

8 Performance of Subgroups

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. Eight demographic variables are available for creating subgroups, with students divided into subgroups on each variable, as detailed in Chapter 1 (p5).

Analyses of the relative performance of subgroups used the total score for each task, created as described in Chapter 1 (p8).



SCHOOL VARIABLES

Five of the demographic variables related to the schools the students attended. For these five variables, statistical significance testing was used to explore differences in task performance among the subgroups. Where only two subgroups were compared (for *School Type*), 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 for tasks reporting results for individual students 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 tasks administered to teams or groups of students, $p = .05$ was used as the critical level, to compensate for the smaller numbers of cases in the subgroups.

For the first four of the five school variables, statistically significant differences among the subgroups were found for less than 10 percent of the tasks at both year 4 and year 8. For the remaining variable, statistically significant differences were found on

more than one third of the tasks at 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, page 8).

For year 4 students, there were no differences among the subgroups on any of the 33 tasks, but there was a difference on one question of the year 4 *Music Survey* (p40): students from small schools reported less frequent opportunities in school to make up music (question 2e).

For year 8 students, there was a difference on one of the 33 tasks, with students from small schools scoring lowest and students from medium-sized schools highest on *Wannabes* (p30). There was also a difference on one question of the year 8 *Music Survey* (p41), with students from large schools reporting more frequent opportunities to play instruments (question 2b) in music at school.

School Type

Results were compared for year 8 students attending full primary and intermediate schools. There were differences between these two subgroups on two of the 33 tasks: students attending full primary schools scored higher on *Clown* (p14) and *Canoe Song* (p23). There were also differences on two questions of the year 8 *Music Survey* (p41), with students from intermediate schools reporting more frequent opportunities to play instruments (question 2b) and to “make up music” (question 2e) at school.

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 two of the 33 tasks. Students from the rest of the North Island (excluding Auckland) scored lowest on *Link Task 3* (p26), but students from Auckland scored lowest on *Pass the Bucket* (p25).

There were no differences on questions of the year 4 *Music Survey*.

For year 8 students, there was a difference among the three subgroups on one of the 33 tasks: students from the South Island scored lowest on *Link Task 8* (p26). There were also differences on two question of the year 8 *Music Survey* (p41), with students from the South Island least enthusiastic about making up music, both in school (question 3e) and out of school (question 5e).

Community Size

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

For year 4 students, there were differences on three of the 33 tasks. Students from the main centres scored highest on *Pass the Bucket* (p25) and *Melodies* (p36), while students from rural areas scored lowest on *Link Task 6* (p26). There were no differences on questions of the year 4 *Music Survey*.

For year 8 students, there were differences among the three subgroups on two of the 33 tasks. Students from the main centres scored lowest on *Link Task 7* (p26), while students from rural areas scored lowest on *Storm* (p16) and *Team Song* (p19). There were no differences on questions of the year 8 *Music Survey*.

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 10 subdivisions, each containing 10 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 12 of the 33 tasks, spread across the four task chapters but including a higher proportion of the Understanding Music tasks. Because of the number of tasks showing differences, they are not listed here. Students in high decile schools performed better than students in low decile schools on all 12 tasks. There were also differences on five questions of the year 4 *Music Survey* (p40). Students from low decile schools were most positive about music at school (question 1), reported more frequent opportunities to listen to music (question 2c) and to make up music (question 2e) at school, and most enjoyed doing singing in music at school (question 3a). Students from high decile schools reported more frequent opportunities to play instruments in music at school (question 2b), and least enjoyed singing in music at school (question 3a). Students from medium decile schools reported less frequent opportunities to play instruments (question 2b) or to make up music at school (question 2e).

For year 8 students, there were differences among the three subgroups on 15 of the 33 tasks, spread evenly across the four task chapters. Because of the number of tasks showing differences, they are not listed here. Students in high decile schools performed better than students in low decile schools on all 15 tasks. There was also a difference on one question of the year 8 *Music Survey* (p41), with students from low decile schools reporting more frequent opportunities to listen to music at school (question 2c).



