Wānangatia te Putanga Tauira
National Monitoring Study of Student Achievement

# Visual Arts
## 2015 – Key Findings

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VISUAL ARTS 2015 – KEY FINDINGS

Report 10.5

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# Visual Arts 2015

# Key Findings

Educational Assessment Research Unit
and
New Zealand Council for Educational Research

NMSSA Report 10.5

**Key reports for the Arts 2015**
(all available online at http://nmssa.otago.ac.nz/reports/index.htm)

10.1 The Arts 2015 – Key Findings
10.2 Dance 2015 – Key Findings
10.3 Drama 2015 – Key Findings
10.4 Music - Sound Arts 2015 – Key Findings
10.5 Visual Arts 2015 – Key Findings
11 Technical Information 2015

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# Executive Summary

## Introduction

In 2015, the National Monitoring Study of Student Achievement (NMSSA) assessed student achievement at Year 4 and Year 8 in three areas of the New Zealand Curriculum[1] (NZC) – the arts, English: listening and English: viewing. This report presents the key findings for visual arts as one of the four disciplines described in the arts learning area. As well as reporting students' achievement in and attitudes towards visual arts, this report provides teachers' and principals' perspectives on teaching and learning within visual arts. The report accompanies five other reports[2] that present results and technical information related to the NMSSA study of the arts. For an overview of findings in the arts learning area, including comparisons of findings across the arts disciplines, readers are directed towards the report *The Arts 2015 – Key Findings*.

## The arts

The NZC describes the arts as one learning area. However, the curriculum requires that students at Year 4 and Year 8 have access to learning in each of four arts disciplines: dance, drama, music – sound arts (hereafter referred to as music), and visual arts. The arts learning area has four strands that are common to each discipline: understanding the arts in context, developing practical knowledge in the arts, developing ideas in the arts, and communicating and interpreting in the arts. In visual arts, students must demonstrate specific discipline-related knowledge and skills within these strands in order to make progress.

## Previous monitoring studies of visual arts

Between 1995 and 2007 the National Educational Monitoring Project (NEMP)[3] conducted monitoring in visual arts every four years for students in Year 4 and Year 8. Students' achievement was reported descriptively by task. NMSSA continues the monitoring work begun by NEMP and builds on it by summing up achievement across tasks and reporting against measurement scales. These scales are common to Year 4 and Year 8 and linked to curriculum expectations. NEMP also monitored achievement in music, but not dance or drama.

## Study features

NMSSA used a two-step sampling procedure to select 100 schools at each year level and up to 27 students within each school to participate in the study. The nationally representative sample at each year level was made up of about 2,200 students.

A programme was designed to gain a broad as well as a deep understanding of achievement across the arts using three assessment components. Table 1 outlines the features of each component and includes, in bold type, the number of students who participated in each one.

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1 Ministry of Education. (2007). *The New Zealand Curriculum*. Wellington: Learning Media.

2 NMSSA *Report 10.1: The Arts 2015 – Key Findings; NMSSA Report 10.2: Dance 2015 – Key Findings; NMSSA Report 10.3: Drama 2015 – Key Findings; NMSSA Report 10.4: Music – Sound Arts 2015 – Key Findings; NMSSA Report 11: Technical Information 2015.*

3 http://nemp.otago.ac.nz/forum_comment/index_ged.htm.

Table 1 Features of the components for assessing achievement in the arts

| Assessment programme in the arts | | |
|---|---|---|
| **Component** | **Strands covered** | **Assessment approach and students participating** |
| 1. The Nature of the Arts (NoTA) assessment (all disciplines) | • understanding the arts in context<br>• developing practical knowledge in the arts<br>• developing ideas in the arts<br>• interpreting in the arts | • Group-administered tasks presented by computer<br>• Completed by all year 4 and year 8 students (about **2,200** at each year level) |
| 2. Performance ratings frameworks in:<br>•dance<br>•drama<br>•music<br>•visual arts | • developing ideas in the arts<br>• communicating in the arts | • Best-fit ratings made by the teachers of the students involved in the NMSSA study using a specially prepared performance ratings framework in each discipline<br>• At each year level, 25 schools were invited to assess one discipline each. Judgements were made for up to 12 students in each school (about **200** students per discipline assessed at each year level) |
| 3. Practical tasks<br>•music<br>•visual arts | • developing practical knowledge in the arts | • Visual arts: students completed a line drawing.<br>• Music: students completed three short, applied activities, presented by computer, related to beat, rhythm and recognising chord changes<br>• Tasks were completed by six students per school (about **600** students at each year level) |

The Nature of The Arts (NoTA) assessment focused on achievement across the four arts disciplines and included four tasks related to visual arts. Scores on the individual NoTA tasks for all disciplines were combined to produce a total score. About 2,200 students at each year level took part in the NoTA assessment.

The performance ratings for visual arts were divided into three aspects: ‘doing’; ‘thinking’; and ‘looking, talking and knowledge’. Each aspect was illustrated by a series of descriptors representing different levels of achievement. For each aspect, teachers selected the descriptor that best fitted a student’s level of achievement. The judgements teachers made on each aspect were combined to create a total score. Twenty-four schools at Year 4 and 24 at Year 8 completed performance ratings in visual arts. Best-fit ratings were made for about 200 students at each year level.

The practical task in visual arts consisted of one activity where students were asked to create a line drawing based on a picture of a wing. Insights into the creative and practical aspects of visual arts rely, for the most part, on the judgements made by teachers using the performance ratings framework. The practical tasks were completed by six students in each school, giving a total of about 600 students at each year level.

Achievement on the NoTA assessment and on the performance ratings for each discipline were reported on separate measurement scales developed using Item Response Theory that each covered both year levels (five scales in all). The performance rating scale for visual arts was called the Performance in Visual Arts (PVA) scale. No scales were developed for the short practical tasks.

Each scale was aligned to the levels of the NZC through a curriculum alignment exercise that defined the minimum scale score (cut-score) associated with achieving, on balance, the achievement objectives outlined at curriculum levels 2, 3 and 4. Students at Year 4 and Year 8 are expected to achieve, on balance, at curriculum levels 2 and 4 respectively.

Other data were collected through questionnaires for students, teachers, and principals. Table 2 shows the number of respondents to the sections about visual arts in each of the questionnaires.

Table 2 Number of respondents to questions related to visual arts in the student, teacher and principal questionnaires, by year level

| | Questionnaires | | |
|---|---|---|---|
| **Year level** | **Student** | **Teacher** | **Principal** |
| 4 | 1087 | 117 | 93 |
| 8 | 1048 | 90 | 85 |

## Key findings about achievement

### Achievement on the Nature of the Arts (NoTA) assessment

At Year 4, 72 percent of students achieved above the minimum score on the NoTA scale associated with achieving curriculum level 2 objectives. At Year 8, 63 percent of students achieved above the minimum score associated with achieving curriculum level 4 objectives.

Girls scored higher on the NoTA, on average, than boys by 9 to 10 scale score units at both year levels.

At both Year 4 and Year 8, Māori and Pasifika students, on average, scored lower than non-Māori and non-Pasifika (by 8 and 6 scale score units at Year 4 and 10 and 7 scale score units at Year 8, respectively).

### Achievement on the performance ratings framework for visual arts

Year 8 students were rated higher, on average, than Year 4 students on each aspect of the performance ratings framework for visual arts. Girls were rated higher, on average, than boys on each aspect, at both year levels.

At Year 4, 82 percent of students received ratings that located their achievement above the minimum score on the PVA scale associated with achieving curriculum level 2 objectives. At Year 8, 66 percent of students received ratings that located their achievement above the minimum score associated with achieving curriculum level 4 objectives.

The average achievement level for Year 8 students on the PVA scale was 23 scale score units higher than the average for Year 4 students. This difference indicates that students make, on average, about 6 scale score units of 'progress' per year between Year 4 and Year 8. This figure can be used to interpret differences between subgroups. For example, girls scored, on average, 6 points higher than boys on the PVA scale at Year 4, and 8 points higher at Year 8. These differences were statistically significant and can be understood to represent the amount of progress associated with about one year of instruction.

The relatively small number of students that were assessed using the performance ratings framework (200 at each year level) did not allow reporting across ethnicity, school type and decile band.

### Achievement on the practical task in visual arts

In the practical task, *Draw, Draw, Draw*, students were asked to choose one of four pictures of a wing (bat, butterfly, dragonfly or eagle) as a starter for their own pencil drawing. They were marked on two aspects of drawing: their ability to use line, tone and pattern; and their ability to transform and play with ideas.

Year 8 students scored higher, on average, than Year 4 students, both in use of line, pattern and tone, and in transforming and playing with ideas.

While there were some differences in average score by gender and ethnicity, there were no clear or consistent patterns that held across year level or aspect of drawing.

Correlations between the practical visual arts task, and the NoTA and PVA scales were statistically significant.

## Learning and teaching in visual arts – attitudes, opportunities and resources

### Students' attitudes to visual arts

Students indicated how much they agreed with statements related to their attitudes to visual arts at school. Their responses were used to form an Attitude to Visual Arts scale.

In general, students were very positive about visual arts. Year 4 students were more positive overall than Year 8 students, and girls were more positive overall than boys at both year levels.

Māori and non-Māori students at both year levels were similarly positive, on average, about learning in visual arts, while Year 8 Pasifika students were more positive, on average, about visual arts than non-Pasifika students in Year 8.

At Year 8, students in low decile schools had, on average, a more positive attitude to visual arts than students in mid or high decile schools. These differences were statistically significant. At Year 4, students in low decile schools also had more positive attitudes, on average, than those in mid or high decile, but only the difference between low and mid decile was statistically significant.

Achievement on the PVA scale was related to students' attitudes to visual arts at Year 8. Students who were very positive achieved higher, on average, than students who were categorised as positive or less positive. Such a relationship did not exist at Year 4.

### Learning opportunities in visual arts

Students were provided with a list of opportunities to learn visual arts at school and asked to indicate how often they were involved in each one. Out of the list of opportunities provided, students overall reported that they most often look at and talk about art, and do drawing and painting. Sizable proportions of students reported that they 'never' worked with clay, did print making, textile art, or sculpture, or went on a school trip to look at or do art, like visit an art gallery. Boys and girls, and students at Year 4 and Year 8, reported similar levels of opportunity to learn in visual arts.

Teachers were asked to rate how frequently each of the same list of learning opportunities was made available to students in their school. Generally, teachers' views of the availability of learning opportunities in visual arts were similar to students' reports of involvement in learning opportunities, with looking at and talking about art, drawing and painting being the opportunities reported as occurring most frequently.

Very few students took art lessons or belonged to an art club outside of school. There was very little difference between the average score on the PVA scale for students who attended out of school visual arts classes compared to those who did not. About three quarters of students at both year levels reported involvement in making art by themselves or with others outside of school time. Girls were more likely than boys to report involvement in art classes or clubs, and also more likely to report making art outside of school.

When asked to name the regular school-wide arts activities offered in their school, nearly all principals listed kapa haka and more than 80 percent of principals listed performance related events. Activities categorised as having a visual arts focus were reported by about 40 percent of principals at both year levels. Examples of these activities included art extension classes, art exhibitions, wearable art and 'trash to flash' events.

### Teacher confidence and engagement

Almost all teachers indicated at least some enjoyment and confidence in teaching visual arts. However, at both year levels, teachers were more likely to agree that they enjoyed making or teaching visual arts than they were to agree that they were confident in teaching or assessing it. At Year 8, teachers who indicated they were specialist visual arts teachers reported much higher levels of confidence and enjoyment than those who indicated that they were general classroom teachers. At Year 4, the number of specialist visual arts teachers was too small to make a valid comparison. Overall, principals at Year 4 were less confident in their teachers' ability to implement a visual arts programme than those at Year 8. At Year 8, about 50 percent of principals indicated that specialist teachers taught all, or nearly all of the visual arts programme. At Year 4, about 75 percent of principals indicated that visual arts was taught by classroom teachers with little or no support.

### Professional learning and development

About half of principals at Year 4 and 60 percent at Year 8 reported that visual arts had been a focus area for professional development in the last five years. About 30 percent of teachers indicated that they had had professional learning opportunities related to visual arts in the last 12 months, and almost all of them felt it had had some positive impact on their teaching. About half of teachers reported professional support for visual arts within the school to be poor or very poor, while 20 percent felt they had good or excellent support.

### Resourcing visual arts

Teachers held mixed views about the level of resourcing for visual arts in their schools. Teachers at Year 4 reported greater access to plentiful and good quality equipment and materials to teach visual arts than those at Year 8.

## Final comments

Overall, the NMSSA study indicates that Year 4 and Year 8 students achieve reasonably well in visual arts. This is highlighted by results from the PVA, which showed that 82 percent of Year 4 students and 66 percent of Year 8 students achieved at or above expected curriculum levels. There were gender differences however; girls performed consistently better than boys on all measures of achievement at both year levels.

The NMSSA study also found that students nationally were generally very positive about visual arts. As a group, Pasifika students reported higher levels of engagement and interest in visual arts than non-Pasifika students.

Providing more support to teachers may play a part in improving student outcomes further.

# Introduction

This introduction provides a broad overview of the purpose and features of national monitoring, introduces the focus of the study for 2015 and outlines the structure of the visual arts report.

## 1. Purpose and features of national monitoring

NMSSA is designed to assess student achievement at Year 4 and Year 8 in New Zealand English-medium state schools. The main purposes of NMSSA are to:

- provide a snapshot of student achievement against the NZC
- identify factors that are associated with achievement
- assess strengths and weaknesses across the curriculum
- measure change in student achievement over time
- provide high-quality, robust information for policy makers, curriculum planners and educators.

NMSSA has a particular focus on Māori students, Pasifika students and students with special education needs.

The study began in 2012 and has been carried out over a five-year cycle. During the first cycle, we are setting the baseline for measuring change in student achievement over time in subsequent cycles.

The study continues the monitoring undertaken by the National Education Monitoring Project (NEMP) between 1995 and 2010. It also complements information generated by international evaluation studies, such as the Trends in International Mathematics and Science Study (TIMSS), the Progress in International Reading Literacy Study (PIRLS) and the Programme for International Student Assessment (PISA).

In addition to designing and carrying out an assessment programme, NMSSA collects contextual information from students, teachers and principals to help understand the factors associated with students' achievement. This includes: students' attitudes to, and their opportunities to learn in, the specific learning area being investigated; teachers' confidence in teaching the specific learning area and their views on the learning opportunities provided to students in classroom programmes; teachers' and principals' views of the professional and curriculum support provided by the school and the provision in the school for the learning area.

The project is supported by advisory panels of curriculum experts[4], reference groups for the priority learner groups (Māori, Pasifika and special education needs) and a technical reference group.

[4] The arts advisory panel comprised arts discipline experts, advisors, teacher educators and researchers as well as classroom teachers and representatives of the Ministry of Education.

## 2. The focus of the study for 2015

In 2015, the focus for the NMSSA study was English: listening[5], English: viewing[6], and the arts. The assessment programme for the arts involved three major elements. Firstly, nationally representative samples[7] of about 2,200 students from 100 schools at each of Year 4 and Year 8 took part in a group-administered assessment that focused on the arts as a multidisciplinary learning area. It was called the Nature of the Arts (NoTA) assessment. Secondly, teachers who were employed in each school used specially prepared performance ratings frameworks to rate students on different aspects of their performance skills. In each school, performance ratings were made for up to 12 of the students involved in the study in one arts discipline (dance, drama, music — sound arts (hereafter referred to as music) or visual arts). In total, about 200 students at each year level received teacher-assessed performance ratings in each arts discipline. Thirdly, about 600 students at each year level (six in each school) undertook a series of practical tasks in music and visual arts. In each school, both the practical tasks and the NoTA were administered by specially trained, visiting teacher assessors.

Contextual data related to the arts was collected using separate questionnaires for students, teachers and principals. Half of the students answered questions related to music and drama, and the other half answered questions related to visual arts and dance. At least one teacher from each school completed a teacher questionnaire and at least 85 percent of principals responded to a principal questionnaire.

All data was collected during Term 3 (July to September 2015).

## 3. Structure of the visual arts report

This report provides the key findings related to visual arts drawing on data from the 2015 NMSSA study of the arts. The report is set out in five chapters.

Chapter 1 provides a broad overview of the NMSSA programme in the arts.

Chapter 2 describes the NoTA assessment and summarises the results. It includes information about the content of the NoTA that was focused on visual arts.

Chapter 3 presents the findings for Year 4 and Year 8 student achievement related to the performance ratings in visual arts. It reports achievement against the levels of the arts curriculum. It also compares achievement between Year 4 and Year 8 students, and reports differences by gender.

Chapter 4 examines student achievement on the visual arts practical task, *Draw, Draw, Draw*.

Chapter 5 uses data collected from student, teacher and principal questionnaires to report on students' attitudes and opportunities to learn in visual arts, and the teaching and resourcing of visual arts.

The report also contains an appendix providing detailed tables of results. Other background and technical information is contained in the separate report *Technical Information 2015*[8].

This report complements The Arts 2015 – Key Findings report[9]. The arts report provides an overview of the arts assessment programme and includes detailed results from the NoTA assessment.

Three other discipline reports[10] provide more detailed reporting on each of the other arts disciplines (dance, drama and music).

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5 The findings for English: listening can be found in *NMSSA Report 8: English: Listening 2015 – Key Findings.*

6 The findings for English: viewing can be found in *NMSSA Report 9: English: Viewing 2015 – Key Findings.*

7 Information about the sampling process and the achieved samples can be found in Appendix 1 of *NMSSA Report 11: Technical Information 2015.*

8 *NMSSA Report 11: Technical Information 2015.*

9 *NMSSA Report 10.1: The Arts 2015 – Key Findings.*

10 *NMSSA Report 10.2: Dance 2015 – Key Findings; NMSSA Report 10.3: Drama 2015 – Key Findings; NMSSA Report 10.4: Music – Sound Arts 2015 – Key Findings.*

# 1 Visual Arts in the NMSSA Arts Assessment Programme

This chapter provides an overview of the NMSSA assessment programme for the arts. Special attention is paid to the apects of the programme related to visual arts. The chapter includes four parts:

- Part 1 describes the arts learning area, and visual arts in particular
- Part 2 summarises previous findings from the National Education Monitoring Project about New Zealand students' achievement in visual arts
- Part 3 describes the NMSSA arts assessment programme
- Part 4 provides information about how the findings are presented.

## 1. The arts as a learning area

The New Zealand Curriculum[11] (NZC) describes the arts as one learning area. However, each of the four arts disciplines (dance, drama, music and the visual arts) has its own distinctive body of knowledge, concepts and modes of enquiry, and its own forms or genres, styles, conventions and processes. The curriculum requires that students at Years 4 and 8 have access to learning in each of the arts disciplines. Even though each arts discipline is organised with four common strands in the curriculum, for students to make progress, they must demonstrate specific discipline-related knowledge and skills. The four common strands are: understanding the arts in context, developing practical knowledge in the arts, developing ideas in the arts, and communicating and interpreting in the arts. How the strands are incorporated in the learning process varies across disciplines and in emphasis across year levels.

### Visual arts

The NZC[12] defines visual arts as follows.

> Through engaging in the visual arts, students learn how to discern, participate in, and celebrate their own and others' visual worlds. [...]
>
> In visual arts education, students develop visual literacy and aesthetic awareness as they manipulate and transform visual, tactile, and spatial ideas to solve problems. They explore experiences, stories, abstract concepts, social issues, and needs, both individually and collaboratively. They experiment with materials, using processes and conventions to develop their visual enquiries and create both static and time-based art works. They view art works, bringing their own experiences, sharing their responses, and generating multiple interpretations. Their meaning making is further informed by investigation of the contexts in which art works are created, used, and valued. As they develop their visual literacy, students are able to engage with a wider range of art experiences in increasingly complex and conscious ways.
>
> The visual arts develop students' conceptual thinking within a range of practices across drawing, sculpture, design, painting, printmaking, photography and moving image.

[11] Ministry of Education. (2007). *The New Zealand Curriculum*. Wellington: Learning Media.
[12] *The New Zealand Curriculum*, p.20

## 2. Students' previous arts achievement in New Zealand

The National Education Monitoring Project (NEMP) was carried out by the University of Otago for the Ministry of Education and ran from 1995 to 2010. NEMP conducted monitoring in four-yearly intervals in visual arts from 1995 to 2007 using NEMP frameworks based on the *Curriculum Framework* 1993 and the *New Zealand Curriculum* 2000. Over the 12-year period of NEMP, students' performance in visual arts was reported descriptively by task.

In 2007[13], NEMP reported that in visual arts:

> Year 8 students performed better than Year 4 students on art-making tasks, and on tasks involving responding to art that called for explanations and understandings. Both in art-making and responding to art, students performed as well in 2007 as in 2003, with suggestions of a small gain for Year 8 students. Most students performed well on tasks that called for personal reactions and opinions, with Year 4 students often doing as well as Year 8 students.

Generally, students were very positive and enthusiastic about visual arts, particularly Māori and Pasifika students. The majority of students rated visual arts as one of their favourite activities at school. Students reported increasingly fewer opportunities to experience visual arts at school from 1995 to 2008.

