

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. Nine demographic variables are available for creating subgroups, with students divided into two or three subgroups on each variable, as detailed in Chapter 1 (p8).

The analyses of the relative performance of subgroups used an overall score for each task, created by adding scores for the most important 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). The critical level was adjusted to $p = .05$ for the six tasks where differences in team performance among 120 teams were being examined.

For the first four of the nine demographic variables, few statistically significant differences among the subgroups were found. For the remaining five variables, statistically significant differences were found on substantial numbers of tasks. Details are presented below.

Zone

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

For year 8 students, there was a statistically significant difference among the three subgroups on only one of the 20 tasks. Students from the North Island (excluding Auckland) scored lower than students from the other two zones on a stations task which involved identifying differences between two similar pieces of music (*Variations on a theme*, p34). There were no statistically significant differences among the three subgroups on any of the questions of the *Music survey* (p47).

For year 4 students, there were statistically significant differences among the three subgroups on four of the 20 tasks. Students from Auckland scored higher than students from the other two zones on three tasks. The first of these tasks involved singing (*Sing song*, p20). The second and third tasks asked students to identify appropriate representations in musical notation of four-note musical patterns they heard (*Chooser*, p28) or the rhythm of several words they spoke (*Words 'n notes*, p36). Students from the North Island (excluding Auckland) scored lower than the students from the other two zones on a tasks involving creating music (*Link task 2*, p16). On the *Music survey* (p46), the only statistically significant difference was for question 1 (liking music at school), with students from the South Island scoring lower than students from the other two zones.

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 cities), and communities containing less than 10,000 people (rural areas).

For year 8 students, there were no statistically significant differences among the three subgroups on any tasks or on any of the questions in the *Music survey*.

For year 4 students, there were statistically significant differences among the three subgroups on only two of the 20 tasks. Students from provincial cities scored higher than students from other areas on a task involving rhythmic response to music (*Beat & rhythm*, p25). On a task involving creating music (*Link task 2*, p16), students from main centres scored highest and students from rural areas scored lowest. There were no statistically significant differences on questions of the *Music survey*.

School Size

Results were compared from students in larger, medium sized, and small schools (exact definitions were given in Chapter 1, p8).

For year 8 students, statistically significant differences among the three subgroups were found on three of the 20 tasks. Students from medium sized schools scored highest on three tasks involving collaborative work by groups of students (*Link task 1 & Link task 2*, p16; *Link task 6*, p26). There was also one statistically significant difference among the three subgroups on the *Music survey* (p47). Students from small schools reported less frequent opportunities to play musical instruments at school (question 2).

For year 4 students, there were no statistically significant differences among the three subgroups on the assessment tasks. There was a statistically significant difference on one question of the *Music survey* (p46). Students from the larger schools expressed greater enthusiasm for listening to music at school (question 3).

School Type

Results were compared for year 8 students attending full primary schools and year 8 students attending intermediate schools. A statistically significant difference was found on only one of the 20 music tasks. Students from intermediate schools scored lower than students from full primary schools on a task involving movement to music (*Link task 6*, p26). No statistically significant differences were found on any questions of the *Music survey*.

Gender

Results achieved by male and female students were compared.

For year 8 students, there were statistically significant differences between boys and girls on four of the 20 music tasks. Girls performed better than boys on all four tasks. These tasks involved creating music (*Answer phone*, p15), re-creating music (*Link task 5*, p22), and understanding music (*Chime bars*, p29 & *D'Code*, p38). On the *Music survey* (p47), there were statistically significant differences between boys and girls on four questions, with girls giving higher ratings in each case. Girls expressed a greater liking for music at school (question 1), and for singing and dancing/moving as music activities at school (question 3), and also indicated greater involvement in musical activities in their own time (question 5).

A similar pattern was found for year 4 students. There were statistically significant differences between boys and girls on three of the 20 tasks. Girls performed better on all three tasks. These tasks involved re-creating music (*Link task 4*, p22), responding to music (*Beat & rhythm*, p25), and understanding music (*Chooser*, p28). There were also statistically significant differences on six questions of the *Music survey* (p46). Girls were more enthusiastic than boys about doing music at school (question 1), engaging in singing and dancing/moving activities at school (question 3), and learning more about

music as they got older (question 6). They were also more involved in formal musical activities (lessons, musical groups) outside of school (question 4) and spending their own time on musical activities (question 5).