STUDENT VARIABLES

Three demographic variables related to the students themselves:

- *Gender*: boys and girls
- *Ethnicity*: Māori, Pasifika, and Pakeha (this term was used for all other students)
- *Language used predominantly at home*: English and other.

During the previous cycle of the Project (1999-2002), special supplementary samples of students from schools with at least 15 percent Pasifika students enrolled were included. These allowed the results of Pasifika students to be compared with those of Māori and Pakeha students attending these schools. By 2002, with Pasifika enrolments having increased nationally, it was decided that from 2003 onwards a better approach would be to compare the results of Pasifika students in the main NEMP samples with the corresponding results for Māori and Pakeha students. This gives a nationally representative picture, with the results more stable because the numbers of Māori and Pakeha students in the main samples are much larger than their numbers previously in the special samples.

The analyses reported compare the performances of boys and girls, Pakeha and Māori students, Pakeha and Pasifika students, and students from predominantly English-speaking and non-English-speaking homes.

For each of these three comparisons, differences in task performance between the two subgroups are described using “effect sizes” and statistical significance.



For each task and each year level, the analyses began with a t-test comparing the performance of the two selected subgroups and checking for statistical significance of the differences. Then the mean score obtained by students in one subgroup was subtracted from the mean score obtained by students in the other subgroup, and the difference in means was divided by the pooled standard deviation of the scores obtained by the two groups of students. This computed effect size describes the magnitude of the difference between the two subgroups in a way that indicates the strength of the difference and is not affected by the sample size. An effect size of +.30, for instance, indicates that students in the first subgroup scored, on average, three tenths of a standard deviation higher than students in the second subgroup.

For each pair of subgroups at each year level, the effect sizes of all available tasks were averaged to produce a mean-effect size for the curriculum area and year level, giving an overall indication of the typical performance difference between the two subgroups.

Gender

Results achieved by male and female students were compared using the effect-size procedures.

For year 4 students, the mean-effect size across the 24 tasks was -.08 (girls averaged 0.08 standard deviations higher than boys). This difference is small. There were statistically significant ($p < .01$) differences favouring girls on two chanting or singing tasks: *Sounds Fishy* (p24) and *Link Task 7* (p26). There were also differences on 15 questions of the year 4 *Music Survey* (p40). Girls were more positive about music at school (question 1), about all of the specific school music activities listed (questions 3a, 3b, 3c, 3d and 3e), about all activities except playing instruments outside of school (question 5a, 5c, 5d and 5e) and about continuing to learn or do music as they got older (question 6). Not surprisingly, they also reported more music activity outside of school (question 4a, 4c, 4d) and 36 percent of girls compared to 15 percent of boys reported learning music or



belonging to a music group outside of school. These survey differences are remarkably strong.

For year 8 students, the mean-effect size across the 24 tasks was -.19 (girls averaged 0.19 standard deviations higher than boys). Given the year 4 survey results, this moderate advantage for girls at year 8 perhaps is predictable. There were statistically significant differences on eight of the 24 tasks, with girls performing better on all eight tasks: *Fun Day* (p13), *Link Task 1* (p17), *Play It* (p20), *Clap the Pattern* (p22), *Link Task 7* (p26), *Rhythmic Patterns* (p28), *Musical Words* (p35), and *Link Task 14* (p38). There were also differences on 13 questions of the year 8 *Music Survey* (p41). Girls were more positive about music at school (question 1), about singing, listening and moving to music in school (questions 3a, 3c, and 3d) and out of school (question 5a, 5c, and 5d), and about continuing to learn or do music as they got older (question 6). They also reported more singing and moving to music in school (questions 2a and 2d) and outside of school (question 4a and 4d), together with more listening to music outside of school (question 4c), while 32 percent of girls and 25 percent of boys reported learning music or belonging to a music group outside of school (a smaller difference than for the year 4 students).