The NEMP also carried out monitoring in music. Dance and drama were not monitored.

## 3. NMSSA arts programme

### Components of the arts programme

A programme was designed to address the multidisciplinary nature of the arts as a learning area. Table 1.1 outlines the five components that made up the programme and includes, in bold type, the number of participants in each one.

To address the complexity and breadth of the arts learning area, three components focused on assessing student achievement in the arts: the Nature of the Arts (NoTA) assessment, performance ratings and practical tasks. The focus of each assessment component emphasised different aspects of the strands of the NZC. In particular, the strand 'communicating and interpreting in the arts' was subdivided into 'interpreting in the arts' for the NoTA assessment and 'communicating in the arts' for the performance ratings.

The two remaining components focused on collecting contextual and attitudinal information about the arts, including questions specifically about visual arts, from students, teachers and principals, using questionnaires.

[13] http://nemp.otago.ac.nz/forum_comment/ 2007_reports.htm

Table 1.1 The five components of the 2015 NMSSA arts programme

| Component | Discipline and strand/focus | Assessment approach and number of participants |
|---|---|---|
| 1. The Nature of the Arts (NoTA) | Across dance, drama, music and visual arts:<br>• understanding the arts in context<br>• developing practical knowledge in the arts<br>• developing ideas in the arts (visual arts only)<br>• interpreting in the arts | • Group-administered tasks presented by computer<br>• Completed by all year 4 and year 8 students (about **2,200** at each year level) |
| 2. Performance ratings frameworks | For dance, drama, music and visual arts:<br>• developing ideas in the arts<br>• communicating in the arts | • Teachers of a sub-sample of the students involved in the NMSSA study made best-fit judgements of student performance in each discipline using a rating scale framework<br>• At each year level, 25 schools were invited to assess one discipline each. Judgements were made for up to 12 students in each school (about **200** students per discipline assessed at each year level) |
| 3. Practical tasks | For music and visual arts:<br>• developing practical knowledge in the arts | • Visual arts: students completed a line drawing.<br>• Music: students completed three short, applied activities, presented by computer, related to beat, rhythm and recognising chord changes<br>• Tasks were completed by six students per school (about **600** students at each year level) |
| 4. Student questionnaire | • Student attitudes to dance, drama, music and visual arts<br>• Student reports of opportunities and experiences at school in dance, drama, music and visual arts | • Computer-based student questionnaire<br>• Half of the students responded to dance and visual arts; half responded to drama and music<br>• About **1,100** students at each year level |
| 5. Teacher and principal questionnaires | • Teacher and principal views of arts instruction in their school.<br>• Teacher confidence as art educators.<br>• Professional learning and development in the arts.<br>• Provision for teaching the arts in the school . | • Paper-based questionnaires<br>• Half of the teachers responded to dance and visual arts; half responded to drama and music.<br>• About **100** teachers and **100** principals at each year level |

## Component 1: The Nature of the Arts (NoTA) assessment

Because the arts is a multidisciplinary learning area, achievement in the arts was assessed with a group-administered assessment that included tasks related to each of the disciplines, and that primarily emphasised aspects of three strands of the curriculum: understanding the arts in context, developing practical knowledge in the arts, developing ideas in the arts and interpreting in the arts (as indicated in Table 1.1, the 'communicating' aspect of the interpreting in the arts strand was a focus of the performance ratings rather than the NoTA). The NoTA assessment was presented mainly by computer and administered to about 2,200 students at each year level. It included a mixture of selected-response and open-ended short response questions. Students wrote their answers to the short response questions in a booklet. An example of a visual arts task used in the NoTA assessment is shown in Chapter 2.

Item Response Theory (IRT)[14] was used to locate each student's overall combined score on the NoTA tasks on a measurement scale (the NoTA scale). A curriculum alignment exercise was used to link NoTA scale scores to curriculum expectations.

[14] IRT is an approach to constructing and scoring assessments and surveys that measure mental competencies and attitudes. IRT seeks to establish a mathematical model to describe the relationship between people (in terms of their levels of ability or the strengths of their attitude) and the probability of observing a correct answer or a particular level of response to individual questions. IRT approaches provide flexible techniques for linking assessments made up of different questions to a common reporting scale. The common scale allows the performance of students to be compared regardless of which form of the assessment they were administered.

## Component 2: Performance ratings

To provide important achievement information about each of the separate arts disciplines, NMSSA constructed performance ratings frameworks for dance, drama, music and visual arts. The frameworks emphasised aspects of two strands of the curriculum: developing ideas in the arts and communicating in the arts. The performance ratings involved the teachers of the students in the NMSSA study making best-fit judgements using a series of descriptors.

Each school was asked to complete performance ratings for up to 12 students in one arts discipline only with 25 schools using each set of rating descriptors at each year level. As a result, teachers completed performance ratings for about 200 students in each arts discipline at each year level.

To develop the frameworks, a series of workshops were held where experienced teachers and curriculum specialists identified indicators of students' progress, cross-referenced by possible contexts. Using iterative consensus moderation procedures, these indicators were validated by participating teachers in their own and other teachers' classrooms and, subsequently, the indicators were refined in consultation with curriculum specialists.

Table 1.2 shows that the performance ratings framework for visual arts was divided into three aspects.

Table 1.2 Aspects of the performance ratings framework for visual art

| Aspect |
|---|
| Doing |
| Thinking |
| Looking, talking and knowledge |

Each aspect was represented by several described levels of achievement. The descriptions outlined what teachers should be able to observe if a student was working at that level.

### Performance rating scale construction and reliability

IRT was used to construct measurement scales for the performance ratings in dance, drama, music and visual arts. The Performance in Visual Arts (PVA) scale had a reliability index of 0.95. This indicates that students are located on the scale with a satisfactory level of precision.

## Component 3: Practical assessment tasks

To complement the performance ratings, a small number of practical tasks were used to assess music and visual arts. These tasks were focused on the curriculum strand: developing practical knowledge in the arts.

The visual arts practical task involved students using drawing to transform a picture of a wing into something else altogether, or to use it to create a creature of their own design. They were scored by the teacher assessors against task-specific rubrics. Unlike the other two assessment components, a measurement scale was not constructed. Instead, results have been described in terms of the proportion of students reaching different levels of the scoring rubrics. Tasks were completed by six students per school (about 600 students at each year level).

### Component 4: Student attitudes

The fourth component of the NMSSA arts programme included questions about students' attitudes to drama, dance, music and visual arts.

To reduce the response burden on students, two forms of the questionnaire were created. One questionnaire covered the disciplines of dance and visual arts. The second questionnaire covered the disciplines of drama and music. Schools were randomly allocated to either dance and visual arts, or drama and music. All students responded to one of the computer-based student questionnaires.

#### Attitude scale construction and reliability

IRT was used to construct four reporting scales based on the responses to the attitude statements for each arts discipline in the main study. As with the other NMSSA scales, the Attitude to Visual Arts scale was set to have an average of 100 scale score units and an average standard deviation of 20 scale score units for a year level. The reliability index of the Attitude to Visual Arts scale was 0.80.

### Component 5: Teacher and principal perspectives on the arts

Separate questionnaires were developed for teachers and principals to ask about their perspectives on the learning and teaching of the arts.

There were two forms of the teacher questionnaire. One questionnaire covered the disciplines of dance and visual arts. The second questionnaire covered the disciplines of drama and music. As for the student questionnaires, schools were randomly allocated to either dance and visual arts, or drama and music. The questionnaire included sections asking teachers about their preparedness and support to teach the discipline, students' opportunities to learn, and their own opportunities to undertake professional learning. Up to three teachers from each school were asked to fill in a teacher questionnaire. The teachers chosen were those who had the most students participating in NMSSA assessment, and/or were specialist teachers of one of the two arts disciplines covered by their questionnaire. Classroom teachers completed the sections relating to disciplines they had at least some responsibility for teaching; specialist teachers completed their respective discipline section.

The principals' questionnaire asked principals about the school-wide programme in the arts and each of the arts disciplines.

In total, 117 Year 4 teachers and 90 Year 8 teachers responded to the sections of the teacher questionnaire related to visual arts. The total number of respondents to the principal questionnaire was 178; 93 from Year 4 and 85 from Year 8.

## 4. Presentation of the findings

This section describes how graphs and tables are used to present findings in the report, and includes an explanation of some of the statistics used.

### Box plots

Box and whisker plots (box plots) are used to summarise score distributions.

To construct a box plot, scores are ordered from low to high and then divided into four groups of equal size, called quartile groups. These are shown in Figure 1.1.

The box is used to show the range of the middle 50 percent of the scores and the whiskers the top and bottom 25 percent of scores. In this report, the whiskers of the box plot do not include outliers (scores considered to be rare and unusual) and have a maximum length of 1.5 multiplied by the inter-quartile (middle 50 percent) range.

When box plots for two or more groups are presented as part of the same graphic, the widths of the boxes are used to represent the relative sizes of the groups. For instance, a narrow box indicates that the group size is smaller than that represented by a wider box in the same plot. Box plots have not been drawn when the size of the group falls below 30 students.

The colours for the box plots have been chosen to assist with readability. Different hues have been selected to represent each of the reporting groups (for instance, gender) and two different shades of each hue chosen to represent the group at each year level (a lighter shade for Year 4 and a darker shade for Year 8). The intention behind the use of shades was to show the relationships between the year levels and the different reporting group types at the same time.

For plots involving the achievement scales, the minimum scale score associated with achieving the curriculum objectives at each of curriculum levels 2 to 4 are indicated by the grey horizontal dotted lines across the graph as shown in Figure 1.2.

## Line graphs of score distributions

Another type of graph used to display data is the line graph as shown in Figure 1.3. Line graphs are used to show how the distributions of scores for Year 4 and Year 8 compare with curriculum expectations. Horizontal shaded lines are used to indicate the 'cut-scores' used to separate achievement at one curriculum level from another. The shading around the lines provides a reminder that these lines represent the result of a judgement exercise (the curriculum alignment process).

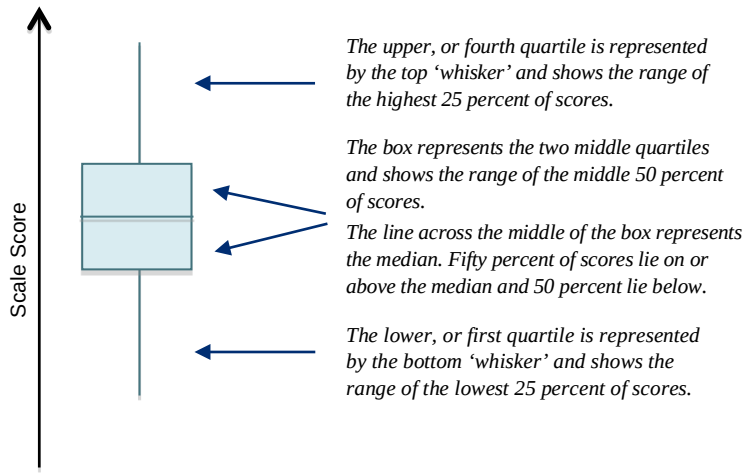



Figure 1.1 Understanding box plots

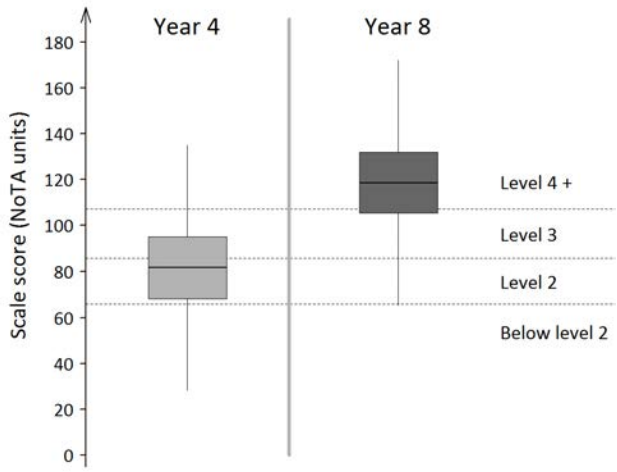



Figure 1.2 Interpreting box plots

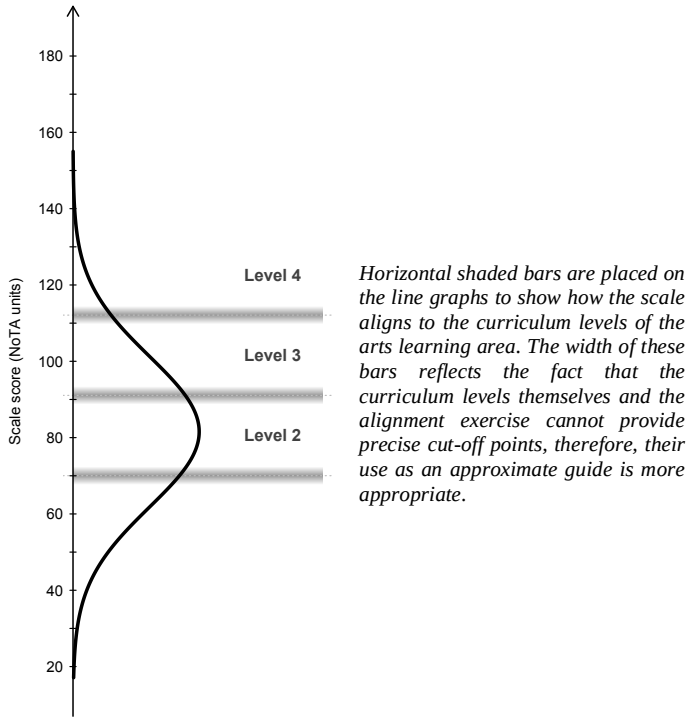



Figure 1.3 An example of a line graph

## Tables of numerical results

The scale score measures developed for the NMSSA arts study quantify achievement differences in terms of scale score units. Because the same scale has been used at both Year 4 and Year 8 it is possible to estimate how much change, on average, occurs on an annual basis. Table 1.3 shows the differences in average scale scores on the NoTA scale between Year 4 and Year 8, and how this relates to annualised change. As can be seen, scores increased, on average, by about 9 scale score units per year.

Table 1.3 Average difference in scale score units on the NoTA assessment between Year 4 and Year 8

| | Nature of The Arts |
|---|---|
| Difference in average scale score (Year 8 – Year 4) | **37** |
| Confidence interval | (35.5, 38.5) |
| Average annual change | 9 |
| Average annual effect size | 0.46 |

Table 1.3 also shows the 95 percent confidence interval associated with the difference in average scores at Year 4 and Year 8. Confidence intervals provide a range within which we can be fairly sure the population value for the reported statistic lies. The confidence intervals have been adjusted to account for any design effect created through the sampling procedure (i.e. sampling schools and then sampling students). As a general rule of thumb, when the confidence intervals for two groups overlap, any difference between the groups may reasonably be explained by the kind of random variation that occurs in sampling studies (i.e. the difference between the groups is **not** considered to be statistically significant).

In some cases, the difference in average scores between two groups has been calculated and a confidence interval for that difference presented. When a confidence interval for a difference does not include zero, this difference can be considered to be statistically significant.

Where statistically significant differences appear in tables in this report they are presented in bold font. For instance, in the table above, the Year 8–Year 4 difference of 37 scale score units is in bold font – the difference is considered to be statistically significant.

Effect sizes have been used to help interpret differences between groups. An effect size quantifies the difference between the average scores for two groups in terms of standard deviation units. The calculation of the effect sizes in this report weights the standard deviation for each group by its sample size[15]. Because the standard deviations for groups are often different, this can mean that the same difference in scale score units results in slightly different effect sizes for different pairs of groups. When comparing two effect sizes, it is very important to refer back to the scale score differences to make sure any interpretations are valid.

## The use of rounding

In the tables and text presented in this report, the average scores for each group and subgroup have been rounded to whole numbers. Some tables of findings report the difference between average scale scores for two groups or subgroups. These differences have been calculated using the non-rounded averages and are numerically correct. In some cases, the difference reported may not be the same as the simple difference between the pair of rounded averages shown in the table. All confidence intervals have been rounded to the nearest half scale score unit or percentage point.

[15] The formula for the effect size calculation is: $\frac{M_1 - M_2}{\sqrt{\frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}}}$, where $M_1$ and $M_2$ represent the average scores for group 1 and group 2, $s_1$ and $s_2$ their standard deviations, and $n_1$ and $n_2$ the number in each group.

# 2 Nature of the Arts Assessment

This chapter describes the Nature of the Arts (NoTA) assessment and includes information about the content of NoTA related to visual arts. The chapter includes two parts:

- Part 1 illustrates how visual arts was included as part of the NoTA assessment
- Part 2 summarises students' arts achievement on the NoTA assessment.

## 1. Visual arts as part of the NoTA

The NoTA assessment contained a total of 17 tasks that, together, represented the four disciplines. Each task included a set of items based on one theme or idea. Each item was scored out of 1, 2 or 3, according to criteria set out in a marking rubric. Table 2.1 shows the breakdown of the number of tasks, items and score points for each arts discipline in the NoTA assessment.

Table 2.1 Number of tasks and items in the NoTA assessment, by strand and discipline

| | Number of tasks | Number of items* | Number of tasks covering each strand | | | |
|---|---|---|---|---|---|---|
| Discipline | *N = 17* | *N = 45* | Understanding the arts in context | Developing practical knowledge in the arts | Developing ideas in the arts | Interpreting in the arts |
| Dance | 4 | 12 | 3 | 2 | 0 | 3 |
| Drama | 3 | 11 | 1 | 3 | 0 | 3 |
| Music | 6 | 11 | 1 | 5 | 0 | 1 |
| Visual Arts | 4 | 11 | 4 | 3 | 4 | 4 |

* Some items covered more than one strand.

There was a balanced coverage of each discipline within the NoTA asessment in terms of the number of items asked. However, the relative emphasis of each strand varied between disciplines. For example, the strand, understanding the arts in context, was more strongly emphasised in dance and visual arts than in drama and music. The tasks in visual arts represented all four strands of the curriuclum. Table A8.3 of the *Technical Information 2015* report sets out the focus of each task by strand.

### The NoTA scale

An Item Response Theory (IRT) approach was used to construct a measurement scale for the NoTA assessment. The scale allowed the total score across the various NoTA tasks for each Year 4 and Year 8 student to be located on the same scale. The scale was standardised so that 100 scale score units represents the combined average score for Year 4 and Year 8, and 20 scale score units is equal to the average standard deviation for a year level.

A curriculum alignment exercise was undertaken to link achievement ranges on the NoTA scale to levels of the curriculum. Creating this link allowed scale scores to be reported in terms of curriculum levels. In the NZC, each of the first four curriculum levels was designed to represent about two years of learning at school. In general, the expectations are that students in Year 4 will, on balance, achieve level 2 objectives by the end of the year, and that students in Year 8 will, on balance, achieve level 4 objectives by the end of the year. The alignment exercise focused on defining the minimum scores (cut-scores) on the NoTA scale associated with achieving curriculum level 2, 3 and 4 objectives. The exercise is described in Appendix 5 of *Technical Information 2015*.

## Item map

Figure 2.1 provides an item map that shows where each of the tasks in the NoTA assessment was located on the NoTA scale.. Each task is represented by a coloured rectangle, with the dots within each rectangle representing the items that made up the task[16]. Items located at the upper end of the scale were more difficult than items at the lower end of the scale. The item map shows that, with the exception of two music items, the items across the disciplines were located in a similar range of difficulty. As can be seen, four different tasks in the NoTA assessment were focused on visual arts.

