.

Table B.13: Year 5 students' reports of the number of books in the home in 2005/2006, by ethnic grouping

| Ethnic grouping | Percentage of Year 5 students | | | |
|-----------------|-------------------------------|-----------------------|---------------------------|-------------------------------------|
| | 0–10 (none or few) | 11–25 (about 1 shelf) | 26–100 (about 1 bookcase) | More than 100 (2 or more bookcases) |
| Pākehā/European | 5 (0.4) | 11 (0.7) | 33 (1.1) | 51 (1.3) |
| Māori | 15 (1.1) | 22 (1.5) | 31 (1.6) | 31 (1.7) |
| Pasifika | 25 (2.6) | 26 (2.3) | 27 (2.6) | 22 (2.6) |
| Asian | 15 (2.1) | 25 (2.1) | 30 (2.2) | 30 (2.6) |

Note

Also see Figure B.2 for an illustration of the relationship with reading achievement.

Table B.14: Mean reading literacy scores for Year 5 students in 2001, by school decile band*

| School decile band | Percentage of Year 5 students | Mean reading literacy score |
|------------------------|-------------------------------|-----------------------------|
| Low: 1–3 | 32 (1.9) | 483 (4.7) |
| Medium: 4–7 | 35 (1.9) | 537 (6.0) |
| High: 8–10 | 31 (1.7) | 564 (5.5) |
| Independent schools | 2 (0.2) | ~ ~ |
| All New Zealand | | 529 (3.6) |

Notes

Standard errors appear in parentheses.

Tilde (~): insufficient data to report achievement for the 2 percent of students attending independent schools.

* State and state-integrated schools only. The information for high decile schools differs slightly from that reported by Caygill and Chamberlain (2004). For this table, the data for the very small sample of independent schools which had deciles assigned to them were omitted from the calculations.

Table B.15: Standard deviations and percentiles for Year 5 students in 2001 and 2005/2006, by school decile band*

| School decile band | Year of PIRLS assessment | Standard deviation | Percentiles | | | | |
|-------------------------|--------------------------|--------------------|-------------|-----------|-----------|-----------|------------|
| | | | 5th | 25th | 50th | 75th | 95th |
| Low: 1–3 | 2001 | 91 (3.1) | 324 (11.5) | 419 (7.2) | 490 (5.4) | 548 (5.3) | 624 (6.5) |
| | 2005/2006 | 89 (2.0) | 332 (7.3) | 425 (6.7) | 490 (5.1) | 547 (5.4) | 624 (12.7) |
| Medium: 4–7 | 2001 | 88 (3.4) | 380 (16.9) | 483 (6.6) | 545 (8.3) | 597 (8.2) | 670 (13.7) |
| | 2005/2006 | 81 (2.0) | 400 (5.2) | 486 (4.1) | 542 (3.3) | 592 (4.2) | 666 (6.4) |
| High: 8–10 | 2001 | 81 (3.4) | 414 (7.4) | 518 (6.4) | 569 (4.9) | 618 (4.6) | 688 (11.2) |
| | 2005/2006 | 75 (1.9) | 425 (7.7) | 515 (3.4) | 565 (3.6) | 611 (2.0) | 675 (2.9) |
| All New Zealand† | 2001 | 93 (1.9) | 360 (4.7) | 472 (5.9) | 537 (3.6) | 593 (4.5) | 668 (5.1) |
| | 2005/2006 | 87 (1.3) | 374 (3.0) | 478 (2.5) | 539 (2.2) | 592 (2.1) | 664 (4.0) |

Notes

Standard errors appear in parentheses. Due to the large variability, as indicated by the standard errors, the percentiles in italics should be noted with caution.

* State and state-integrated schools only.

† Includes students in independent schools.

Table B.16: Percentage of Year 5 students reaching PIRLS international reading benchmarks in 2001, by school decile band*

| School decile band | Percentage of Year 5 students reaching PIRLS international benchmark | | | |
|-------------------------|--|------------|--------------------|-----------|
| | Advanced (625) | High (550) | Intermediate (475) | Low (400) |
| Low: 1–3 | 5 (1.2) | 25 (2.1) | 56 (2.2) | 80 (2.4) |
| Medium: 4–7 | 15 (2.2) | 48 (2.8) | 77 (2.4) | 93 (1.3) |
| High: 8–10 | 22 (2.0) | 60 (2.9) | 87 (1.9) | 96 (1.0) |
| All New Zealand† | 14 (1.2) | 45 (1.6) | 74 (1.4) | 90 (1.0) |

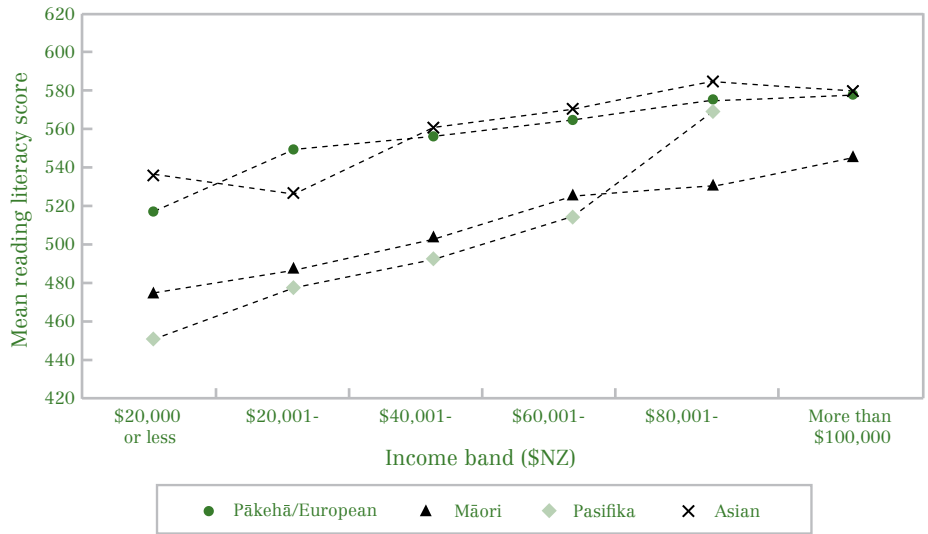
Notes

Standard errors appear in parentheses.

* State and state-integrated schools only.

† Includes students in independent schools

Figure B.1: Relationship between Year 5 students' reading literacy achievement and parents' reports of household income in 2005/2006, by ethnic grouping



Note

The cell size for Pasifika students was too small in the category 'more than \$100,000' to include their reading achievement.

Figure B.2: Relationship between Year 5 students' reports on the number of books in the home and their reading literacy achievement, by ethnic grouping

