

Although national monitoring has been designed primarily to present an overall national picture of student achievement, there is some provision for reporting on performance differences among subgroups of the sample. Seven demographic variables are available for creating subgroups, with students divided into two or three subgroups on each variable, as detailed in Chapter 1 (p5).

The analyses of the relative performance of subgroups used an overall score for each task, created by adding together scores for appropriate components of the task.

Where only two subgroups were compared, differences in task performance between the two subgroups were checked for statistical significance using t-tests. Where three subgroups were compared, one way analysis of variance was used to check for statistically significant differences among the three subgroups.

Because the number of students included in each analysis was quite large (approximately 450), the statistical tests were quite sensitive to small differences. To reduce the likelihood of attention being drawn to unimportant differences, the critical level for statistical significance was set at  $p = .01$  (so that differences this large or larger among the subgroups would not be expected by chance in more than one percent of cases).

For the first three of the seven demographic variables, statistically significant differences among the subgroups were found for less than 12 percent of the tasks at both year 4 and year 8. For the remaining four variables, statistically significant differences were found on more than 29 percent of tasks at one or both levels. In the detailed report below, all “differences” mentioned are statistically significant (to save space, the words “statistically significant” are omitted).

#### School Size

Results were compared from students in large, medium sized, and small schools (exact definitions were given in Chapter 1). For year 4 students, there were no differences among the subgroups on any of the 14 listening tasks, and a difference on only 1 of the 16 viewing tasks: students from main centres scored lowest on *It's Cool to Read* (p27). For year 8 students, there were no differences on any of the 17 listening tasks or 18 viewing tasks.

#### School Type

Results were compared for year 8 students attending full primary and intermediate schools. There were no differences between these two subgroups on any of the 18 viewing tasks, with a difference on just 1 of the 17 listening tasks. Students from full primary schools scored higher than students from intermediate schools on *The Wind and the Sun* (p18).

#### Community Size

Results were compared for students living in communities containing over 100,000 people (main centres), communities containing 10,000 to 100,000 people (provincial towns), and communities containing less than 10,000 people (rural areas).

For year 4 students, there were no differences among the three subgroups on any of the 16 viewing tasks, with a difference on just 1 of the 14 listening tasks. Students from main centres scored lowest on *Link Task 1* (p28).

For year 8 students, there were no differences among the three subgroups on any of the 18 viewing tasks, with differences among them on just 2 of the 17 listening tasks. Students from rural areas scored lowest and students from provincial towns highest on *Line Up* (p21), while students from main centres scored lowest and students from provincial towns highest on *Link Task 7* (p25).

#### Zone

Results achieved by students from Auckland, the rest of the North Island, and the South Island were compared.

For year 4 students, there were differences among the three subgroups on 5 of the 14 listening tasks: *Cats Sleep Anywhere* (p16), *Link Task 1* (p25), *Link Task 3* (p25), *Link Task 4* (p25), and *Link Task 5* (p25). Students from the South Island scored highest on 4 of these tasks, with students from Auckland lowest on 4 of them. There were also differences on 7 of the 16 viewing tasks: *The Wolf* (p28), *Santa Gets Ready* (p29), *TV Commercials* (p30), *Māori Gods* (p34), *Sweet Stall* (p35), *Link Task 9* (p39), and *Link Task 10* (p39). Students from the South Island scored highest on all 7 of these viewing tasks, with students from Auckland lowest on 5 of them.

For year 8 students, there was a difference among the three subgroups on just 1 of the 17 listening tasks: students from Auckland scored lowest and students from the rest of the North Island highest on *Zippos* (p22). Similarly, there was a difference on just 1 of the 18 viewing tasks: students from Auckland scored lowest and students from the South Island highest on *Link Task 15* (p39).

#### Gender

Results achieved by male and female students were compared.

For year 4 students, there were differences between boys and girls on 2 of the 14 listening tasks. Girls scored higher than boys on *Link Task 3* (p25) and *Link Task 4* (p25). There was also a difference on 1 of the 16 viewing tasks, with girls scoring higher than boys on *Poster* (p37).

For year 8 students, there were differences between boys and girls on 5 of the 17 listening tasks. Girls scored higher

than boys on *Phone Message* (p14), *Zippos* (p22), *Link Task 2* (p25), *Link Task 3* (p25), and *Link Task 4* (p25). There were also differences on 2 of the 18 viewing tasks, with girls scoring higher than boys on *Weet-Bix Card* (p36) and *Poster* (p37).