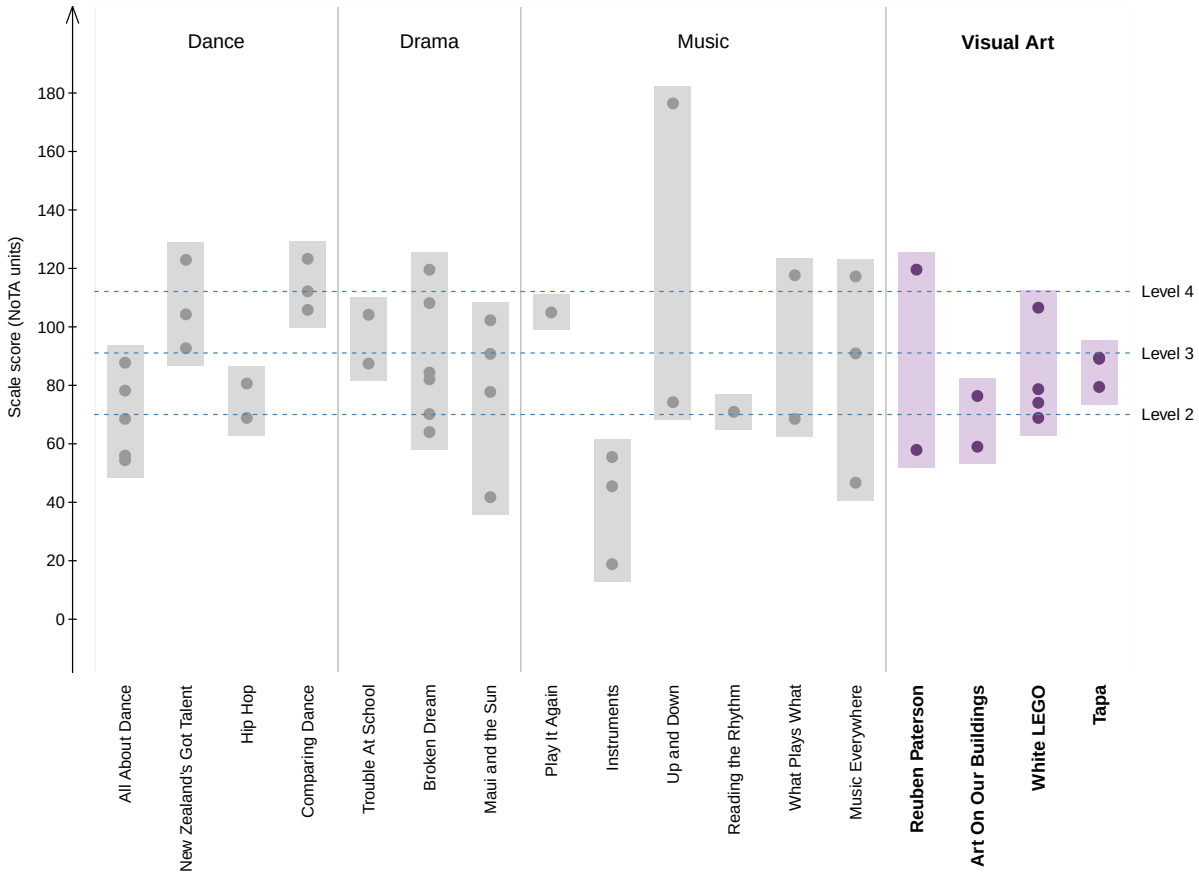



Figure 2.1 Item map for the NoTA assessment

[16] Sometimes more dots representing items are shown in the item map than are recorded in Table 2.1. This is because in a small number of cases an item was 'split' into a Year 4 version and a Year 8 version. Both versions are shown on the item map.

## Example of a visual arts task in the NoTA assessment

In the task called *White LEGO* students were asked to respond to items about a video clip and images of an artwork. The *White LEGO* task contained four items. The first item required students to identify features of the process used to make the artwork (Figure 2.2). The second item required students to explain the time-based aspect of the artwork (Figure 2.3). The third item required students to evaluate features of the process used to make the artwork (Figure 2.4). The fourth item required students to evaluate the decision the artist made to incorporate the art making processes of other people in his artwork (Figure 2.5).

| | |
|---|---|
| **Curriculum Strands:** | **Understanding the arts in context**<br>**Developing practical knowledge in the arts**<br>**Developing ideas in the arts**<br>**Interpreting in the arts** |
| ***Context:*** | ***You will watch a video clip that shows an artwork called 'The Cubic Structural Evolution Project' by Olafur Eliasson. The picture also shows you this artwork. As you watch, think about what is interesting about the making of this artwork.*** |
| *Item 1.* | *What are **two** interesting things you notice about the making of this artwork?* |

| | |
|---|---|
| Focus: | Demonstrates an understanding of convention, procedures and processes to make objects and images |

| Scoring guide | Student responses |
|---|---|
| **0:** Inappropriate response or student is unable to respond | 'I don't know' |
| **1:** Simple literal observation about the process | 'It's made of white LEGO and there are a variety of shapes like tall buildings because it is a city' |
| **2:** Deeper understanding of the process | 'The artwork can change because you can take it apart and rebuild it' (time-based aspect emphasised)<br>'Adults and children participated in building it' (collaborative aspect emphasised) |

Figure 2.2 Item 1 of the NoTA task *White LEGO*

| | |
|---|---|
| *Item 2.* | *An aspect of this artwork is that it is 'time-based' because it is always changing over time. How does this artwork change over time?* |
| Focus: | Demonstrates understanding of conventions, procedures and processes to make time-based objects/images<br>Identifies the contexts in which they are made |

| Scoring guide | Student responses |
|---|---|
| **0:** Inappropriate response or student is unable to respond | 'People build different things' |
| **1:** Full understanding indicating time passing | 'People destroy what is there and rebuild their own creation'<br>'People keep building on to and taking away from it'<br>'There is always something that is not quite finished'<br>'People who came later never saw the start so it is their start'<br>'Different people add to it and change it' |

Figure 2.3 Item 2 of the NoTA task *White LEGO*

| *Item 3.* | *What are **two** interesting things you notice about the making of this artwork?* |
|---|---|
| **Focus:** | **Demonstrates understanding of conventions, procedures and processes to make objects/images** |
| **Scoring guide** | **Student responses** |
| **0:** Inappropriate response or student is unable to respond | 'I don't know' |
| **1:** Simple/general reasoning | 'It looks good'<br>For practical reasons: 'So people don't waste time looking for a colour'<br>'White LEGO isn't common'<br>'It's the artist's favourite colour'<br>'It looks real' |
| **2:** Deeper reasoning | 'To make it look futuristic'<br>'White reflects light and makes shadows'<br>'The edges of the blocks stand out better'<br>'It might have had some kind of meaning for him' |

Figure 2.4 Item 3 of the NoTA task *White LEGO*

| *Item 4.* | *Give a reason why the artist might have decided to let other people make his artwork.* |
|---|---|
| Focus: | Describes how ideas and processes communicate meaning in others' work |
| **Scoring guide** | **Student responses** |
| **0:** Inappropriate response or student is unable to respond | 'I don't know' |
| **1:** Simple/general reasoning | 'It lets people have fun because it is nice to share'<br>'Lots of people like LEGO'<br>'It gives people something to do'<br>'So people can learn about LEGO like how to make artworks'<br>'It would be too hard and take too long for him to do it by himself'<br>'To make it bigger'<br>'To attract people to see his artwork' |
| **2:** Deeper reasoning (participation and co-construction reasons) | 'So it can be the community's art-work'<br>'Having other people contribute makes his artwork unique'<br>'Other people might have better ideas so he might learn from other people'<br>'To get people involved and have a go in art'<br>'It might inspire other people to do their own art' |

Figure 2.5 Item 4 of the NoTA task *White LEGO*

## NoTA scale description

Figure 2.6 provides a description of visual arts skills and knowledge measured by the NoTA scale. The description was developed directly from student responses to the visual arts tasks within the NoTA assessment. The complete description of the NoTA scale across the four disciplines is contained in *NMSSA Report 10.1 The Arts 2015 – Key Findings*. Readers are encouraged to refer back to the descriptions when considering the meaning of the NoTA scale scores.

To create the scale description, the scoring categories for each question (0 to 1, 2 or 3) in the NoTA assessment were located on the scale. This meant identifying where the students who scored in each category were most likely to have achieved overall on the scale. For example, the scoring category '1' for item 1 of the visual arts task *White LEGO* (shown in Figure 2.2) was located at the part of the scale where students who scored a '1' on that item were most likely to have achieved overall. Once this had been done for all items, the descriptors that defined each scoring category were examined. The NMSSA team identified the competencies expected as the scale locations associated with the different scoring categories increased, and students' responses became more sophisticated. The result was a five-part description, providing a broad indication of what students typically know and can do in visual arts when achieving at different places on the scale.

The description is provided to give readers a strong sense of how the discipline of visual arts was assessed within the NoTA assessment. The scale descriptors have not been written to necessarily 'line up' with curriculum levels or achievement objectives. They are a direct reflection of what was assessed and how relatively hard or easy students found each item.

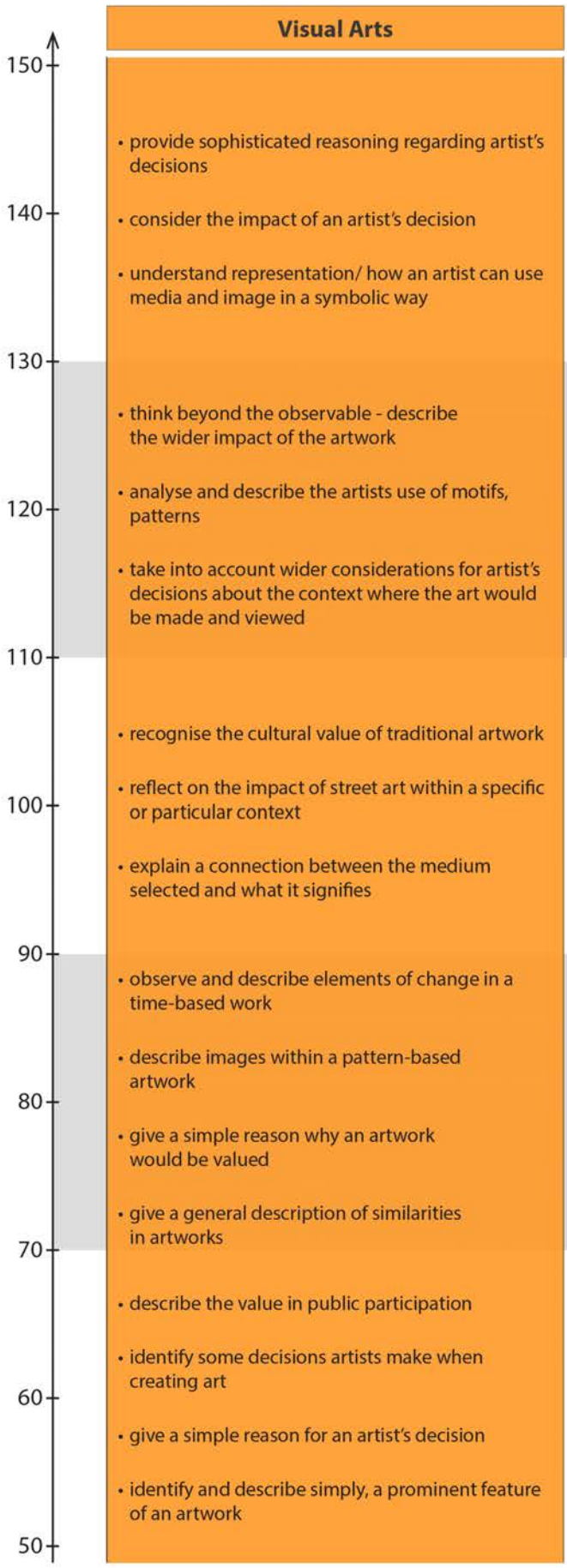



Figure 2.6 Description of visual arts skills and knowledge on the NoTA scale

## 2. Achievement on the NoTA scale

This section summarises how students in Year 4 and Year 8 achieved on the NoTA assessment. Readers are reminded that the NoTA included material from across the four arts disciplines and the results reported here represent achievement on the NoTA as a whole.

Figures 2.7 and 2.8 show the whole score distribution for Year 4 and Year 8, respectively, against the agreed alignment of curriculum levels 2, 3 and 4 with the NoTA scale. The grey horizontal lines represent the cut-scores associated with curriculum levels 2, 3 and 4.

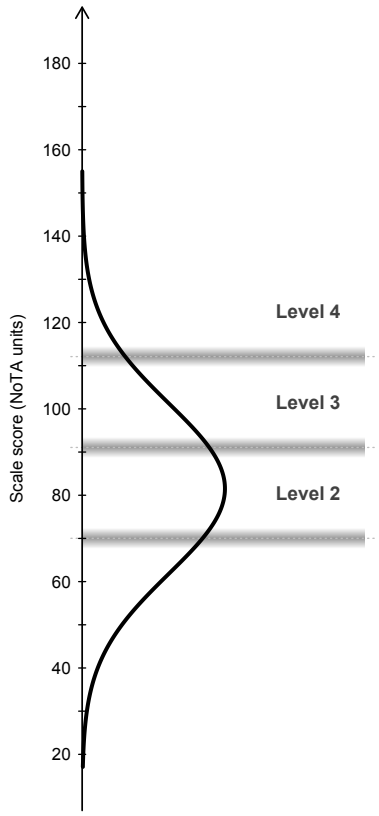



Figure 2.7 Distribution of scores for Year 4 students on the NoTA scale against the NZC levels for the arts

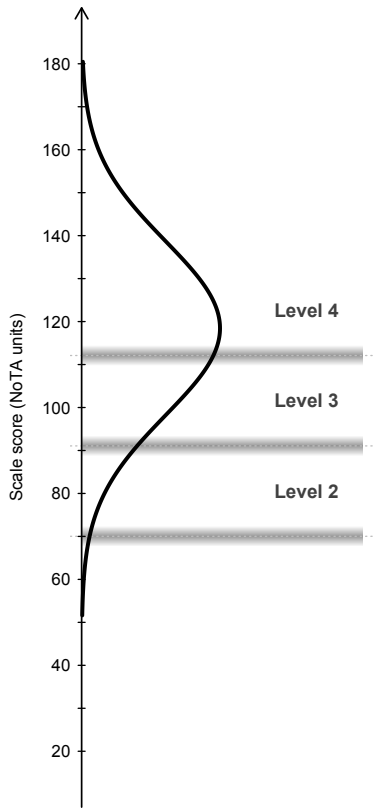



Figure 2.8 Distribution of scores for Year 8 students on the NoTA scale against the NZC levels for the arts

Table 2.2 provides summary statistics from the NoTA assessment for each year level. On average, Year 8 students scored higher than Year 4 students by 37 NoTA units. This year level difference in average scale score represents an annualised difference of about 9 NoTA units with an average annual effect size of 0.46. We can use the 9 NoTA units to represent roughly one year of instruction.

Table 2.2 Summary statistics for Year 4 and Year 8 students from the NoTA assessment

| | Nature of the Arts | | |
|---|---|---|---|
| | Year 4<br>N = 2224 | Year 8<br>N = 2192 | Difference between Year 8 and Year 4 |
| Average scale score | 82 | 118 | **37** |
| Confidence interval for the average | (80.5, 82.5) | (117.5, 119.5) | (35.5, 38.5) |
| Standard deviation | 20 | 20 | |
| Average annual effect size | | | 0.46 |

Figures 2.9 and 2.10 display the score distributions on the NoTA scale at Year 4 and Year 8, respectively, by gender and ethnicity[17].

Girls scored higher, on average, than boys by 9-10 scale units at both year levels. The difference was statistically significant at both year levels. Based on the difference in average scores for students in Year 4 and Year 8, this difference between boys and girls is equivalent to roughly one year of instruction.

At both Year 4 and Year 8, Māori and Pasifika students, on average, scored lower than non-Māori and non-Pasifika students (by 8 and 6 NoTA scale units at Year 4, and 10 and 7 NoTA scale units at Year 8, respectively). These differences were statistically significant.

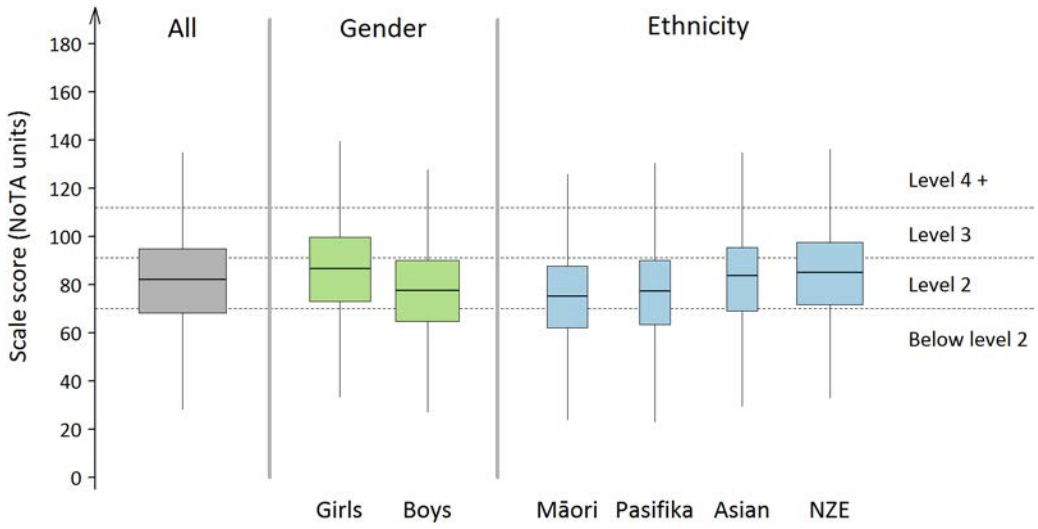



Figure 2.9 Distribution of scores for Year 4 students on the NoTA scale, by gender and ethnicity (NZE=NZ European)

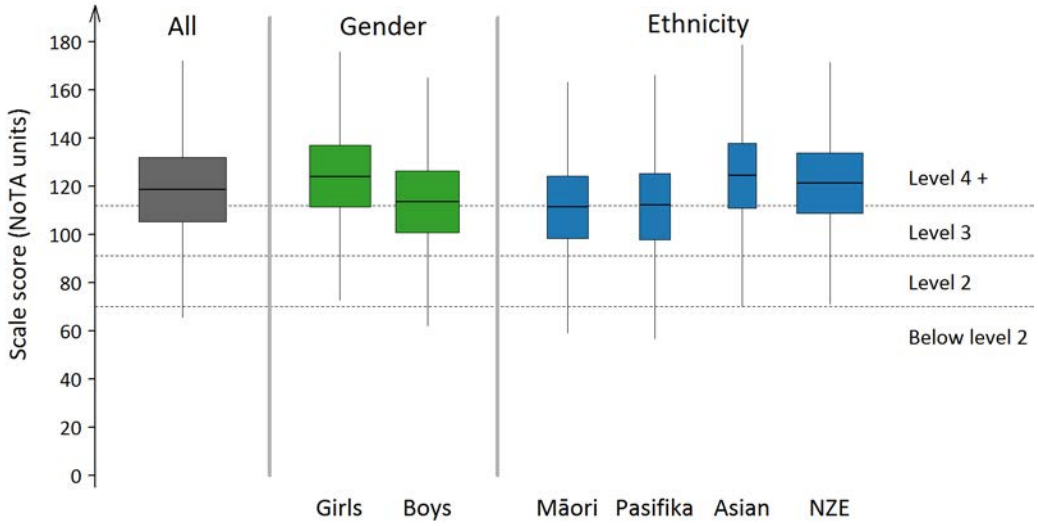



Figure 2.10 Distribution of scores for Year 8 students on the NoTA scale, by gender and ethnicity (NZE=NZ European)

[17] Non-prioritised ethnicity was used where students could identify with up to three ethnicities. This meant they could be present in multiple ethnic groups. Student ethnicity data were obtained from National Student Number information held on the Ministry of Education ENROL database. The 'NZ European' category included NZ Pākehā only. The 'Pasifika' category included Tokelauan, Fijian, Niuean, Tongan, Cook Islands Māori, Samoan and other Pacific peoples. The 'Asian' category included Filipino, Cambodian, Vietnamese, Other Southeast Asian, Indian, Chinese, Sri Lankan, Japanese, Korean, and other Asians. The 'Other' category included Australians, British/Irish, German, Dutch, Greek, Polish, South Slav, Italian and other Europeans, Middle Eastern, Latin American, African, and Not Stated.

## Achievement against the curriculum

Table 2.3 shows percentages of all Year 4 and Year 8 students achieving against curriculum levels according to the NoTA scale. Seventy-two percent of Year 4 students scored above the minimum score on the NoTA scale associated with achieving curriculum level 2 objectives. Sixty-three percent of Year 8 students scored above the minimum score associated with achieving curriculum level 4 objectives.

Table 2.3 Percentage of Year 4 and Year 8 students achieving across curriculum levels according to the NoTA scale, by curriculum level

| | Year 4 *N* = 2224 | | Year 8 *N* = 2192 | |
|---|---|---|---|---|
| **Curriculum level** | **%** | **Confidence interval (%)** | **%** | **Confidence interval (%)** |
| Level 4 and above | 6 | (4.5, 7.0) | 63 | (60.5, 65.5) |
| Level 3 | 26 | (24.0, 28.5) | 28 | (25.5, 30.0) |
| Level 2 | 40 | (37.5, 42.5) | 8 | (6.5, 9.0) |
| Level 1 | 28 | (25.5, 30.0) | 1 | (0.5, 1.5) |

# 3 Performance Ratings in Visual Arts

This chapter describes Year 4 and Year 8 achievement in visual arts based on results generated using the performance ratings framework for visual arts. This assessment component was based on best-fit judgements made by the teachers of a sub-sample of the students who were involved in the NMSSA study. The teachers used a framework of step-level descriptors to create a rating profile for each student across three different aspects of visual arts: ‘doing’; ‘thinking’; and 'looking, talking and knowledge'.

The chapter begins by describing the sub-sample that was assessed using the performance ratings framework for visual arts. It then examines how students were rated on each of the aspects that made up the framework and describes achievement on the framework as a whole. Achievement is examined by year level and gender. The relatively small number of students that were assessed using the performance ratings framework did not allow robust reporting across ethnicity, school type and decile band.

## 1. Completion of the Performance Ratings in Visual Arts assessment

In total, 50 schools (25 at each year level) out of the 200 schools in the NMSSA study were asked to complete the Performance Ratings in Visual Arts assessment. Of these, 24 schools at both year levels returned completed ratings.

Table 3.1 shows the number of students in the national sample for whom performance ratings in visual arts were completed at each year level by gender and school decile band. Each school was asked to complete performance ratings for the first 10 students from the randomised list of students selected from their school to take part in the NMSSA study.