Ethnicity

Results achieved by Māori, Pasifika and Pakeha (all other) students were compared using the effect-size procedures. First, the results for Pakeha students were compared to those for Māori students. Second, the results for Pakeha students were compared to those for Pasifika students.

Pakeha-Māori Comparisons

For year 4 students, the mean-effect size across the 24 tasks was +.14 (Pakeha students averaged 0.14 standard deviations higher than Māori students). This is a small difference. There were statistically significant differences ($p < .01$) on five of the 24 tasks, with Pakeha students scoring higher than Māori students on all five tasks: *Fun Day* (p13), *Have a Go Go* (p15), *Play It* (p20), *Link Task 3* (p26), and *Listen and See* (p34). There were also differences on five questions of the year 4 *Music Survey* (p40). Māori students reported more singing and listening to music at school (questions 2a and 2c) and more listening to music outside of school (question 4c). They were also more positive about listening to music in school (question 3c) and about continuing to learn or do music as they got older (question 6).

For year 8 students, the picture was similar. The mean-effect size across the 24 tasks was +.16 (Pakeha students averaged 0.16 standard deviations higher than Māori students). This is a small difference. There were statistically significant differences on five of the 24 tasks, with Pakeha students scoring higher than Māori students on all five tasks: *Fun Day* (p13), *Link Task 3* (p26), *Link Task 9* (p32), *Listen and See* (p34), and *Link Task 12* (p38). There were also differences on eight questions of the year 8 *Music Survey* (p41). Māori students reported listening to music and moving to music at school (questions 2c and 2d) and more singing, moving to music and making up music outside of school (questions 4a, 4d, 4e). They were also more positive about singing in school (question 3a), about singing outside of school (question 5a) and about continuing to learn or do music as they got older (question 6).

Pakeha-Pasifika Comparisons

Readers should note that only 20 to 50 Pasifika students were included in the analysis for each task. This is lower than normally preferred for NEMP subgroup analyses, but has been judged adequate for giving a useful indication, through the overall pattern of results, of the Pasifika students' performance. Because of the relatively small numbers of Pasifika students, $p = .05$ has been used here as the critical level for statistical significance.



For year 4 students, the mean-effect size across the 24 tasks was +.02 (Pakeha students averaged 0.02 standard deviations higher than Pasifika students). This is a negligible difference. There were statistically significant differences on four of the 24 tasks. Pakeha students performed better on *Link Task 3* (p26), while Pasifika students scored higher on three tasks involving rhythmic activity: *Pass the Bucket* (p25), *Rhythmic Patterns* (p28) and *Link Task 10* (p32). There were also differences on four questions of the year 4 *Music Survey*. Pasifika students reported spending more time listening to music outside of school (question 4c), and were more enthusiastic about doing music at school (question 1), making up music at school (question 3e) and continuing to learn or do music as they got older (question 6).

For year 8 students, the mean-effect size across the 24 tasks was +.07 (Pakeha students averaged 0.07 standard deviations higher than Pasifika students). This is a very small difference. There were statistically significant differences on six of the 24 tasks. Pakeha students scored higher on *Fun Day* (p13), *Play It* (p20), *Link Task 4* (p26), *Link Task 9* (p32) and *Link Task 13* (p38), while Pasifika students scored higher on *Clap the Pattern* (p22). There were also differences on seven questions of the year 8 *Music Survey*. Pasifika students reported spending more time listening to music and moving to music in school (questions 2c and 2d) and singing and playing instruments outside of school (questions 4a and 4b), and were distinctly more likely to be learning music or in a music group outside of

school (45 percent of Pasifika students versus 28 percent of Pakeha students). Pasifika students were also more enthusiastic about listening to music in school (question 3c) and continuing to learn or do music as they got older (question 6).

