

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 (p6).

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). For team tasks, the critical level was raised to $p = .05$, because of the smaller sample size (120 teams, rather than about 450 students).

For the first four of the nine demographic variables discussed, statistically significant differences among the subgroups were found for less than fifteen percent of the tasks at both year 4 and year 8. For the remaining five variables, statistically significant differences were found on a substantial proportion of tasks at one or both levels. In the report below, all “differences” mentioned are statistically significant differences (to save space, the words “statistically significant” are omitted).

The pattern of differences was often different for the movement skills tasks (Chapter 5) and the other tasks (Chapters 3, 4 and 6). In this chapter, the former are referred to as PE (physical education) tasks, the latter as health tasks. Six health tasks are not included in the analysis because their scoring reflected student preferences or attitudes rather than their level of achievement.

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 52 tasks, or on any questions of the two surveys.

School Size

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

For year 4 students, there were differences on 1 of the 25 health tasks (*Link task 7*, p37, with students from large schools performing best), and on 2 of the 23 PE tasks (*Ladder activities A*, p42, and *Link task 18*, p48, with students from small schools performing least well on both). Students from small schools were also less enthusiastic about doing health at school (*Health survey*, p57, question 1) and about doing PE at school (*PE survey*, p59, question 1), and felt their teachers were less positive about their PE capabilities (*PE survey*, question 4).

For year 8 students, there were no differences on any of the 52 tasks, or on any questions of the two surveys.

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 4 students, there was a difference among the three subgroups on 2 of the 25 health tasks and 1 of the 23 PE tasks. Students from main centres scored highest and students from rural areas scored lowest on *Bullies* (p29) and on *Link task 17* (p48). Students from provincial cities scored lowest on *Keeping*

safe (p52). There were no differences on questions of the *PE survey*, but on the *Health survey* (p57) students from main centres were most positive about how often their class did things to help them learn about health (question 4).

For year 8 students, there were differences among the three subgroups on just 2 of the 52 tasks, both PE tasks. Students from provincial cities scored lowest on both *Game plan* (p46) and *Link task 16* (p48). There were no differences on questions of the two surveys.

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 4 of the 25 health tasks: *Fire fire* (p50), *Gone fishing* (p51), *Safety in the home* (p53), and *Link task 21* (p55), all relating to healthy communities and environments. Students from Auckland scored lowest on all four tasks, with students from the South Island highest on three. There were also differences on 3 of the 23 PE tasks. Students from Auckland were highest on *Ladder activities B* (p43) and *Poi* (p45), while students from the South Island scored lowest on *Poi* and on *Link task 18* (p48). There were no differences on questions of the *Health survey*, but there was a difference on one question of the *PE survey* (p59), with students from the South Island least enthusiastic about learning PE when they are older (question 8).

For year 8 students, there were differences among the three subgroups on 2 of the 29 health tasks and 2 of the 23 PE tasks. Students from the North Island other than Auckland scored lowest on *How fit* (p17), but highest on *Bat and bounce* (p40), and students from the South Island were lowest on *Bat and bounce* and *Small ball wall juggle* (p41), but highest on *Win win* (p24). There were no differences on questions of the *PE survey*, but there was a difference on one question of the *Health survey* (p57), with students from Auckland most positive and students from the South Island least positive about doing health at school (question 1).

Gender

Results achieved by male and female students were compared.

For year 4 students, there was a difference between boys and girls on 1 of the 23 health tasks. Girls scored higher than boys on *Link task 7* (p37). There were differences on 15 of the 21 PE tasks. Boys scored higher on 10 tasks, all involving the use of balls or similar objects (throwing, catching, hitting, dribbling). Girls scored higher on 5 tasks: *Ladder activities A* (p42), *Ladder activities B* (p43), *Balance* (p44), *Skipping* (p44), and *Poi* (p45). There were no differences on questions of the *Health survey*, but there were on two questions of the *PE survey* (p59). Boys believed that they were better at PE (question 3) and that their teachers thought that they were better at PE (question 4).

For year 8 students, there were differences between boys and girls on 6 of the 26 health tasks. Girls scored higher than boys on 5 tasks about relationships with other people, while boys scored higher than girls on *Heart beat* (p18). There were differences on 17 of the 21 PE tasks. Boys performed better on 10 tasks, nine of which involved the use of balls or similar objects (throwing, catching, hitting, dribbling). The tenth was *Link task 16* (p48). Girls performed better on 7 tasks: *Ladder activities A* (p42), *Ladder activities B* (p43), *Skipping* (p44), *Poi* (p45), *Knuckle bones* (p45), *Link task 17* (p48), and *Link task 19* (p48). There were also differences on two questions of the *Health survey* (p57), with girls more positive about doing health at school (question 1) and about the value of studying health (question 2). Finally, there were differences on three questions of the *PE survey* (p59), with boys liking to do more PE at school (question 2), believing that they were better at PE (question 3) and feeling more positive about doing things in PE that they hadn't tried before (question 6).

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 11 of the 25 health tasks. Because of the large number of tasks involved, they will not be listed here. In each case, students in the low SES schools scored lowest, students in medium SES schools scored substantially higher, and students in high SES schools generally performed slightly higher still. The pattern was very different for PE tasks: there were differences on just 4 of the 23 tasks, with performance decreasing as SES increased. Students from low SES schools performed best on *Jog bat and bounce* (p40), *Throw & catch* (p41), *Small ball wall juggle* (p41), and *Knuckle bones* (p45). There also were differences on three questions of the *Health survey* (p57) and on two questions of the *PE survey* (p59). Students at high SES schools were least positive and students at low SES school most positive on questions 1, 3 and 4 of the *Health survey* and questions 1 and 4 of the *PE survey*.