Table 3.1 Composition of the student samples for whom performance ratings in visual arts were completed

| | Number of students | |
|---|---|---|
| | Year 4<br>*N* = 250 | Year 8<br>*N* = 241 |
| **Gender** | | |
| Girls | 120 | 117 |
| Boys | 130 | 124 |
| **School decile band** | | |
| Low | 63 | 65 |
| Mid | 108 | 70 |
| High | 79 | 106 |

To provide an indication of teachers' confidence in making the judgements, the teacher who completed each performance rating was asked to show how much they agreed with the statement: 'I found it easy to make judgements about this student's visual arts profile'. Figure 3.1 shows how the teachers responded at each year level. The majority of teachers agreed or strongly agreed with the statement.

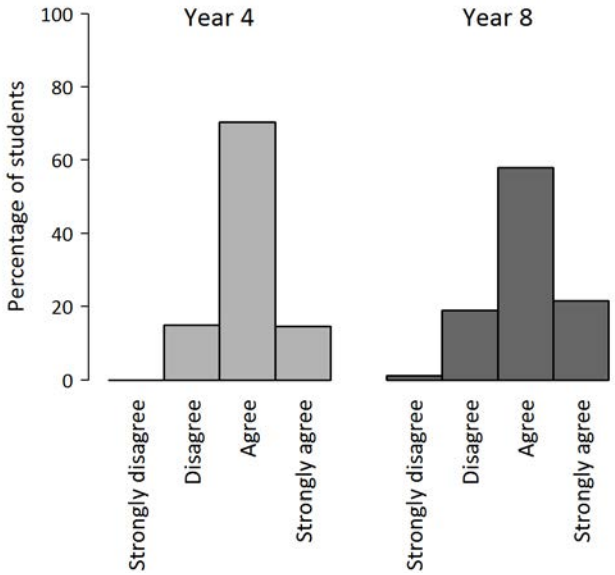



Figure 3.1 Percentage frequency of teachers' responses about how easy it was to make a visual arts performance rating, by year level

Teachers were also asked to respond to the statement 'this student engages enthusiastically in visual arts learning experiences at school'. Figure 3.2 shows how the teachers responded at each year level. Overall the majority of teachers agreed or strongly agreed.

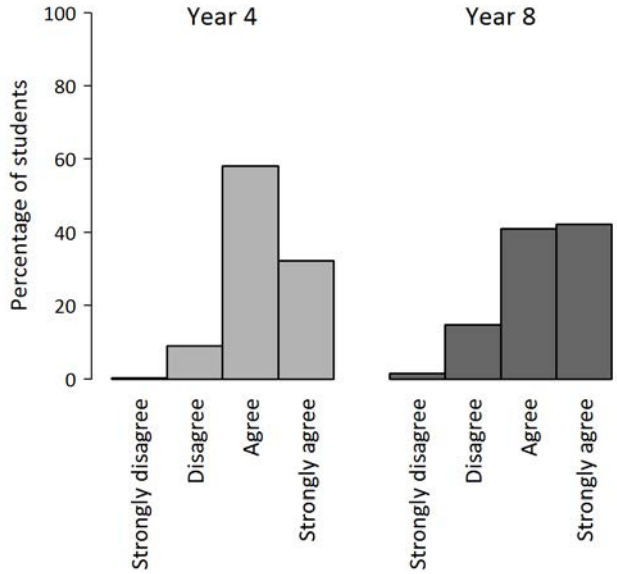



Figure 3.2 Percentage frequency of teachers' responses about student engagement in visual arts, by year level

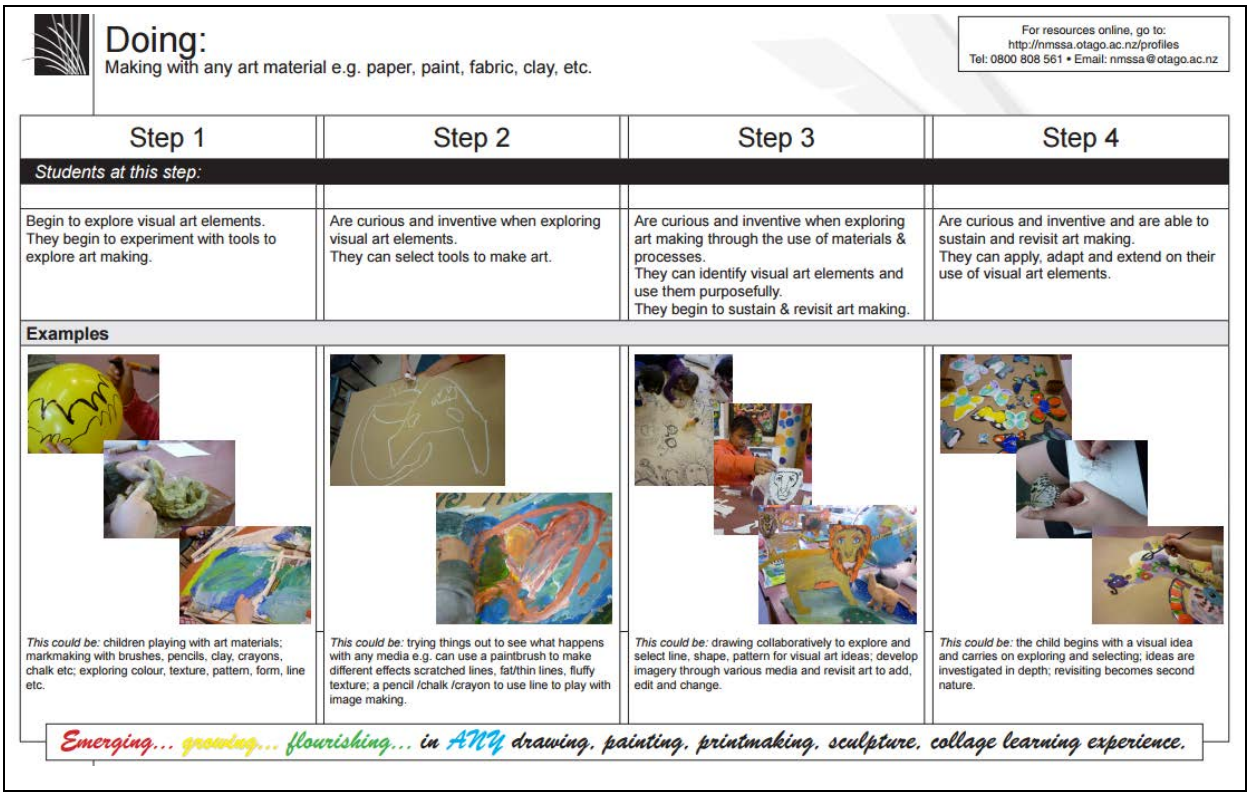
## 2. Achievement by aspect

The profile involved making judgements across three aspects of visual arts. For each aspect, teachers selected the step-level that provided the best-fit descriptor of their student's achievement level. They also had the option of indicating an advanced stage of that step. For instance, teachers could indicate the best-fit step was a '1' or, if they thought the student was further advanced but not yet described by the second step, a '1A'.

To simplify the analysis all advanced steps were collapsed back into their original step-level. For instance, all '1A' step-levels were recoded back to a '1'.

### Doing

Figure 3.3 shows the step-level descriptors, as they were presented to teachers, for each step of the aspect: 'doing'.



**Doing:**
Making with any art material e.g. paper, paint, fabric, clay, etc.

For resources online, go to:
http://nmssa.otago.ac.nz/profiles
Tel: 0800 808 561 • Email: nmssa@otago.ac.nz

| Step 1 | Step 2 | Step 3 | Step 4 |
|---|---|---|---|
| *Students at this step:* | | | |
| Begin to explore visual art elements. They begin to experiment with tools to explore art making. | Are curious and inventive when exploring visual art elements. They can select tools to make art. | Are curious and inventive when exploring art making through the use of materials & processes. They can identify visual art elements and use them purposefully. They begin to sustain & revisit art making. | Are curious and inventive and are able to sustain and revisit art making. They can apply, adapt and extend on their use of visual art elements. |
| **Examples** | | | |
| *This could be:* children playing with art materials; markmaking with brushes, pencils, clay, crayons, chalk etc; exploring colour, texture, pattern, form, line etc. | *This could be:* trying things out to see what happens with any media e.g. can use a paintbrush to make different effects scratched lines, fat/thin lines, fluffy texture; a pencil /chalk /crayon to use line to play with image making. | *This could be:* drawing collaboratively to explore and select line, shape, pattern for visual art ideas; develop imagery through various media and revisit art to add, edit and change. | *This could be:* the child begins with a visual idea and carries on exploring and selecting; ideas are investigated in depth; revisiting becomes second nature. |

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Figure 3.3 Descriptors for the aspect, 'doing', from the performance rating framework for visual arts

Figures 3.4 and 3.5 show how students were rated on this aspect by year level and gender. The average rating for all students at each year level is also provided in each figure. For instance, the average rating awarded to students at Year 4 was 2.4 and at Year 8 it was 3.3.

A greater proportion of Year 8 students compared to Year 4 students, and girls compared to boys, were rated as achieving at the two highest step-levels on the 'doing' aspect.

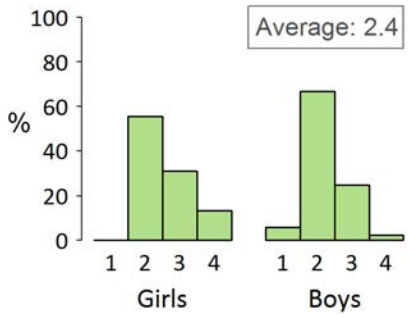



Figure 3.4 Percentage of Year 4 students rated on the 'doing' aspect, by gender and step

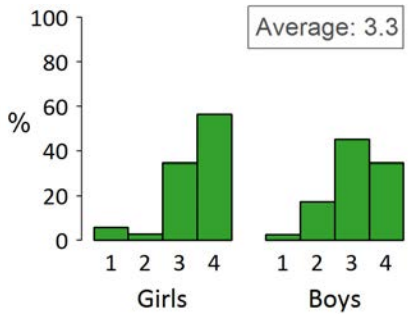
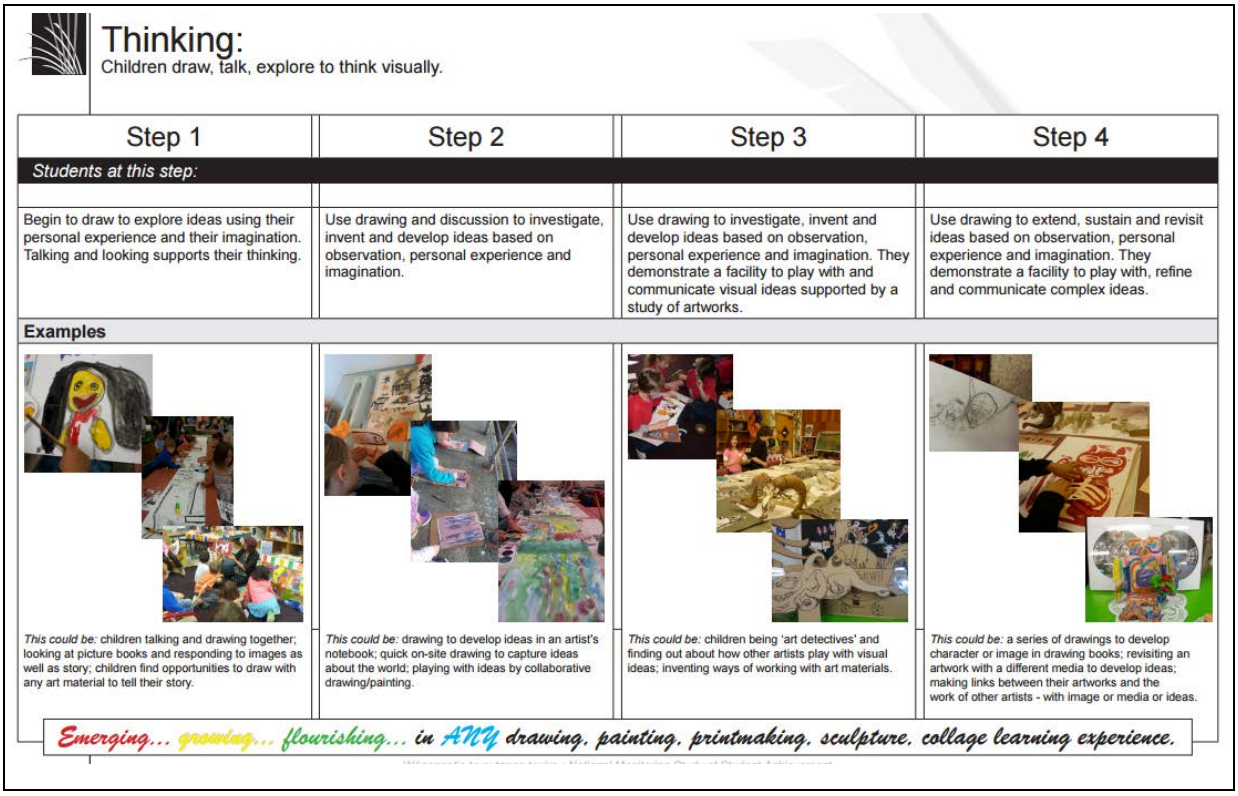



Figure 3.5 Percentage of Year 8 students rated on the 'doing' aspect, by gender and step

## Thinking

Figure 3.6 shows the step-level descriptors for each step of the aspect: ‘thinking’.



**Thinking:**
Children draw, talk, explore to think visually.

| Step 1 | Step 2 | Step 3 | Step 4 |
|---|---|---|---|
| *Students at this step:* | | | |
| Begin to draw to explore ideas using their personal experience and their imagination. Talking and looking supports their thinking. | Use drawing and discussion to investigate, invent and develop ideas based on observation, personal experience and imagination. | Use drawing to investigate, invent and develop ideas based on observation, personal experience and imagination. They demonstrate a facility to play with and communicate visual ideas supported by a study of artworks. | Use drawing to extend, sustain and revisit ideas based on observation, personal experience and imagination. They demonstrate a facility to play with, refine and communicate complex ideas. |
| **Examples** | | | |
| *This could be:* children talking and drawing together; looking at picture books and responding to images as well as story; children find opportunities to draw with any art material to tell their story. | *This could be:* drawing to develop ideas in an artist's notebook; quick on-site drawing to capture ideas about the world; playing with ideas by collaborative drawing/painting. | *This could be:* children being 'art detectives' and finding out about how other artists play with visual ideas; inventing ways of working with art materials. | *This could be:* a series of drawings to develop character or image in drawing books; revisiting an artwork with a different media to develop ideas; making links between their artworks and the work of other artists - with image or media or ideas. |

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Figure 3.6 Descriptors for the aspect, ‘thinking’, from the performance rating framework for visual arts

Figures 3.7 and 3.8 show how students were rated on this aspect by year level and gender.

A greater proportion of Year 8 students, compared to Year 4 students, were rated as achieving at the highest step-levels on the ‘thinking’ aspect, with average ratings of 3.2 and 2.3, respectively. There was little difference between the proportion of girls and boys rated at each step-level at Year 4. However, at Year 8 a greater proportion of girls than boys were rated at the highest step.

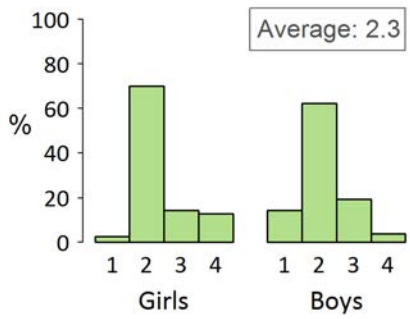



Figure 3.7 Percentage of Year 4 students on the ‘thinking’ aspect, by gender and step

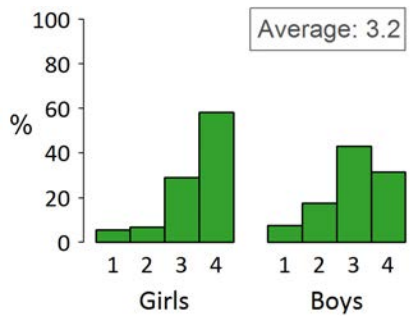
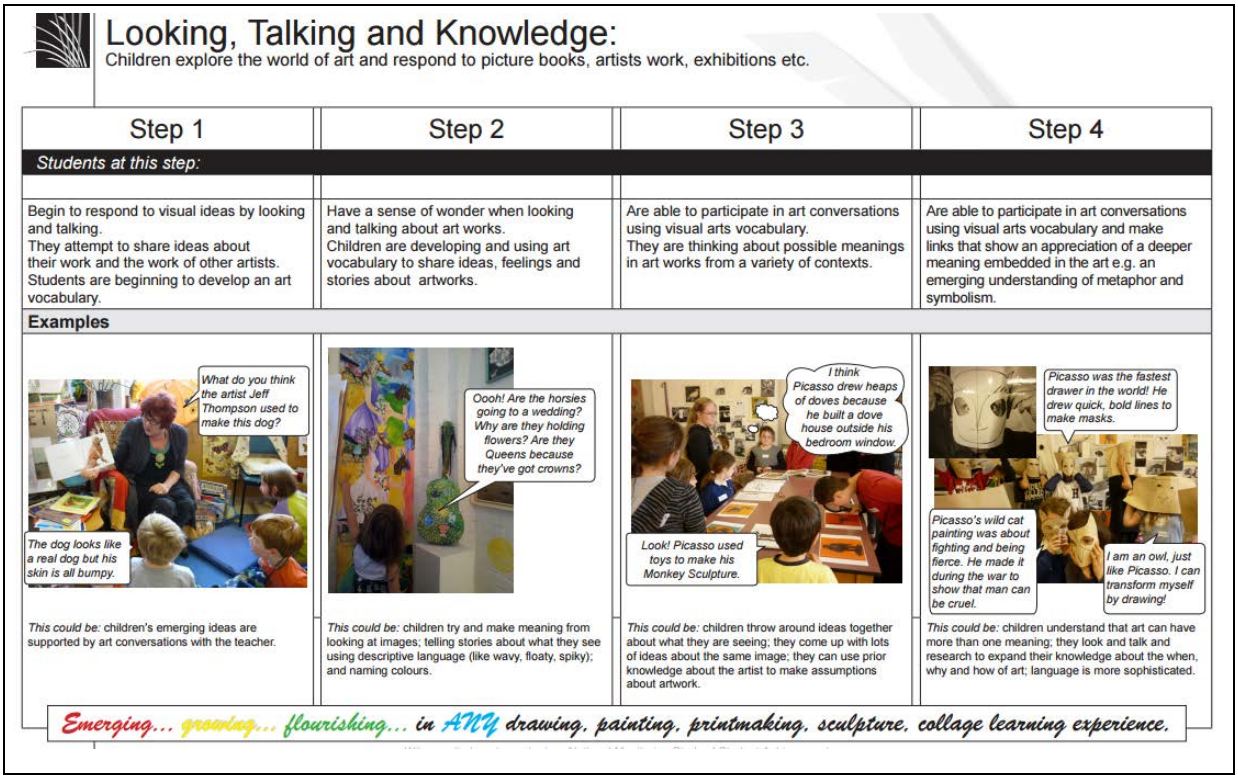



Figure 3.8 Percentage of Year 8 students on the ‘thinking’ aspect, by gender and step

## Looking, talking and knowledge

Figure 3.9 shows the step-level descriptors for each step of the aspect: 'looking, talking and knowledge'.



**Looking, Talking and Knowledge:**
Children explore the world of art and respond to picture books, artists work, exhibitions etc.

| Step 1 | Step 2 | Step 3 | Step 4 |
|---|---|---|---|
| *Students at this step:* | | | |
| Begin to respond to visual ideas by looking and talking. They attempt to share ideas about their work and the work of other artists. Students are beginning to develop an art vocabulary. | Have a sense of wonder when looking and talking about art works. Children are developing and using art vocabulary to share ideas, feelings and stories about artworks. | Are able to participate in art conversations using visual arts vocabulary. They are thinking about possible meanings in art works from a variety of contexts. | Are able to participate in art conversations using visual arts vocabulary and make links that show an appreciation of a deeper meaning embedded in the art e.g. an emerging understanding of metaphor and symbolism. |
| **Examples** | | | |
| *What do you think the artist Jeff Thompson used to make this dog?* / *The dog looks like a real dog but his skin is all bumpy.* | *Oooh! Are the horsies going to a wedding? Why are they holding flowers? Are they Queens because they've got crowns?* | *I think Picasso drew heaps of doves because he built a dove house outside his bedroom window.* / *Look! Picasso used toys to make his Monkey Sculpture.* | *Picasso was the fastest drawer in the world! He drew quick, bold lines to make masks.* / *Picasso's wild cat painting was about fighting and being fierce. He made it during the war to show that man can be cruel.* / *I am an owl, just like Picasso. I can transform myself by drawing!* |
| *This could be:* children's emerging ideas are supported by art conversations with the teacher. | *This could be:* children try and make meaning from looking at images; telling stories about what they see using descriptive language (like wavy, floaty, spiky); and naming colours. | *This could be:* children throw around ideas together about what they are seeing; they come up with lots of ideas about the same image; they can use prior knowledge about the artist to make assumptions about artwork. | *This could be:* children understand that art can have more than one meaning; they look and talk and research to expand their knowledge about the when, why and how of art; language is more sophisticated. |

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Figure 3.9 Descriptors for the aspect, 'looking, talking and knowledge', from the performance rating framework for visual arts

Figures 3.10 and 3.11 show how students were rated on this aspect by year level and gender.