The results raise some concerns about the development of musical interests and expertise among boys, although it is somewhat reassuring to note that the gap between girls and boys does not seem to increase between year 4 and year 8.

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 used 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 8 students, there were statistically significant differences among the three subgroups on nine of the 20 tasks. In each case, performance was lowest for students in the low SES group. Students in the high SES group generally performed better than students in the medium SES group, but in most cases these differences were small. Because of the number of tasks, the specific tasks will not be listed here, but it should be noted that they span all four strands assessed (Chapters 3 to 6). On the *Music survey* (p47), there were statistically significant differences on two issues included in question 2 (the frequency of opportunities to play musical instruments in school and to dance/move to music at school). In both cases students attending high SES schools reported greater opportunities.

For year 4 students, there were statistically significant differences between the three subgroups on seven of the 20 tasks. In all except one case, performance was lowest for students in the low SES group (the exception had the medium SES group scoring lowest). Students in the high SES group generally performed better than students in the medium SES group, but in many cases these differences were small. There were no statistically significant differences on questions of the *Music survey*.

Student Ethnicity

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

For year 8 students, there were statistically significant differences in performance on only three of the 20 tasks. In each case, non-Māori students scored higher than Māori students. One of these three tasks was *Sing song* (p20), where embarrassment and language difficulties may have differentially affected Māori students. The other two tasks were *Chime bars*, (p29) & *Link task 8* (p44). There were also three statistically significant differences between Māori and non-Māori students on questions of the *Music survey* (p47). Māori students reported fewer opportunities to play musical instruments in music at school (question 2), but more opportunities to dance/move to music at school (question 2). They also expressed greater enthusiasm for singing at school (question 3).

For year 4 students, there were statistically significant differences in performance on three of the 20 individual tasks. Māori students scored higher than non-Māori students on one task involving singing (*Link task 3*, p22), and

lower than non-Māori students on two tasks (*Link task 8 & Link task 9*, p44). There was only one statistically significant difference on the *Music survey* (p46). Māori students reported more frequent experience of listening to music at school (question 2).

Proportion of Māori Students in Schools

Schools were categorised into three subgroups: schools with less than 10 percent Māori students, schools with 10 to 30 percent Māori students, and schools with more than 30 percent Māori students. Results were compared for students attending schools in these three categories.

For year 8 students, statistically significant differences in performance were found on 8 of the 20 tasks. On each of these tasks, students attending schools with more than 30 percent Māori students scored lowest. On the *Music survey* (p47), statistically significant differences were found on three questions. Students from schools with less than ten percent of Māori students reported more frequent opportunities to play musical instruments at school (question 2). Students from schools with more than 30 percent Māori students reported more frequent opportunities to dance/move to music at school (question 2) and greater enjoyment of singing at school (question 3).

For year 4 students, statistically significant differences in performance were found on 11 of the 20 tasks. In each case, students attending schools with less than 10 percent Māori students scored highest, with generally smaller differences between the other two subgroups. There were no statistically significant differences on questions of the *Music survey*.

The differences between patterns reported in this section and in the preceding section are worthy of further discussion. On most tasks and most questions of the *Music survey*, Māori students responded similarly to non-Māori students. In contrast, there were considerably greater discrepancies in performance on music tasks between students attending schools with high or low proportions of Māori students. This suggests that there may be differences in the nature or effectiveness of the music programmes at these different categories of schools, rather than differences arising directly from the ethnic make-up of the schools.

Proportion of Pacific Island Students in Schools

Because most of the Pacific Island students are concentrated into relatively few schools, it was difficult to create sensible subgroups for schools with higher or lower percentages of Pacific Island students. Two subgroups were formed: students attending schools with up to 5 percent Pacific Island students, and students attending schools with more than 5 percent Pacific Island students. Results were compared for students in these two subgroups.

For year 8 students, statistically significant differences in performance were found on five of the 20 tasks, including tasks which involved creating music, responding to music, and understanding music. For each of these tasks, average performance levels were lower in the schools with more than 5 percent Pacific Island students. There were no statistically significant differences on the *Music survey*.

For year 4 students, statistically significant differences in performance were found on three of the 20 tasks. For each of these tasks, which were all stations tasks assessing understanding of music, average performance levels were lower in the schools with more than 5 percent Pacific Island students. There were no statistically significant differences on the *Music survey*.