Home Language

Results achieved by students who reported that English was the predominant language spoken at home were compared, using the effect-size procedures, with the results of students who reported predominant use of another language at home (most commonly an Asian or Pasifika language). Because of the relatively small numbers in the "other language" group, $p = .05$ has been used here as the critical level for statistical significance.



For year 4 students, the mean-effect size across the 24 tasks was -.01 (students for whom English was the predominant language at home averaged 0.01 standard deviations lower than the other students). This is a negligible difference. There were statistically significant differences on two of the 24 tasks: students for whom English was the predominant language spoken at home scored higher on *Have a Go Go* (p15) but lower on *Link Task 10* (p32). There were also differences on six questions of the year 4 *Music Survey* (p40). Students whose predominant language at home was not English reported more experience at school of playing instruments and making up music (questions 2b and 2e) and more involvement outside school in making up music (question 4e). They also were more positive about playing instruments at school (question 3b) and making up music outside of school (question 5e). Thirty-nine percent of

them were learning music or in a music group outside of school, compared to 23 percent of those with English as the predominant language at home.

For year 8 students, the mean-effect size across the 24 tasks was -.02 (students for whom English was the predominant language at home averaged 0.02 standard deviations lower than the other students). This is a negligible difference. There were statistically significant differences on three of the 24 tasks: students for whom English was the predominant language spoken at home scored higher on *Link Task 13* (p38), but lower on *Link Task 4* (p26) and *Melodies* (p36). There were also differences on two questions of the year 8 *Music Survey* (p41): students whose predominant language at home was not English were more enthusiastic about doing music at school (question 1) and continuing to learn or do music as they got older (question 6). Fifty percent of



them were learning music or in a music group outside of school, compared to 25 percent of those with English as the predominant language at home.



Summary, with Comparisons to Previous Music Assessments

School type (full primary or intermediate), school size, community size and geographic zone did not seem to be important factors predicting achievement on the music tasks. The same was true for the 2000 and 1996 assessments. However, there were statistically significant differences in the performance of students from low, medium and high decile schools on 36 percent of the tasks at year 4 level (compared to 57 percent in 2000 and 35 percent in 1996), and 45 percent of the tasks at year 8 level (compared to 27 percent in 2000 and 45 percent in 1996).

For the comparisons of boys with girls, Pakeha with Māori, Pakeha with Pasifika students, and students for whom the predominant language at home was English with those for whom

it was not, effect sizes were used. Effect size is the difference in mean (average) performance of the two groups, divided by the pooled standard deviation of the scores on the particular task. For this summary, these effect sizes were averaged across all tasks.

Girls averaged slightly higher than boys, with mean-effect sizes of 0.08 for year 4 students and 0.19 for year 8 students (the corresponding figures in 2000 were 0.15 and 0.10). As was also true in 2000, the music survey results at both year levels showed that girls were substantially more positive than boys about music activities and more involved in them in their own time.

Pakeha students averaged slightly higher than Māori students, with mean-effect sizes of 0.14 for year 4 students and 0.16 for year 8 students (the corresponding figures in 2000 were 0.20 and 0.17). The music survey results, however, showed that Māori students were more involved in and enthusiastic about some aspects of music.

Pakeha students averaged very slightly (negligibly) higher than Pasifika students, with mean-effect sizes of 0.02 for year 4 students and 0.07 for

year 8 students (distinctly closer than in 2000, when the corresponding figures were 0.18 and 0.24). The music survey results showed that Pasifika students were more involved in and enthusiastic about some aspects of music, notably with 17 percent more Pasifika than Pakeha year 8 students (45 percent versus 28 percent) reporting that they were learning music or involved in a music group outside of school.

Compared to students for whom the predominant language at home was English, students from homes where other languages predominated averaged very slightly (negligibly) higher, with mean-effect sizes of 0.01 for year 4 students and 0.02 for year 8 students. Comparative figures are not available for the assessments four years earlier.