As for the previous aspects, a greater proportion of Year 8 students, compared to Year 4 students, were rated at the highest steps on the 'looking, talking and knowledge' aspect, with average ratings of 3.2 and 2.2, respectively. At both Year 4 and Year 8, a larger proportion of girls than boys were rated at the top two step-levels. This difference was greater at Year 8 than Year 4.

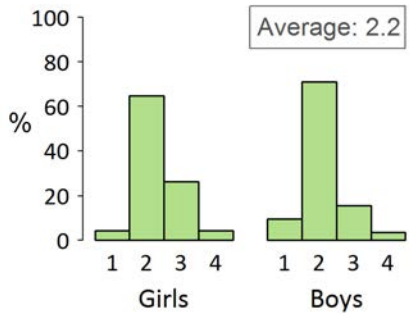



Figure 3.10 Percentage of Year 4 students rated on the aspect: 'looking, talking and knowledge', by gender and step

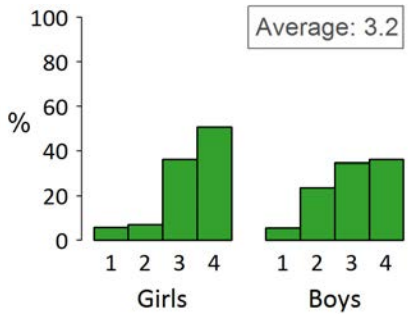



Figure 3.11 Percentage of Year 8 students rated on the aspect: 'looking, talking and knowledge', by gender and step

## 3. Performance in Visual Arts scale

Item response theory (IRT) was used to create an overall performance ratings measure for visual arts based on the step-levels students had been awarded for each of the aspects. The scale produced on the basis of the performance ratings framework was called the Performance in Visual Arts (PVA) scale.

### Curriculum alignment

A curriculum alignment exercise was used to link the PVA scale to curriculum expectations. In the exercise a panel of visual arts education experts identified minimally sufficient ratings across the aspects for students to be considered to be achieving at curriculum levels 2, 3 and 4 (see Appendix 5 of *Technical Information 2015*[18]). The results of the exercise allowed lines to be drawn across the scale to indicate the achievement levels associated with achieving curriculum level 2, 3 and 4 objectives.

## 4. Achievement on the Performance in Visual Arts scale

Figure 3.12 shows the distributions of scores on the PVA scale for Year 4 and Year 8 students. Table 3.3 provides summary statistics for each year level. On average, Year 8 students were located 23 units higher on the PVA scale than Year 4 students (an annualised difference of 5.5 scale score units per year). The annualised difference represents an effect size of 0.29. This effect size is lower than that found for the NoTA assessment, which was 0.46.

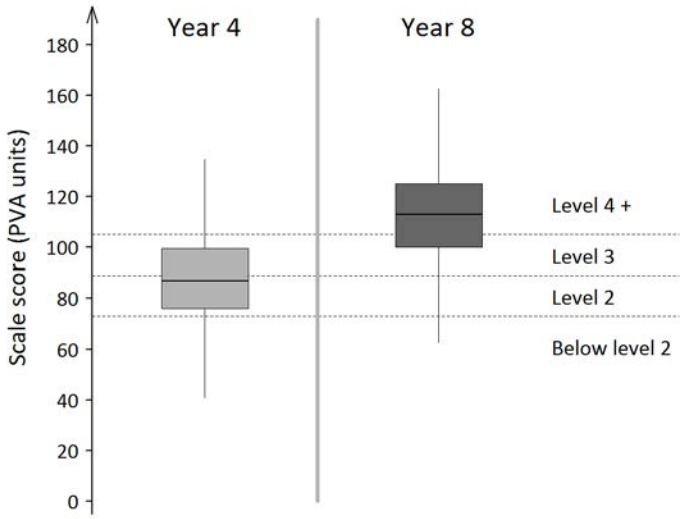



Figure 3.12 Distribution of scores for Year 4 and Year 8 students on the PVA scale

Table 3.3 Summary statistics for Year 4 and Year 8 student achievement on the PVA scale

| | Year 4 | Year 8 | Difference between Year 8 and Year 4 |
|---|---|---|---|
| | *N* = 250 | *N* = 241 | |
| Average scale score | 89 | 111 | 23 |
| Confidence interval for the average | (86.0, 91.5) | (108.0, 114.5) | (18.5, 27.0) |
| Standard deviation | 19 | 21 | |
| Average annual effect size | | | 0.29 |

Table 3.4 shows how Year 4 and Year 8 students achieved against curriculum levels. At Year 4, 82 percent of students were located above the minimum score on the PVA scale associated with achieving curriculum level 2 objectives. At Year 8, 66 percent of students were located above the minimum score associated with achieving curriculum level 4 objectives. The curriculum expectation at Year 4 is that students will have achieved, on balance, level 2 objectives by the end of the school year. In Year 8 they will have achieved, on balance, level 4 objectives by the end of the school year. NMSSA assessment was carried out in Term 3. Therefore, we could expect a larger proportion of students at each year level to have met or exceeded the minimum score on the PVA scale for the appropriate curriculum level by the end of the year.

[18] *NMSSA Report 11: Technical Information 2015.*

Table 3.4 Percentage of Year 4 and Year 8 students achieving across curriculum levels according to the PVA scale

| | Year 4 | | Year 8 | |
|---|---|---|---|---|
| Curriculum level | % | Confidence interval (%) | % | Confidence interval (%) |
| Level 4 and above | 18 | (12.0, 23.0) | 66 | (59.0, 73.5) |
| Level 3 | 28 | (21.5, 34.5) | 23 | (16.5, 29.0) |
| Level 2 | 36 | (29.5, 43.5) | 5 | (1.5, 8.0) |
| Level 1 | 18 | (12.5, 23.5) | 6 | (2.5, 10.0) |

Smaller proportions of students achieved at expected curriculum levels when assessed using the PVA scale compared to using the NoTA assessment (see Chapter 2). That there is a difference is not necessarily suprising given the different foci of each assessment. Because the performance rating assessment relied on what teachers had observed in authentic classroom settings, it was able to directly focus on practical applications of knowledge and skills. The NoTA assessment, on the other hand, was interested in all four art disciplines and involved a greater emphasis on understanding the arts in context.

## Achievement by gender

Figures 3.13 and 3.14 display the score distributions on the PVA scale at each year level by gender, respectively. Girls scored higher, on average, than boys by 6 scale score units at Year 4 and 8 scale score units at Year 8. These differences were statistically significant.

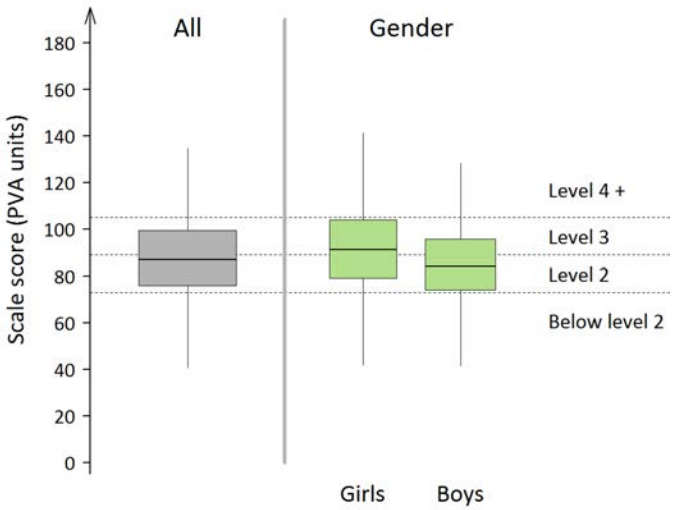



Figure 3.13 Distribution of scores for Year 4 students on the PVA scale, by gender

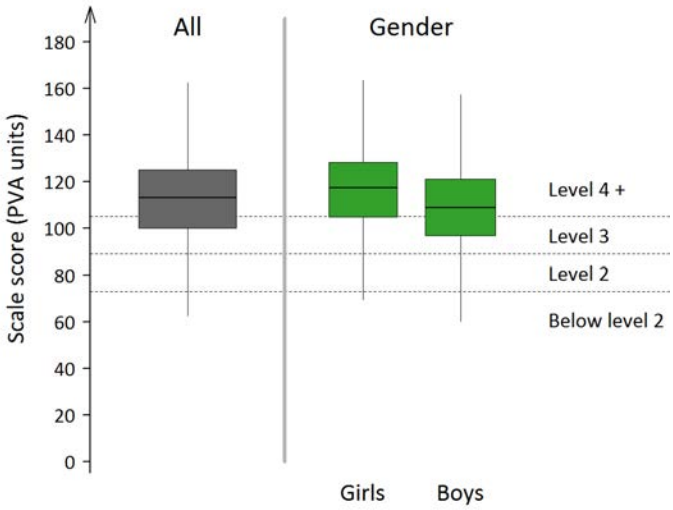



Figure 3.14 Distribution of scores for Year 8 students on the PVA scale, by gender

# 4 Practical Tasks in Visual Arts

This chapter describes how students achieved on the visual arts practical task called *Draw, Draw, Draw*. This task was used to assess a small subset of practical skills in visual arts, within the curriculum strands: developing practical knowledge in the arts, and communicating in the arts. The task was completed by about 600 students at each of Year 4 and Year 8, and was scored by the teacher assessors who administered it using rubrics. It was designed to complement the performance rating assessments that were based on teacher judgements, and was able to be easily administered in the time available.

Part 1 of the chapter describes the task and the rubrics used to score student performance. Part 2 describes achievement in terms of the scoring rubrics. Achievement is reported by year level, gender and ethnicity. Statistical tests have not been used to define significant achievement differences between groups. Instead, differences have been highlighted when the difference in the proportion of each group scoring at a reported level on a rubric was greater than 10 percent.

## 1. Who completed the practical task

About 600 students, (six students from each school in the NMSSA study) completed the *Draw, Draw, Draw* task at each year level. Table 4.1 shows the number of students who completed the task by year level, gender and school decile.

Table 4.1 Number of students who completed the *Draw, Draw, Draw* task by year level, gender, ethnicity and school decile band

| | Number of students | |
|---|---|---|
| | Year 4<br>*N* = 600 | Year 8<br>*N* = 597 |
| **Gender** | | |
| Girls | 287 | 293 |
| Boys | 313 | 304 |
| **Ethnicity** | | |
| NZE | 348 | 349 |
| Māori | 126 | 128 |
| Pasifika | 77 | 69 |
| Asian | 66 | 57 |
| **Decile band** | | |
| Low | 156 | 111 |
| Mid | 209 | 234 |
| High | 235 | 252 |

## 2. *Draw, Draw, Draw* task

As the title suggests, the *Draw*, *Draw*, *Draw* task focused on assessing students' drawing skills. Students were provided with a 4B pencil and activity guide and asked to select one of four A3 pieces of paper, which each showed part of a wing from a particular animal. Students were asked to transform the part of the wing into something else altogether, or to use it to create a creature of their own design. They were encouraged to use their pencil in lots of different ways to explore line, tone and pattern, and to transform and play with ideas.

The instructions for the task are shown in Figure 4.1. Students had a choice of four wings to use in their drawing: the wing of a bat, butterfly, dragonfly or eagle (see Figure 4.2).

**Draw, Draw, Draw**

Supplies: *Per student:* A3 paper (students choose 1 of 4 options), 4B pencil, activity guide
*TA:* Stopwatch, eraser, pencil sharpener

**Students work on a hard surface e.g. desk or group table. Students sit with enough space to draw comfortably. Teacher holds on to the eraser for emergency meltdowns only!**

In this activity you will be exploring drawing. On your table you have a 4B pencil and activity guide.
Soon you will choose the paper you would like to work on.

**Show students the four A3 paper options.**

The paper has part of a wing on it. Draw to create a creature of your own design; draw onto the wing to transform it into something new.

You can make a *little* drawing or fold out the paper to make a *big* drawing. You can turn the paper to suit your drawing.

Use the 4B pencil to explore line, tone and pattern. You can use pointy lines, squiggly lines, broken lines; lines that are thick and thin. Use the side of your pencil lead to explore lighter and darker shades. Keep on drawing and add patterns of your own. Remember to *transform* and *play* with using your pencil in lots of ways.

If you make a 'mistake', don't fuss about rubbing it out. Draw over your marks or transform them into something else. You have **30 minutes** to have fun drawing. Try and use all of this time.

**Allow students to choose one A3 paper. Students can't change their mind about paper choice, if they have already started drawing.**
**When students are drawing do not get involved in conversation about their drawing but repeat instructions if necessary.**
**Encourage students to work over marks or transform drawing instead of using an eraser.**
**Remind students when they have 10 minutes left.**

Figure 4.1 Instructions for the practical task, *Draw, Draw, Draw*

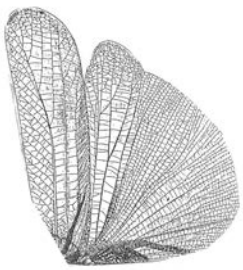
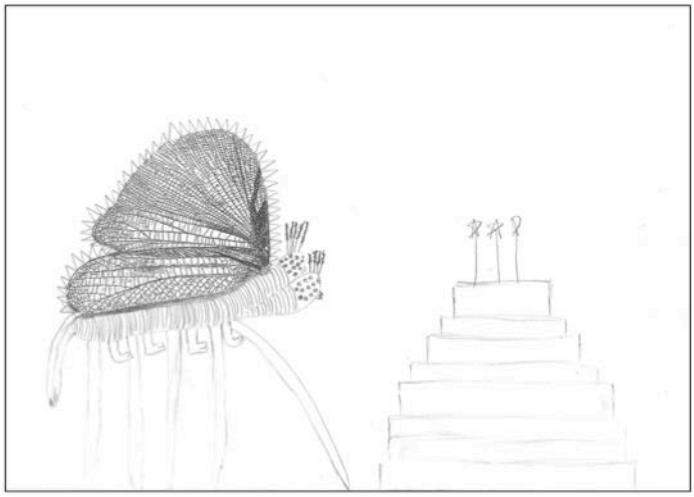
| | | | |
|---|---|---|---|
|  |  |  |  |
| AA | BB | CC | DD |

Figure 4.2 Choice of wings for the practical task, *Draw, Draw, Draw*

Students' drawings were assessed by experienced teachers using marking rubrics. The drawings were assessed on two aspects of drawing: (i) the use of line, pattern and tone and (ii) transformation and playing with ideas. Figures 4.3 and 4.4 show the scoring categories used for each aspect, respectively. An exemplar of student work is included for each described scoring category. The marking rubrics included three scoring categories for the first aspect and four for the second.

1 Basic mark making. Attempts to play with either line, pattern or tone.

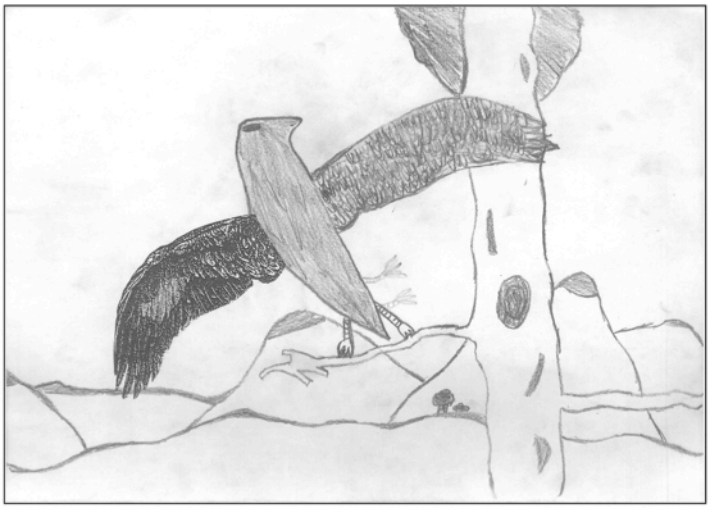


2 Evidence of playing with a variety of line, pattern or tone.

3 Confident and sustained exploration of line, pattern or tone to extend the drawing. A fully completed drawing of either the creature or the creature and surrounds.

Figure 4.3 Scoring categories and exemplars for the use of line, pattern and tone in the task *Draw, Draw, Draw*

0 No transformation evident e.g. a straight copy of wing to make a bird.



1 Has included the wing into their invented drawing of a creature. Some other drawing ideas evident.

2 Beginning to extend inventive drawing ideas for their creature. Extended ideas growing on the page.


3 Has confidently transformed and played with ideas, in an extended and sustained manner. A fully-resolved drawing of winged creature is evident, with or without background drawing.

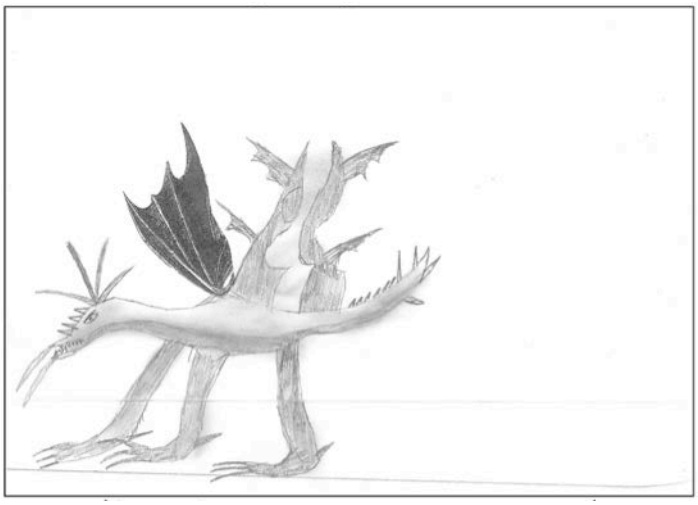


Figure 4.4 Scoring categories and exemplars for transformation and playing with ideas in the task *Draw, Draw, Draw*

### Choice of wing

The choice of wing by gender was examined because girls, on average, achieved better than boys on the NoTA and the PVA assessments. Choice of wing was a potential variable that might have influenced achievement. Table 4.2 shows the percentage of students at each year level, by gender, who chose each wing. At both year levels, the bat wing and the eagle wing were the most popular choices (each was chosen by between 35-37 percent of students). The butterfly wing and dragonfly wing were each chosen by about 12-17 percent of students. While there were interesting differences between girls' and boys' choices of wing, an analysis indicated that these did not influence the quality of the drawings. Therefore, the results reported here are combined across the different wing choices.

Table 4.2 Percentage of students who chose each wing for the practical activity *Draw, Draw, Draw*, by year level and gender

| | Percentage of students | | | |
|---|---|---|---|---|
| | Bat % | Butterfly % | Dragonfly % | Eagle % |
| **Year 4** | | | | |
| All | 34 | 17 | 12 | 37 |
| Girls | 18 | 31 | 15 | 36 |
| Boys | 48 | 5 | 9 | 38 |
| **Year 8** | | | | |
| All | 35 | 16 | 13 | 36 |
| Girls | 25 | 24 | 19 | 32 |
| Boys | 44 | 8 | 9 | 39 |

## 3. Achievement on *Draw, Draw, Draw*

### Achievement by year level

Tables 4.3 and 4.4 show how students scored on the two aspects included in the marking rubric: Use of line, pattern and tone, and Transforming and playing with ideas, respectively, by year level.

About 68 percent of Year 8 students achieved in the two highest categories for the Use of line, pattern and tone aspect compared with 33 percent of Year 4 students. About 50 percent of Year 8 students showed evidence of playing with variety of line, pattern or tone and 18 percent showed sustained exploration of these features to accomplish a fully completed drawing. Most Year 4 students were assessed at the more basic stage of attempting to play with either line, pattern or tone.

Table 4.3: Percentage of students scoring on Use of line, pattern and tone, by year level

| Use of line, pattern and tone | | |
|---|---|---|
| Scoring category* | Year 4 % | Year 8 % |
| 1. Basic mark making. Attempts to play with either line, pattern or tone | 67 | 31 |
| 2. Evidence of playing with variety of line, pattern or tone | 30 | 50 |
| 3. Confident and sustained exploration of line, pattern or tone. A fully completed drawing of either the creature and/or surround. | 3 | 18 |

*1 percent of students at both year levels were 'off task' or made no marks

On the Transforming and playing with ideas aspect about 60 percent of Year 8 students achieved in the two highest categories compared with 34 percent of Year 4 students. About 39 percent of Year 8 students were beginning to extend inventive drawing ideas for their creature and 21 percent showed sustained transformation of their ideas to accomplish a fully completed drawing. Most Year 4 students were assessed at the more basic stage of including a wing into an invented drawing of a creature.