For year 8 students, there were differences among the three subgroups on 11 of the 29 health tasks. Because of the large number of tasks involved they are not listed here. In each case students in the low SES schools scored lowest and students from high SES schools scored highest. There were differences on 4 of the 23 PE tasks. Students from low SES schools performed best on *Knuckle bones* (p45), but worst on *Ladder activities A* (p42), *Landing* (p43), and *Link task 18* (p48). There was also a difference on one question of the *Health survey* (p57), with students in low SES schools most positive about learning more about health as they got older (question 3). There were no differences on questions of the *PE survey*.

Student Ethnicity

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

For year 4 students, there were differences on 6 of the 23 health tasks, spread across chapters 3, 4 and 6. Māori students scored lower on all 6 tasks. However, Māori students scored higher on 4 of the 21 PE tasks: *Small ball wall juggle* (p41), *Skipping* (p44), *Knuckle bones* (p45), and *Link task 13* (p47). Māori students were also more positive on questions 1, 3 and 4 of the *Health survey* (p57). There were no differences on questions of the *PE survey*.

For year 8 students, there were differences on 7 of the 26 health tasks, again spread across chapters 3, 4 and 6. Māori students scored lower on all 7 tasks. Māori students scored lower on 1 of the 21 PE tasks (*Ladder activities A*, p42), but higher on 6 PE tasks: *Jog, bat and bounce* (p40), *Throw & catch* (p41), *Small ball wall juggle* (p41), *Poi* (p45), *Knuckle bones* (p45), and *Link task 12* (p47). There were no differences on questions of the *Health survey* or *PE survey*.

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 4 students, there were differences among the three subgroups on 4 of the 25 health tasks: *Time to relax* (p19), *Link task 2* (p25), *Fire fire* (p50), and *Gone fishing* (p51). Student performance on all 4 tasks decreased as the proportion of Māori students in schools increased. For PE tasks, there were differences on 3 of the 23 tasks: *Throw & catch* (p41), *Small ball wall juggle* (p41), and *Knuckle bones* (p45). Scores on these 3 tasks increased as the proportion of Māori students in schools increased. On both the *Health survey* (p57) and the

PE Survey (p59), there were differences among the three subgroups on the first question. Students in schools with less than 10 percent Māori enrolment were least positive about doing health and PE in school.

For year 8 students, there were differences among the three subgroups on 6 of the 29 health tasks: *How fit* (p17), *Heart beat* (p18), *Smokefree* (p23), *Gone fishing* (p51), *Link task 20* (p55), and *Link task 21* (p55). Most of these tasks involve health risks that are prominent among Māori people, yet scores declined as the proportion of Māori students in the schools increased. For PE tasks, there were differences on 3 of the 23 tasks. Students in schools with less than 10 percent Māori enrolment did best on *Link task 18* (p48), but worst on *Knuckle bones* (p45) and *Link task 15* (p47). There were no differences on the *Health survey* or the *PE survey*.

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 4 students, there were differences between the two subgroups on 8 of the 25 health tasks, spread across chapters 3, 4 and 6. In each case, students attending schools with more than five percent Pacific Island students scored lower. There were also differences on 5 of the 23 PE tasks: *Throw & catch* (p41), *Small ball wall juggle* (p41), *Landing* (p43), *Knuckle bones* (p45), and *Link task 12* (p47). On all five tasks, students attending schools with more than five percent Pacific Island students scored higher. There were no differences on questions of the *PE survey*, but students from schools with more than five percent Pacific Island students were more positive on questions 1, 3 and 4 of the *Health survey* (p57).

For year 8 students, there were differences on 4 of the 29 health tasks: *Heart beat* (p18), *First aid* (p20), *Link task 20* (p55), and *Link task 21* (p55). In each case, students attending schools with more than five percent Pacific Island students scored lower. There were also differences on 2 of the 23 PE tasks: *Skipping* (p44) and *Knuckle bones* (p45). Students attending schools with more than five percent Pacific Island students scored higher on both tasks. There were no differences on questions of the *PE survey*, but students from schools with more than five percent Pacific Island students were more positive on questions 1 and 3 of the *Health survey* (p57).

Summary

School size, school type (full primary or intermediate), community size or geographic zone did not seem to be important factors predicting achievement in health and physical education, or attitudes towards them.

At both year levels, boys performed better than girls on most of the PE tasks that involved throwing, catching or dribbling balls, but girls performed better than boys on several other PE tasks. Girls also did better at year 8 level on about 20 percent of the health tasks.

Non-Māori students outperformed Māori students on about one quarter of the health tasks at both year levels, but Māori students outperformed non-Māori students on a similar proportion of the PE tasks. This contrasting pattern for health and PE tasks was also evident to some degree for the remaining three demographic variables. Students attending low SES schools scored lower than other students on about 40 percent of the health tasks at both year levels, but higher on 15 percent of the PE tasks at year 4 level. Year 4 students attending schools with high proportions of Māori students scored lowest on about 15 percent of health tasks, but highest on about 15 percent of PE tasks. Their year 8 counterparts scored lowest on about 20 percent of health tasks, with few differences found on PE tasks. Year 4 students attending schools with more than 5 percent Pacific Island students scored lower than other students on about 30 percent of health tasks, but higher on about 25 percent of PE tasks. Their year 8 counterparts scored lower on about 15 percent of health tasks, but higher on two PE tasks.