### Student Ethnicity

Results achieved by Māori and non-Māori students were compared.

For year 4 students, there were differences on 5 of the 14 listening tasks. Non-Māori students scored higher than Māori students on *The Wind and the Sun* (p18), *Drummer Dylan* (p20), *Zippos* (p22), *Link Task 2* (p25), and *Link Task 5* (p25). There were also differences on 6 of the 16 viewing tasks. Non-Māori students scored higher than Māori students on *It's Cool to Read* (p27), *Santa Gets Ready* (p29), *Bedroom Plan* (p32), *Link Task 9* (p39), *Link Task 10* (p39), and *Link Task 14* (p39).

For year 8 students, there were differences on 3 of the 17 listening tasks. Non-Māori students scored higher than Māori students on *Line Up* (p21), *Link Task 2* (p25), and *Link Task 6* (p25). There were also differences on 6 of the 18 viewing tasks. Non-Māori students scored higher than Māori students on *House Plan* (p33), *Sweet Stall* (p35), *Poster* (p37), *Link Task 9* (p39), *Link Task 12* (p39), and *Link Task 14* (p39).

### Socio-Economic Index

Schools are categorised by the Ministry of Education based on census data for the census mesh blocks where children attending the schools live. The SES index takes into account household income levels, categories of employment, and the ethnic mix in the census mesh blocks. The SES index uses ten subdivisions, each containing ten percent of schools (deciles 1 to 10). For our purposes, the bottom three deciles (1-3) formed the low SES group, the middle four deciles (4-7) formed the medium SES group, and the top three deciles (8-10) formed the high SES group. Results were compared for students attending schools in each of these three SES groups.

For year 4 students, there were differences among the three subgroups on 10 of the 14 listening tasks and 8 of the 16 viewing tasks. Because of the large number of tasks involved, they will not be listed here. In all cases, students in the low SES schools performed worst. While students from high SES schools generally did better than students from medium SES school, these differences were usually smaller than the differences between students from low and medium SES schools.

For year 8 students, there were differences among the three subgroups on 10 of the 17 listening tasks and 11 of the 18 viewing tasks. For about half of these tasks, the prominent feature was the low performances of

students in the low SES schools, with only modest differences between students from medium and high SES schools. For the remaining tasks showing differences, the performance gaps were more evenly distributed or larger between students from medium and high SES schools.

### Summary

School size, school type (full primary or intermediate) and community size did not seem to be important factors predicting achievement on listening and viewing tasks. South Island students performed better than Auckland students on about 40 percent of the listening and viewing tasks at year 4 level, but only about 5 percent of the year 8 tasks. At both year levels, girls performed better than boys on some tasks, with the proportion of these tasks increasing somewhat from year 4 to year 8 (14 to 29 percent for listening, 6 to 11 percent for viewing). Non-Māori students outperformed Māori students on about 35 percent of the viewing tasks at both year levels and on the listening tasks at year 4 level, but this dropped to 18 percent of the year 8 listening tasks. The SES index based on school deciles showed the strongest pattern of differences, with differences on 50 to 70 percent of listening and viewing tasks at both year levels.

Between 1998 and 2002, there have been noteworthy changes in subgroup differences for four of the seven variables. The only variable showing increased disparity was geographic zone, and that only at year 4 level, with the performance gap between South Island and Auckland students increasing between 1998 and 2002 (from 13% to 36% of listening tasks, and from 22% to 44% of viewing tasks). On the other hand, there were substantial reductions in subgroup differences for three variables: gender, ethnicity and the SES index based on school deciles. Over the four-year period, the percentage of viewing tasks on which girls performed better than boys decreased from 22 percent to 6 percent for year 4 students and from 29 percent to 11 percent for year 8 students. The percentage of tasks on which Māori students scored lower than other students decreased substantially for listening and viewing tasks at both year levels (50% to 36% for year 4 listening tasks, 33% to 18% for year 8 listening tasks, 67% to 38% for year 4 viewing tasks, and 57% to 33% for year 8 viewing tasks). Similarly, the percentage of tasks on which students from low decile schools scored significantly lower than students from high decile schools decreased for both sets of tasks at both year levels (87% to 71% for year 4 listening tasks, 78% to 59% for year 8 listening tasks, 100% to 50% for year 4 viewing tasks, and 86% to 61% for year 8 viewing tasks).