Table 4.4: Percentage of students scoring on Transforming and playing with ideas, by year level

| Transforming and playing with ideas | | |
|---|---|---|
| Scoring category | Year 4 % | Year 8 % |
| 0. No transformation | 18 | 16 |
| 1. Has included a wing into invented drawing of a creature | 48 | 25 |
| 2. Beginning to extend inventive drawing ideas for their creature | 29 | 39 |
| 3. Has confidently transformed and played with ideas in an extended and sustained manner. Fully resolved drawing of a winged creature with/without background drawing | 5 | 21 |

## Achievement by gender, ethnicity and school decile

The proportions of students achieving in the higher two scoring categories for each aspect were combined to examine differences in achievement by gender, ethnicity and school decile band. Tables 4.5 and 4.6 summarise the findings for each aspect. In the analysis that follows we have used a difference of 10 percent as a criterion for describing notable differences.

Table 4.5: Percentage of students scoring a 2 or 3 on Use of line, pattern and tone by gender, ethnicity and school decile

| Use of line, pattern and tone | | | |
|---|---|---|---|
| | Year 4 % | Year 8 % | Year 8–Year 4 Percentage difference % |
| **Year** | | | |
| All | 33 | 68 | 35 |
| **Gender** | | | |
| Girls | 36 | 75 | 39 |
| Boys | 28 | 62 | 34 |
| **Ethnicity** | | | |
| NZ European | 31 | 69 | 38 |
| Māori | 31 | 64 | 33 |
| Pasifika | 32 | 71 | 39 |
| Asian | 38 | 77 | 39 |
| **School decile** | | | |
| Low | 24 | 65 | 41 |
| Mid | 30 | 67 | 37 |
| High | 35 | 71 | 36 |

Table 4.6: Percentage of students scoring a 3 or 4 on Transforming and playing with ideas by gender, ethnicity and school decile

| Transforming and playing with ideas | | | |
|---|---|---|---|
| | Year 4 % | Year 8 % | Year 8–Year 4 Percentage difference % |
| **Year** | | | |
| All | 34 | 60 | 26 |
| **Gender** | | | |
| Girls | 30 | 60 | 30 |
| Boys | 37 | 60 | 23 |
| **Ethnicity** | | | |
| NZ European | 37 | 59 | 22 |
| Māori | 30 | 55 | 25 |
| Pasifika | 22 | 55 | 33 |
| Asian | 26 | 76 | 50 |
| **School decile** | | | |
| Low | 28 | 57 | 29 |
| Mid | 35 | 57 | 22 |
| High | 36 | 64 | 28 |

**Use of line, pattern and tone**

At Year 4, a notably greater proportion of students from high decile schools (35 percent) scored in the top two categories than students in low decile schools (24 percent) for use of line, pattern and tone.

At Year 8, a notably greater proportion of girls (75 percent) scored in the top two categories than boys (62 percent) and a notably greater proportion of Year 8 Asian students (77 percent) scored in the top two categories than Māori students (64 percent) for use of line, pattern and tone.

**Transforming and playing with ideas**

At Year 4, a notably greater proportion of NZ European students (37 percent) scored in the top two categories than Pasifika and Asian students (22 and 26 percent, respectively) for transforming and playing with ideas.

At Year 8, a notably greater proportion of Asian students (76 percent) scored in the top two categories than NZE, Māori and Pasifika students (59, 55 and 55 percent, respectively) for transforming and playing with ideas.

## Difference in achievement between Year 4 and Year 8

**Use of line, pattern and tone**

About 35 percent more Year 8 students than Year 4 students scored in the top two categories on the Use of line, pattern and tone aspect. This amount of 'progress' between Year 4 and Year 8 was similar across gender, ethnicity and school decile subgoups.

**Transforming and playing with ideas**

In the Transforming and playing with ideas aspect about 26 percent more Year 8 students than Year 4 students scored in the top two categories. Asian students showed notably higher 'progress' (50 percent) than NZ European, Māori and Pasifika students (22, 25 and 33, respectively for transforming and playing with ideas).

## Looking across the three visual arts assessment components

The relationship between students' achievement for pair-wise combinations of these measures was examined using Pearson's product moment correlation analysis (r).

Table 4.7 shows the correlations between the scores from the NoTA assessment, the PVA and the practical task in visual arts. All correlation coefficients were statistically significant ($p < .01$). The relationships were generally stronger at Year 8 than at Year 4.

Table 4.7 Correlations between the scale scores on the NoTA assessment, PVA and the practical tasks in visual arts, by year

| Correlation coefficients | | | |
|---|---|---|---|
| | NoTA | PMu | Practical Tasks |
| NoTA | - | **.20** | **.15** |
| PVa | **.42** | - | **.29** |
| Practical Tasks | **.29** | **.24** | **-** |

Note 1: All correlations are statistically significant at the 0.01 level.
Note 2: Darker shading used to highlight coefficients for Year 8.

# 5 Contextual Factors in Visual Arts: Attitudes, Learning Opportunities, Teaching and Resourcing

This chapter uses data collected from student, teacher and principal questionnaires to describe a range of contextual factors associated with learning in visual arts. The chapter is organised thematically, combining insights from the student, teacher and principal data as appropriate. The themes are: students' attitudes to visual arts; learning opportunities in visual arts; teaching and learning visual arts; and resourcing visual arts. After a brief description of who completed the questionnaires, the chapter focusses on each theme in turn.

## 1. Completion of the questionnaires

### The student questionnaire

All students completed a computer-based questionnaire. To reduce the response burden, one-half of the students completed a questionnaire related to music and drama and the other half responded to a questionnaire related to visual arts and dance. The two questionnaires were carefully allocated to schools to ensure a representative subsample of students completed each version. About 1,100 students at each of Year 4 and Year 8 responded to the questionnaire that included sections related to learning in visual arts. These sections focused on students' attitudes to visual arts and their opportunities to learn visual arts within and outside of school.

### The teacher questionnaire

Up to three teachers in each school completed a teacher questionnaire. As for the student questionnaire, teachers in half of the schools responded to questions about music and drama and the other half responded to questions about visual arts and dance. In total, 117 Year 4 teachers and 90 Year 8 teachers responded to the questions about visual arts. These represented response rates of 98 percent at Year 4 and 79 percent at Year 8, respectively.

Table 5.1 shows the percentage of teachers responding to the visual arts questionnaire at each year level, by school decile band.

Both classroom teachers and specialist teachers of visual arts were asked to respond to the questionnaire. Of the Year 4 teachers, 5 percent reported that they were visual arts specialists. At Year 8, 20 percent of respondents reported being specialist teachers of visual arts.

Table 5.1 Percentage of responses to the visual arts section of the teacher questionnaire by year level and school decile

| | Visual Arts | |
|---|---|---|
| School decile | Year 4<br>%<br>*N* = 117 | Year 8<br>%<br>*N* = 90 |
| Low | 26 | 19 |
| Mid | 31 | 40 |
| High | 43 | 41 |

Teachers were asked about their qualifications, experiences and confidence in teaching visual arts, their pedagogical approaches to teaching visual arts and the resources available to them for teaching visual arts.

Teachers also identified the frequency of opportunities their students had to learn visual arts at school and the professional support and development they experienced in relation to teaching visual arts.

### The principal questionnaire

In total, 178 principals from 200 schools completed the principal questionnaire; 93 from Year 4 and 85 from Year 8. These represented response rates of 93 percent and 85 percent, respectively. Table 5.2 shows the percentage of principals who responded by school decile band for each year level.

Table 5.2 Number of principals who responded to the questionnaire, by school decile band

| | Number of principals | |
|---|---|---|
| School decile | Year 4<br>*N* = 93 | Year 8<br>*N* = 85 |
| Low | 24 | 15 |
| Mid | 33 | 35 |
| High | 36 | 35 |

Principals were asked to identify the extent to which the school focused on or prioritised visual arts in the school curriculum, the extent to which teachers could access specialist support and professional learning and development in visual arts, and what school-wide activites were available to students. Principals were also asked to indicate how well teachers taught, assessed and reported on visual arts.

## 2. Students' attitudes to visual arts

Students were asked how much they agreed with each of a series of statements about their attitudes to visual arts. Figures 5.1 and 5.2 show the statements and how students responded, by gender, at Year 4 and Year 8, respectively.

In general, students were very positive about visual arts, with students in Year 4 more positive overall than those in Year 8. For each statement, at both year levels, girls were more likely than boys to respond using 'agree a lot' or 'totally agree', while boys were more likely to disagree. Notable proportions of boys disagreed that they would like to keep learning about art as they grew up and that visual arts was their favourite subject at school. The levels of disagreement were stronger at Year 8 than at Year 4.

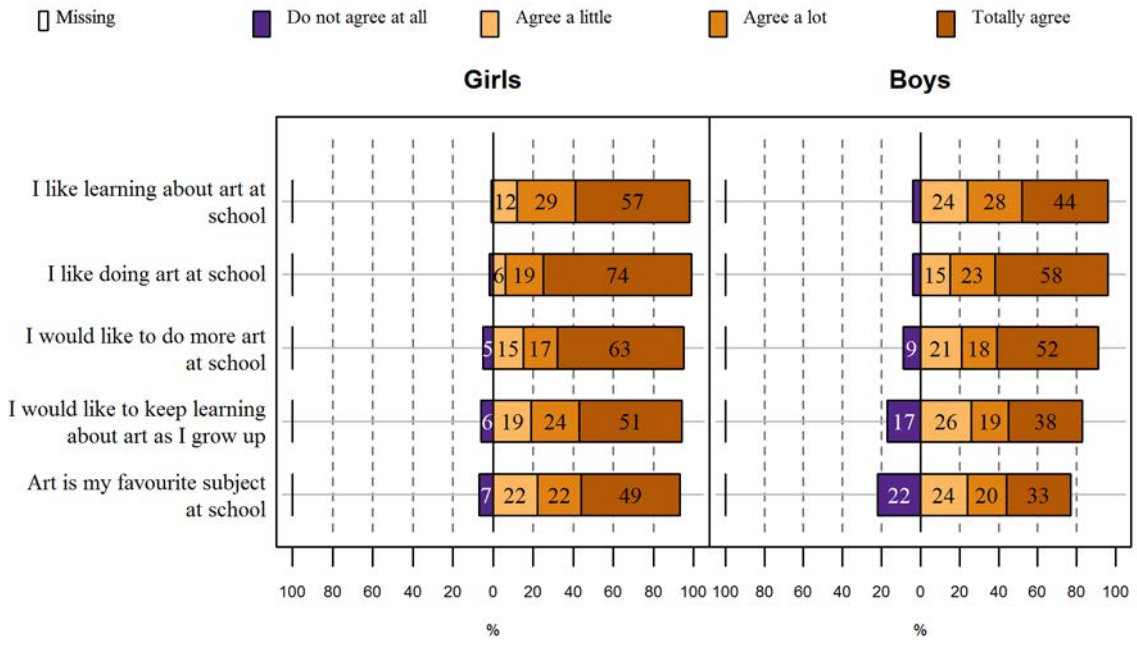



Figure 5.1 Percentage frequency of Year 4 students' responses to the Attitude to Visual Arts statements, by gender

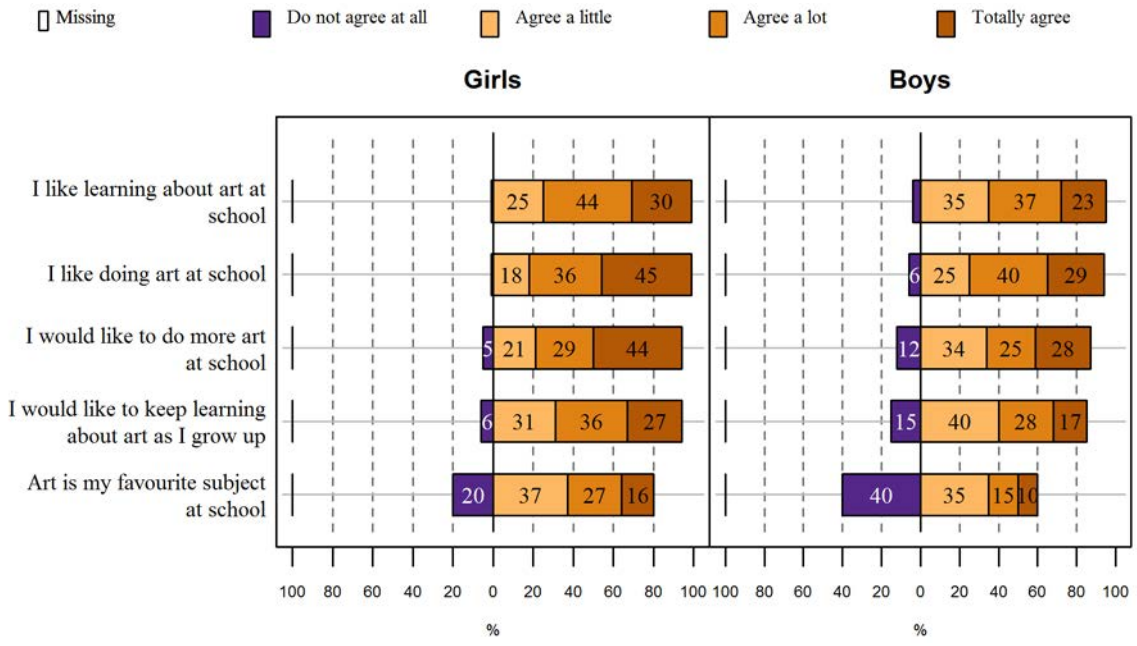



Figure 5.2 Percentage frequency of Year 8 students' responses to the Attitude to Visual Arts statements, by gender

## Attitude to Visual Arts scale

An Item Response Theory (IRT) scale was constructed based on the students' responses to the individual attitudes statements. The scale was called the Attitude to Visual Arts scale. The scale was divided into three broad regions to indicate the locations on the scale where students were typically less positive, positive and very positive in their responses.

Figure 5.3 shows the distributions of the Attitude to Visual Arts scale scores for students in Year 4 and Year 8. On average, Year 8 students were less positive about visual arts than Year 4 students by 11 scale score units. This difference was statistically significant.

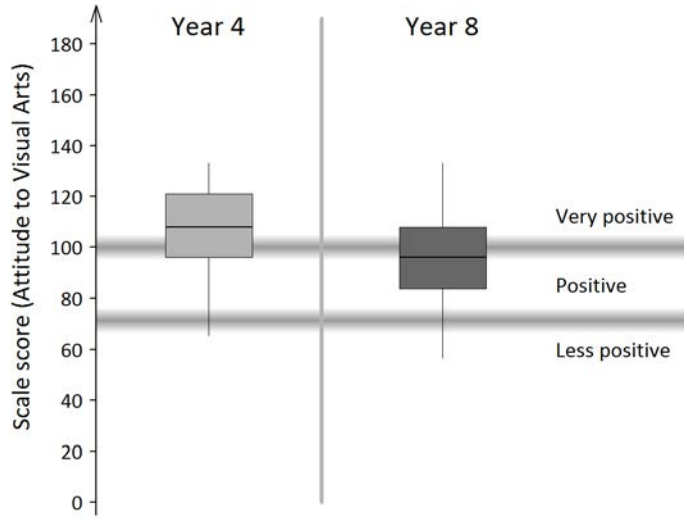



Figure 5.3 Distribution of Attitude to Visual Arts scale scores for Year 4 and Year 8 students

## Attitude to visual arts by gender and ethnicity

Figures 5.4 and 5.5 show the distributions of scores on the Attitude to Visual Arts scale by gender and ethnicity for Year 4 and Year 8 students, respectively.

Similar to girls' and boys' responses to the individual attitude statements, on the Attitude to Visual Arts scale girls at both year levels were more positive, on average, than boys. The difference was 9 scale score units and was statistically significant.

Māori students, on average, scored the same as non-Māori students at both year levels.

Pasifika students, on average, scored higher than non-Pasifika students at both year levels (by 2 and 5 scale score units). The difference was statistically significant at Year 8.


Figure 5.4 Distribution of Attitude to Visual Arts scale scores for Year 4 students, by gender (NZE = NZ European)

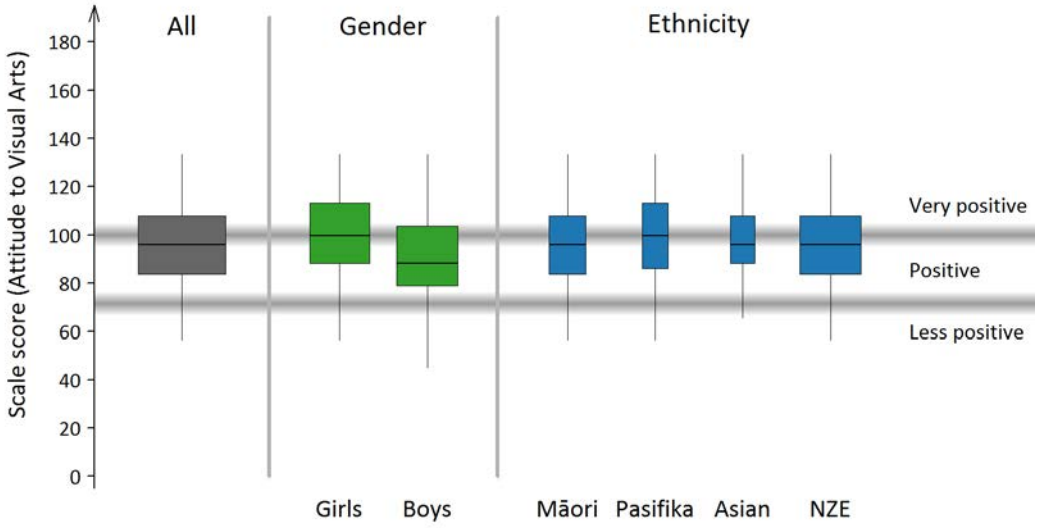



Figure 5.5 Distribution of Attitude to Visual Arts scale scores for Year 8 students, by gender (NZE = NZ European)

## Attitude to visual arts by decile band

At Year 8, students in low decile schools had, on average, a more positive attitude to visual arts than students in mid or high decile schools, with a difference of 5 scale score units in each case. These differences were statistically significant. At Year 4, average score on the Attitude to Visual Arts scale was highest for students in low decile schools, and lowest for those in mid decile schools. This difference (4 scale score units) was statistically significant, but the difference between low and high decile was not.

## Attitude to visual arts for students with special education needs

At both year levels, there was a small difference between the Attitude to Visual Arts scale scores, on average, between students with special education needs and students without special education needs. The former were slightly more positive than the latter but difference in average scores was not statistically significant.

## Relationship between attitudes and performance ratings in visual arts

Figures 5.6 and 5.7 show the relationship between achievement on the Performance in Visual Arts (PVA) scale and the Attitude to Visual Arts scale scores by using the 'very positive', 'positive' and 'less positive' regions of the Attitude to Visual Arts scale to form three attitude groupings. The figures show that at Year 4 there was very little difference between the distributions of PVA achievement scores for each of the attitudes groups. However, at Year 8, the median achievement was lowest for students who were 'less positive' and highest for those who were 'most positive'. The average score on the PVA scale for students who were 'less positive' about the visual arts was lower than the average scores for students who were 'positive' or 'very positive' by 8 and 16 PVA scale score units, respectively. The average score on the PVA scale for students who were 'positive' was also lower than that for students who were 'very positive'. The difference was 9 scale score units. At Year 8 the correlation coefficient between PVA acores and Attitude to Visual Arts scale scores was 0.21 and was statistically significant ($p < .01$), while at Year 4 the correlation was very weak ($r = 0.04$) and not statistically significant.

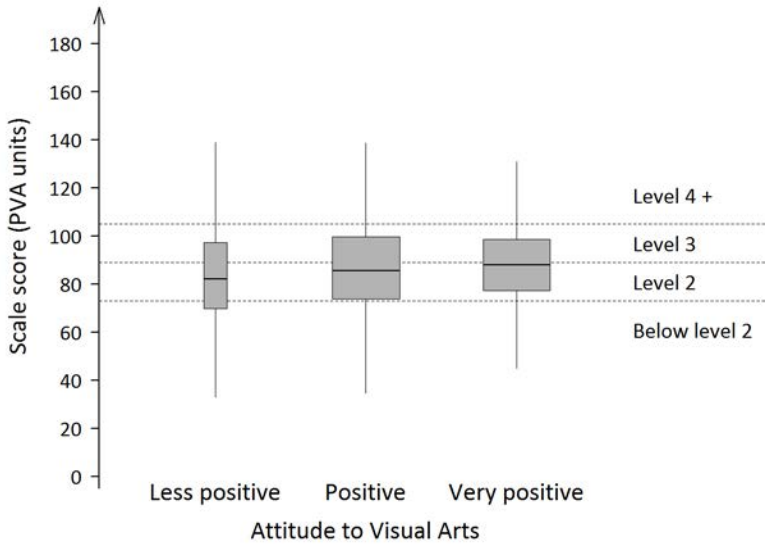



Figure 5.6 Distribution of PVA scale scores for Year 4 students, by level on the Attitude to Visual Arts scale

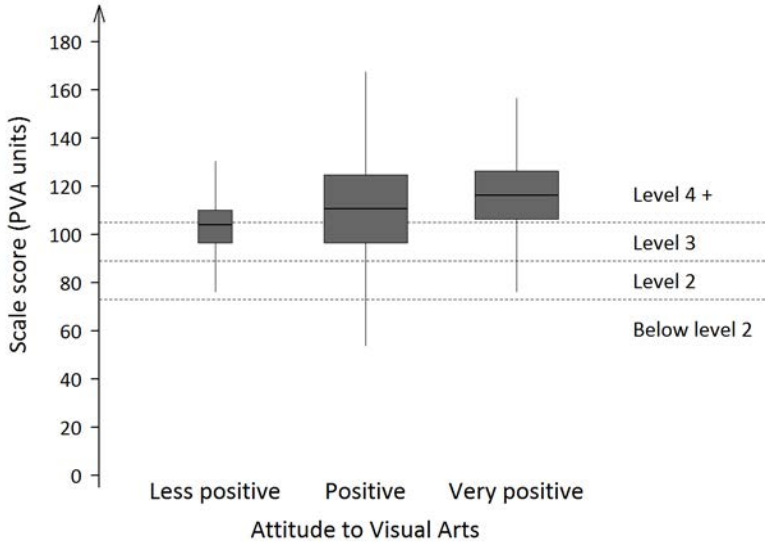



Figure 5.7 Distribution of PVA scale scores for Year 8 students, by level on the Attitude to Visual Arts scale

# 3. Learning opportunities in visual arts

We asked students, teachers and principals about the opportunities students had to learn visual arts in and out of school. This section reports their responses.

## Students' views about opportunities to learn visual arts

### Learning opportunities in school

Students were asked to rate how often they were involved in a list of opportunities and experiences to learn visual arts at school. Figure 6.8 shows the opportunities that were rated and how students responded, by year level.

Overall, students reported that they were most likely to: listen to and talk about art, draw or paint. Sizable proportions of students at both year levels reported that they 'never' worked with clay, did print making, textile art, or sculpture, or went on a school trip to look at or do art, like visit an art gallery. The last activitiy was less likely at Year 8 than at Year 4. Boys and girls reported very similar patterns of responses to these opportunities.

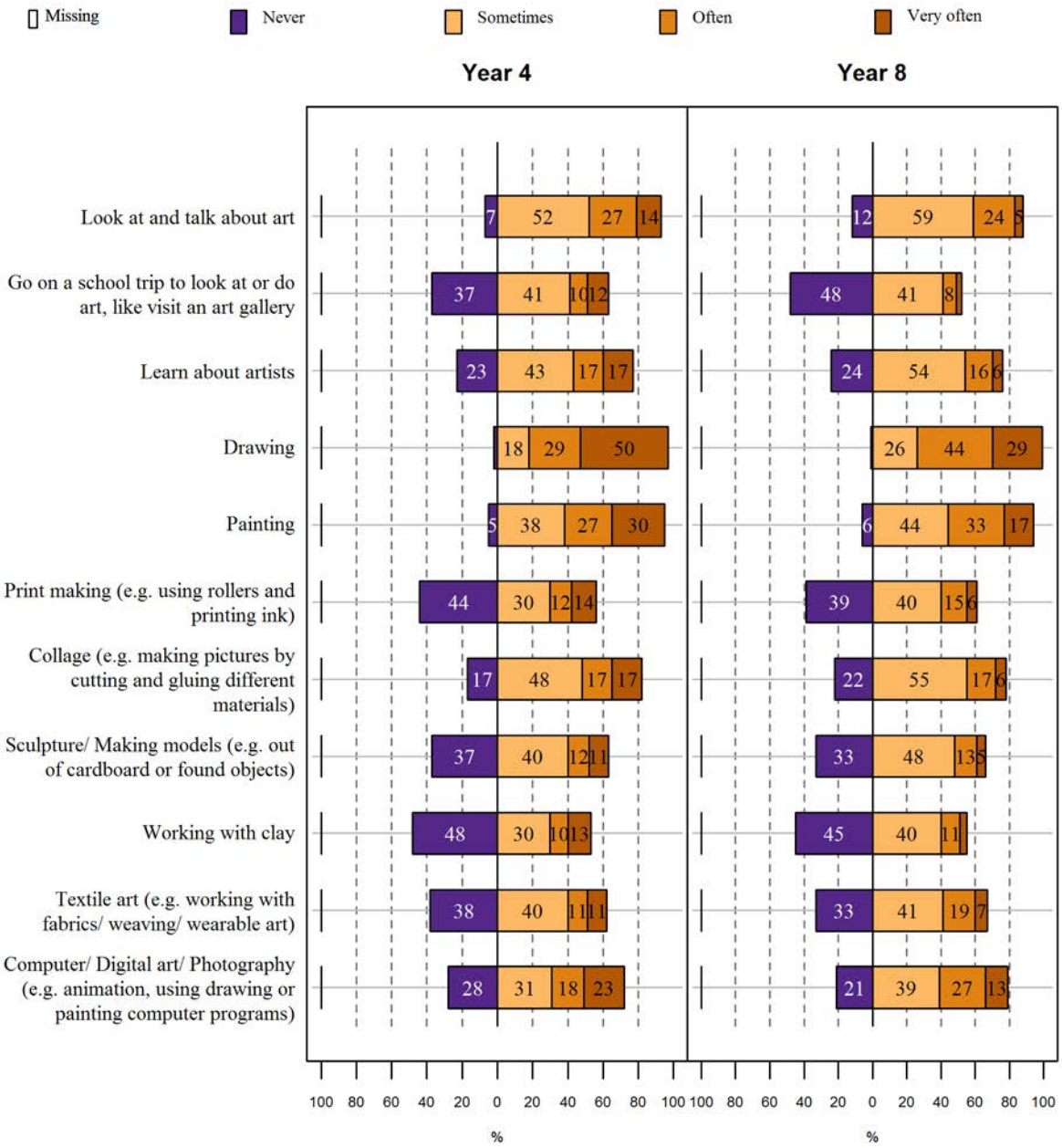



Figure 5.8 Percentage frequency of students' responses to statements about learning opportunities in visual arts, by year level

The pattern of responses for Māori students to the statements about learning opportunities was very similar to the responses for all students at both year levels.

Pasifika students responded to the opportunity statements similarly to all students in the sample at both year levels with one exception. Fewer Year 8 Pasifika students reported never having the opportunity to go on a school trip to look at or do art, like visit an art gallery compared to all students in the sample (31 percent compared with 48 percent, respectively).

Students with special education needs responded to the opportunity statements similarly to all students in the sample at both year levels with three exceptions. Students with special needs reported more opportunities to go on a school trip to look at and or do art, like visiting a gallery, do print making and work with clay.

**Learning opportunities outside of school**

Students were also asked two questions about their opportunities to learn and make visual arts outside of school. The first asked whether they went to visual arts lessons, classes or clubs and the second asked about the extent to which they had opportunities to make visual arts by themselves or with others.

Figure 5.9 shows the percentage of students who indicated they went to visual arts lessons, classes or clubs outside of school at Year 4 and 8, by gender. About 13 percent of students at Year 4 and 9 percent at Year 8 indicated they learned visual arts outside of school. Girls were more likely than boys to report involvement in classes or clubs, though the difference in proportions was not very large.

Figure 5.10 shows the relationship between achievement on the Performance in Visual Arts (PVA) scale and learning visual arts outside of school at Year 4 and Year 8. There was very little difference between the average score on the PVA scale, for students who attended after school visual arts classes compared to those who did not.

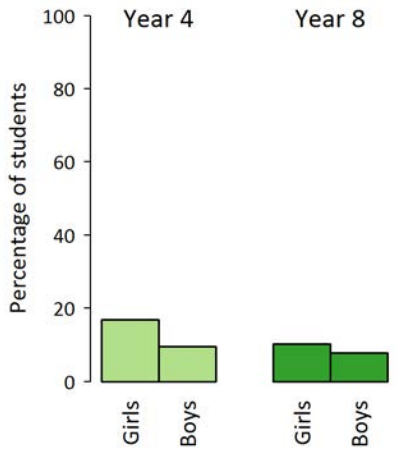



Figure 5.9 Percentage of students who go to visual arts lessons, classes or clubs outside of school time, by year level and gender

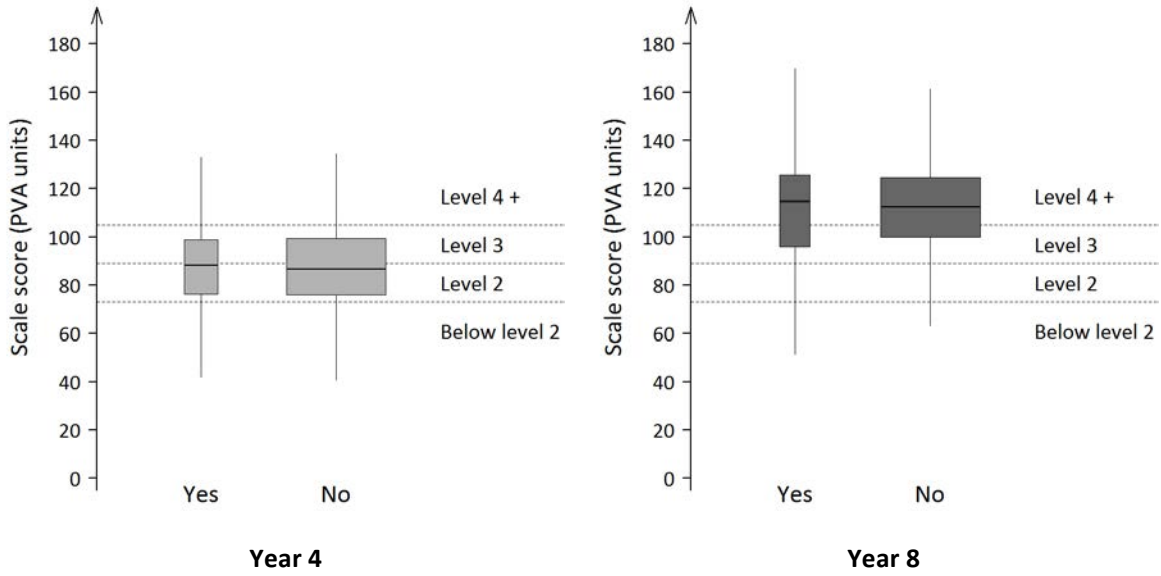



Figure 5.10 Distribution of PVA scale scores for Year 4 and Year 8 students who go to visual arts lessons, classes or clubs outside of school time

Figures 5.11 and 5.12 show how students responded to the question: 'Do you make visual arts by yourself or with others outside of school time?' by gender for Year 4 and Year 8, respectively. At both year levels about 75 percent of students indicated that at least sometimes they were involved in making visual arts outside of school. This group included a greater proportion of girls than boys.

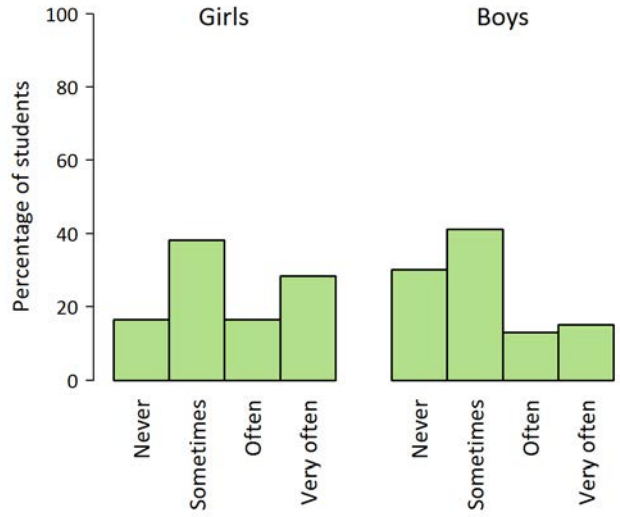



Figure 5.11 Percentage frequency of Year 4 students making visual arts by themselves or with others outside of school time, by gender

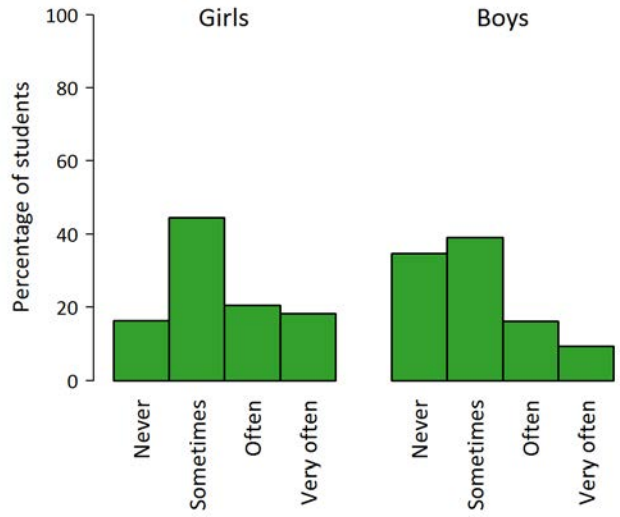



Figure 5.12 Percentage frequency of Year 8 students making visual arts by themselves or with others outside of school time, by gender

## Teachers' views of opportunities to learn visual arts

Teachers were asked to indicate how often students in their class had the opportunity to take part in a list of opportunities to learn visual arts as part of their school's visual arts programme. Figure 5.13 shows the statements and how teachers responded at Year 4 and Year 8, respectively. The opportunities were the same as those for students with some slight rewordings. However, the response scale teachers used to respond was different from the scale used by students (see Figure 5.8 to compare the response scales).

According to teachers the most frequently occurring learning opportunities in visual arts at both year levels were similar to those reported by students as being the ones they were most often involved in: looking at art and talking about art, drawing, and painting. More than 90 percent of teachers indicated that students had the opportunity to learn about artists at least once a year, and similar proportions reported opportunities for

collage at least once a year. About 30 percent of teachers at each year level reported students having an opportunity to draw at least once a week. Just under 20 percent of teachers at each year level reported students having an opportunity to paint at least once a week.

Fifty percent of teachers at Year 8, and 56 percent at Year 4, reported that students 'never or hardly ever' went on a school trip to look at or do art. Other infrequent activities (with between 30 to 44 percent of teachers reporting them occuring 'never or hardly ever') included: print making, working with clay and textile art.

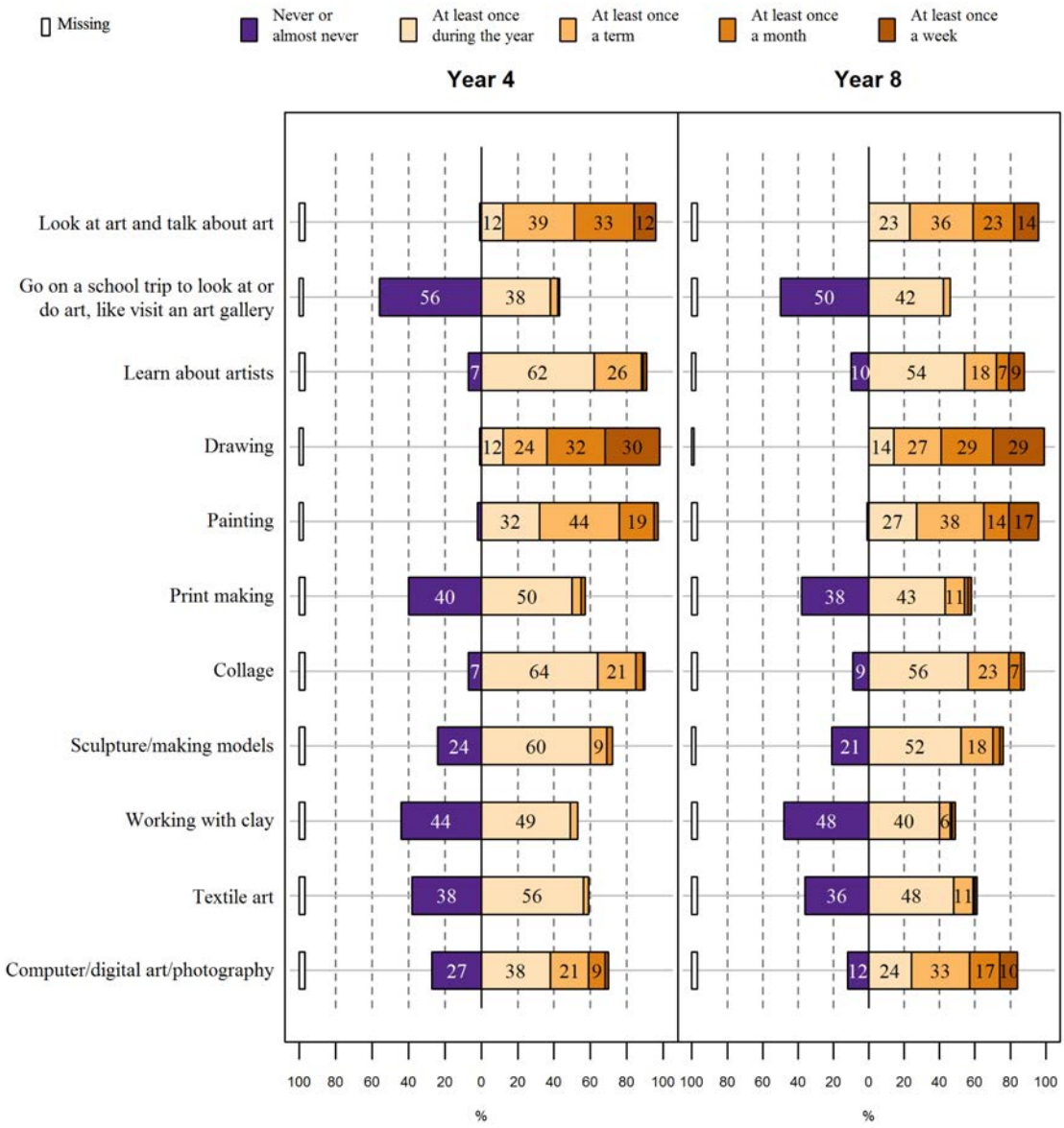



Figure 5.13 Percentage frequency of teachers' responses to statements about learning opportunities for students in visual art, by year level

## Principals' views on learning opportunities in the arts

Principals were asked to rate the priority given to visual arts compared to other learning areas. They responded by choosing from: 'Relatively low priority', 'Some priority' and 'High priority'. Ninety-six percent of principals at Year 4 and 95 percent at Year 8 responded that visual arts was given at least some priority. A greater proportion of principals at Year 8 than at Year 4 indicated visual arts had a high priority (53 percent at Year 8 compared with 25 percent at Year 4.)

Principals were also asked to list any regular school-wide activities related to the arts that students could choose to participate in at their school. The responses were coded into eight (separate) categories: kapa haka, multidisciplinary performance events, dance, drama, music (singing, instrumental groups), visual arts and cultural activities (the last category included all listed activities with a cultural focus except kapa haka).

Table 5.3 presents the percentage of principals listing activities that fell within each category at Year 4 and Year 8, along with examples of the activities and groups that were listed.

Table 5.3 Percentage of principals reporting regular school-wide arts activities that students can participate in at school

| | Percentage of principals | | |
|---|---|---|---|
| Arts activity | Year 4<br>%<br>*N = 93* | Year 8<br>%<br>*N = 85* | Examples |
| Kapa haka | 91 | 93 | Including pōwhiri, whaikōrero |
| Performance event | 82 | 92 | School production, school concert, talent quests, band quest |
| Singing | 83 | 86 | Choir, carol singing, vocal groups, glee club |
| Instrumental group | 71 | 76 | Rock/bands, chamber group, orchestra, classes/bands in ukulele, guitar, recorder, keyboard, violin, drums, 'music' |
| Visual arts | 39 | 39 | Art classes/extension (gifted), art gallery, art exhibition, wearable arts/trash to flash |
| Dance | 32 | 47 | Hip hop, jump jam dance, modern dance, dance groups/lessons, dance splash/sport |
| Cultural | 26 | 32 | Festivals, performance groups, Polyfest, Chinese, Korean, Indian, Pacific groups, Cook Island drumming |
| Drama | 22 | 26 | Theatre clubs/sports, drama and speech clubs/classes, movie/video making |

The most frequently listed school-wide arts activities were kapa haka (over 90 percent), performance events (80–90 percent), singing (over 80 percent) and instrumental groups (about 70 percent).

About 40 percent of principals at both year levels reported activities that were categorised as having a visual arts focus. Examples of the activities and groups that principals listed included art classes or extension art classes, art gallery, art exhibition, wearable arts and 'trash to flash' events.

## 4. Teaching and learning visual arts

This section describes how teachers and principals responded to questions about teaching and learning in visual arts. The section begins by exploring who teaches visual arts at Year 4 and Year 8 and their qualifications and experiences. It then goes on to look at teachers' confidence and engagement in visual arts, school-wide policies and practices in visual arts, professional interactions related to visual arts, and the amount and quality of professional learning and development and professional support.

### Responsibility for the teaching programme

Principals were asked the extent to which a specialist teacher was used within their school's visual arts teaching and learning programme. Table 5.4 shows how principals responded by year level. At Year 8, specialists taught all or nearly all of the visual arts programme in about half the schools. In contrast, at Year 4, classroom teachers taught visual arts with little or no added support in 73 percent of the schools.

Table 5.4 Percentage frequency of principals reporting who delivers the teaching and learning programme for visual arts, by year level

| | Percentage of principals | |
|---|---|---|
| Response | Year 4<br>% | Year 8<br>% |
| A specialist teacher teaches all or nearly all the programme | 1 | 49 |
| Mainly taught by specialist with some teaching by classroom teacher | 5 | 16 |
| Mainly taught by classroom teacher with some support from specialist | 21 | 14 |
| Programme taught by classroom teacher with little or no added support | 73 | 20 |

## Training and qualifications

Teachers were asked to indicate the qualifications, training and/or practical experience they had in visual arts by ticking all that applied from a list of possible qualifications. Figure 5.14 shows how teachers responded.

At Year 8, 19 percent of teachers had a specialist visual arts education focus in their initial teacher education programme, compared to only 7 percent of Year 4 teachers. At Year 8, 14 percent of teachers had undergraduate or postgraduate visual arts qualifications compared with less than 2 percent of Year 4 teachers. The proportion of Year 8 teachers who reported having worked in the visual arts industry or as a private visual arts teacher, was more than twice that of Year 4 teachers.

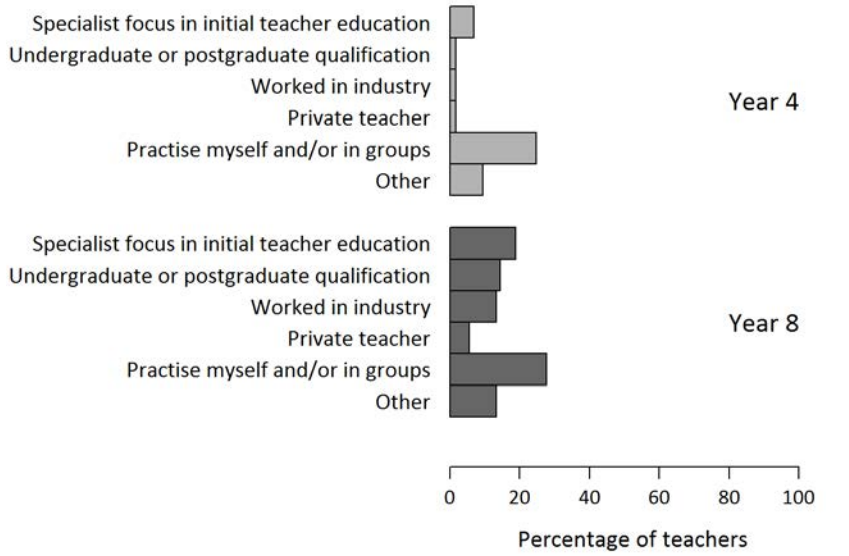



Figure 5.14 Percentage frequency of teachers' qualifications, training and/or practical experience in visual arts, by year level

Teachers were also able to indicate that they had other qualifications, training and/or practical experience in visual arts not provided in the list of qualifications. Some examples of 'other' responses from teachers were:

- attended course after school plus holidays
- worked offering extension arts programmes in schools
- leader of the arts (including visual arts) for eight years
- studies art history at university
- background in photography
- curator of Ngapuna Waihunga exhibitions and senior AA exhibitions
- voluntary arts practitioner for voluntary groups
- interior designing/window displays, shops.

## Teacher confidence and engagement in teaching visual arts

Teachers were asked to indicate how true each of a series of statements was for them regarding their confidence and engagement with visual arts. Figure 5.15 shows the statements and how teachers responded. The majority of teachers enjoyed making and teaching visual arts, and felt confident in teaching visual arts. The area in which they felt less confident was in assessing visual arts. Year 4 and Year 8 teachers reported consistently similar levels of confidence and engagement in teaching visual arts.

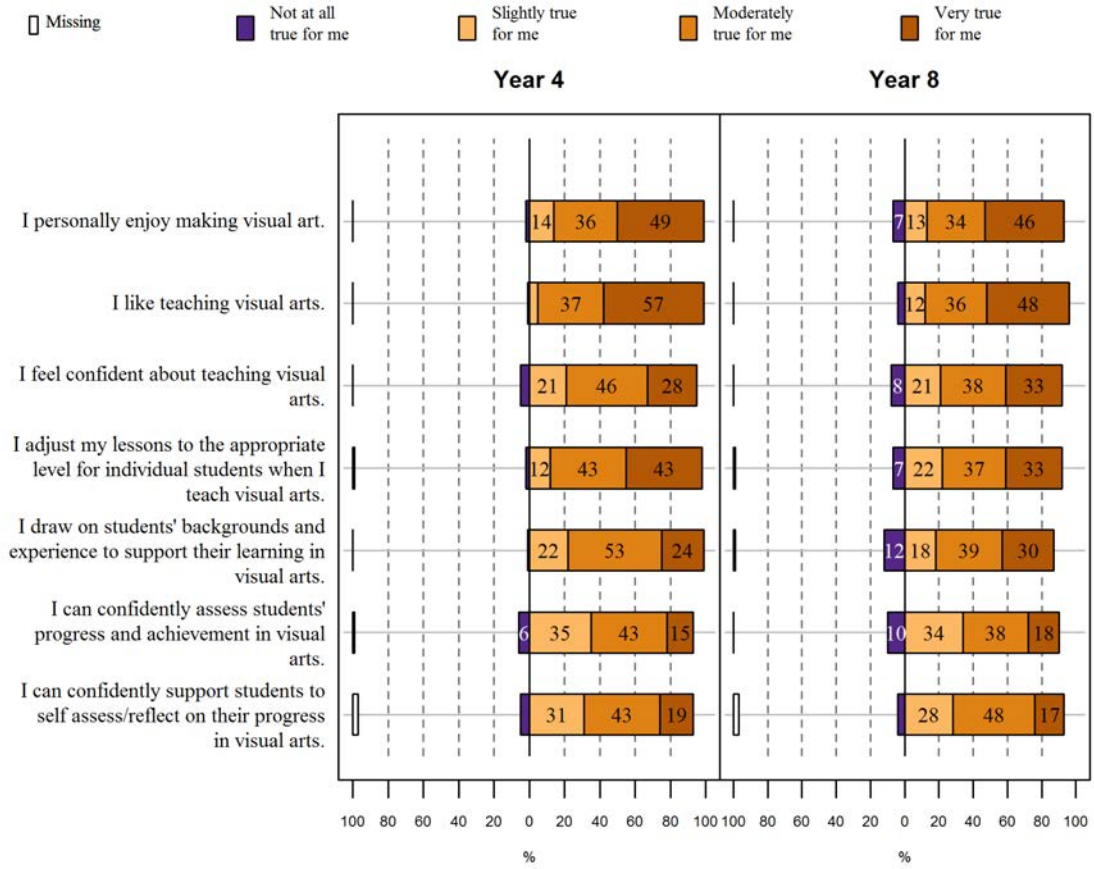



Figure 5.15 Percentage frequency of teachers' responses to statements about confidence and engagement in visual art, by year level

Figure 5.16 contrasts the combined responses at Year 8 from specialist teachers with those from general classroom teachers. Although the number of specialists was relatively small (N=18) there was a very stark contrast between the two groups. Almost all of the specialists responded with ‘very true for me’ or ‘moderately true for me’, while most of those who used ‘not at all true for me’ were general classroom teachers.

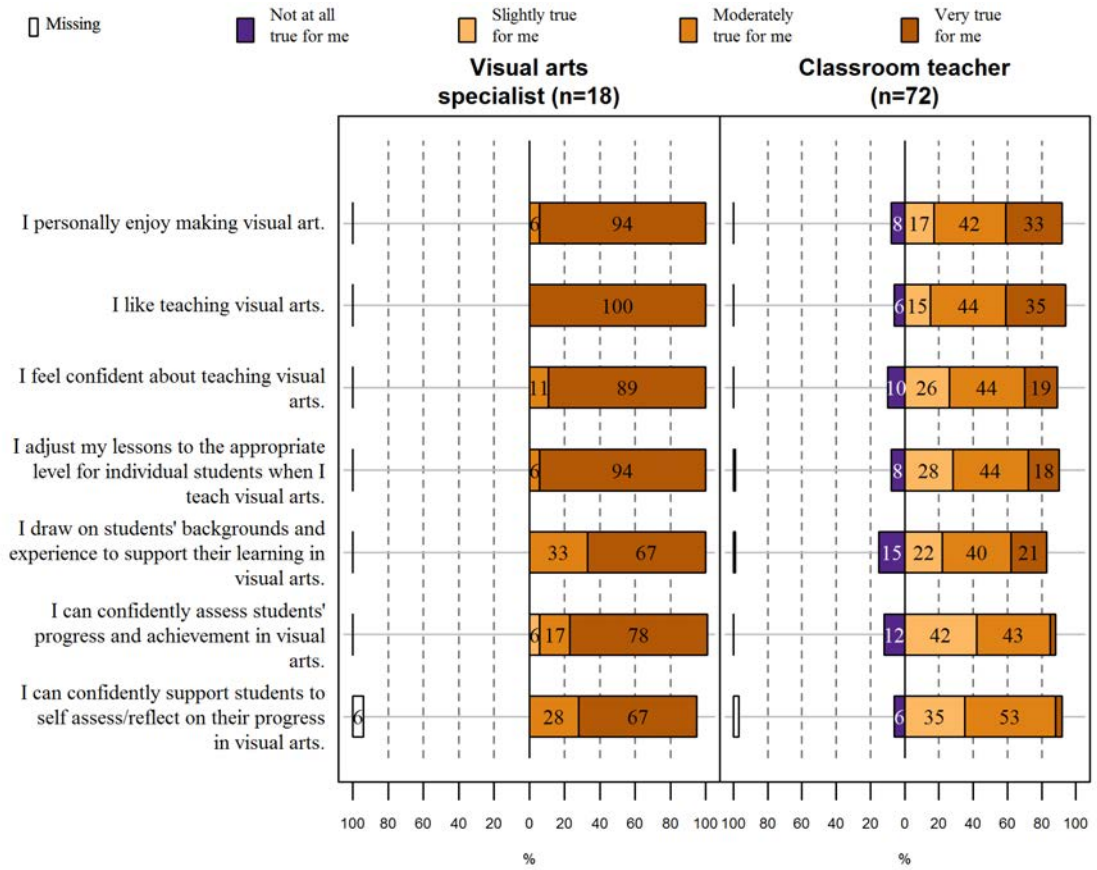



Figure 5.16 Percentage frequency of responses by Year 8 teachers to statements about confidence and engagement in visual arts, for specialist visual arts teachers and classroom teachers

## Principals' views of teachers' knowledge and practices

Principals were asked to rate how much two statements describing teachers' levels of knowledge and practices resembled what happened in their schools. Figure 5.17 shows the statements and how principals responded.

Most principals indicated that teachers were implementing strategies to meet the needs of diverse learners in visual art. About 80 percent of Year 8 and 71 percent of Year 4 principals considered that the statement was either 'moderately like' or 'very like their school'.

Principals were similarly positive that teachers in their schools had appropriate pedagogical and content knowledge to identify and respond effectively to the learning needs of students in visual art. About 77 percent of Year 8 and 61 percent of Year 4 principals considered that the statement was either 'moderately like' or 'very like their school'.

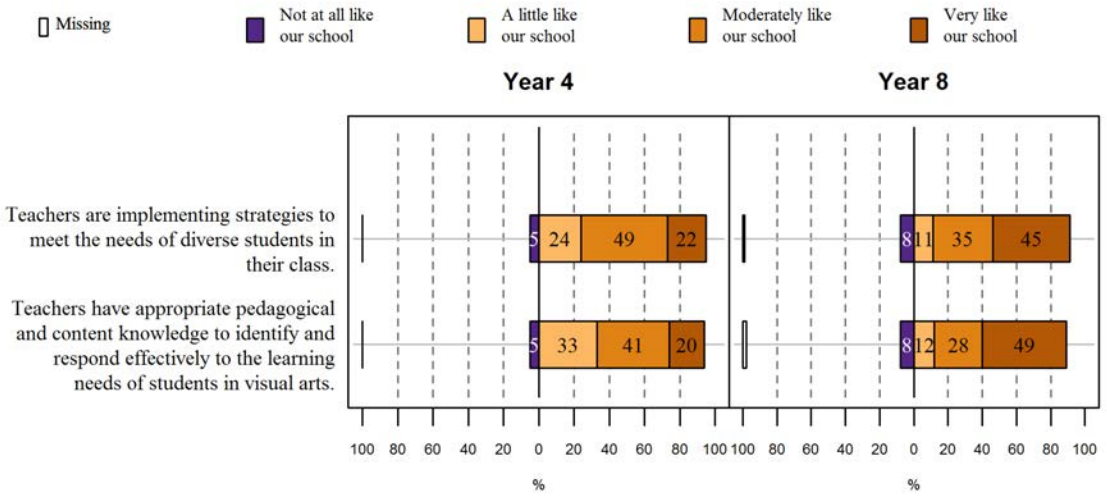



Figure 5.17 Percentage frequency of principals' responses to statements about their teachers' strategies and knowledge related to teaching visual arts, by year level

## School policies and practices around curriculum, assessment and reporting

The principals were asked to what extent they were involved in leading the school's visual arts programme. The majority of principals at both year levels were involved 'not at all or to a very limited extent' or 'to a small extent' (86 percent at Year 4 and 78 percent at Year 8). Only 6 percent of Year 8 principals responded that they were involved 'to a large extent'.

The principals also rated four statements related to curriculum, assessment and reporting. These statements related to comprehensive guidelines for teaching visual arts, coherent frameworks for assessment, systematic processes for data collection and analysis, and the provision of comprehensive information for parents about their child's progress in visual arts. Figure 5.18 shows how principals responded to the statements.

There was a marked difference between how Year 4 and Year 8 principals responded to each of the four statements. Principals in Year 8 were much more convinced than those in Year 4 that the policies and practices outlined in each statement represented what happened in their schools. Principals in Year 4 were particularly negative about two of the statements, with a majority using 'not at all like our school' to respond to the statements describing clear assessment guidelines, and systematic collation and analysis of achievement data.

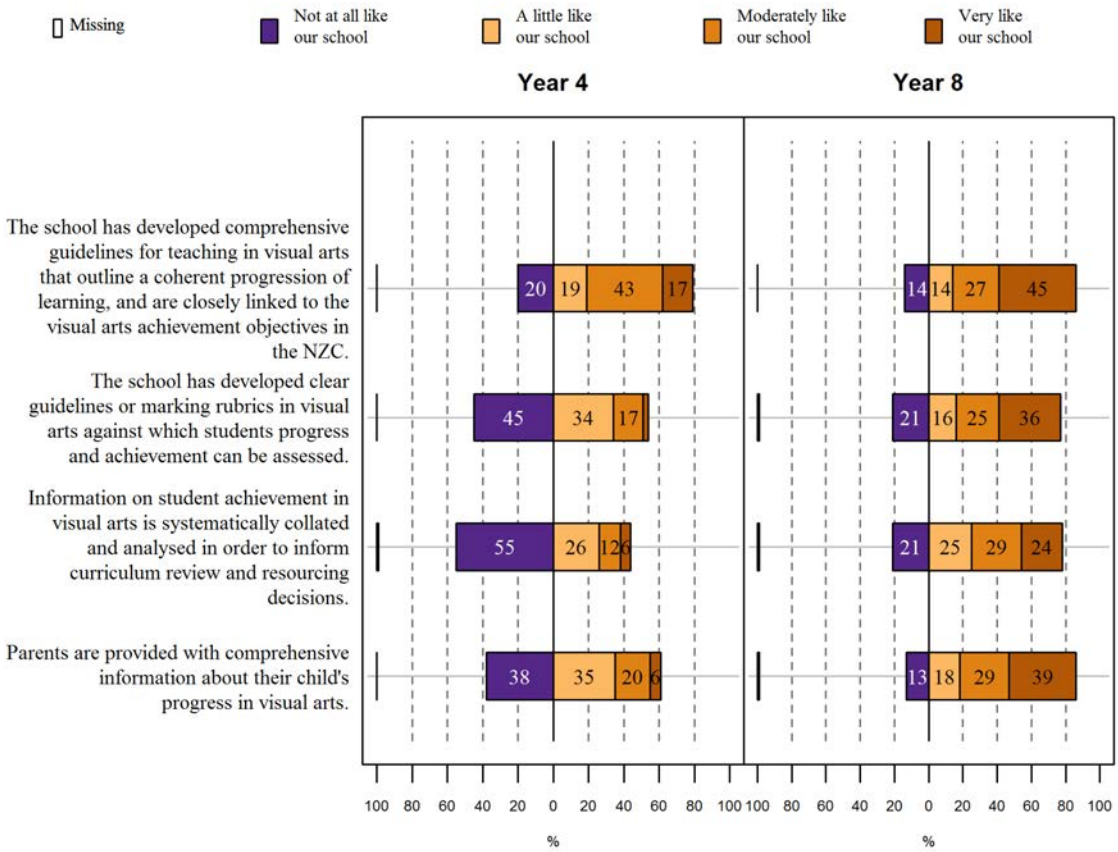



Figure 5.18 Percentage frequency of principals' responses to statements about curriculum, assessment and reporting policies and practices in visual arts, by year level

## Strategies for instruction

Teachers were asked to indicate how often they used a range of instructional strategies to meet the different needs of students in their classes. Figure 5.19 presents a series of bar plots showing how teachers responded regarding each strategy at Year 4 and Year 8.

At Year 4, 82 percent of teachers indicated that they often used whole class activities, while just over 22 percent indicated they often used group-based activities. Only about 10 percent of Year 4 teachers reported often using ability groups or individualised programmes. At Year 8 about 66 percent of teachers often used whole class activities and 25 percent often used group-based activities. Around 15 percent often used ability groups and individualised programmes.

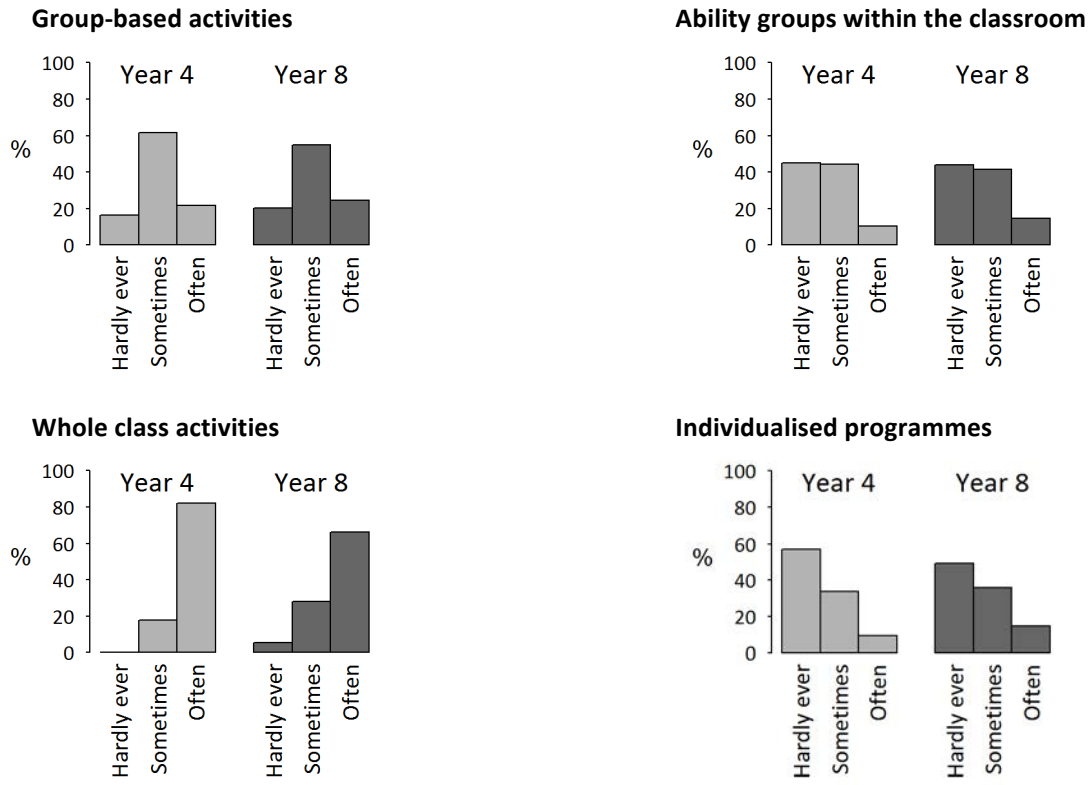



Figure 5.19 Percentage frequencies of different strategies for teachers meeting the differentiated needs of students in visual arts

## Professional support for teaching and learning in visual arts

Teachers were presented with a range of professional interactions involving visual arts teaching and learning and asked to indicate how often they occurred. Figure 5.20 shows how teachers responded to each of the interactions.

For each interaction, and at both year levels, the majority of teachers who responded, indicated that the professional interactions never or almost never happened. Year 4 teachers were more likely than Year 8 teachers to report interacting with their colleagues to develop long term plans about the visual arts programme, prepare resources, discuss how to teach a diverse range of students, and use visual arts resources on TKI.

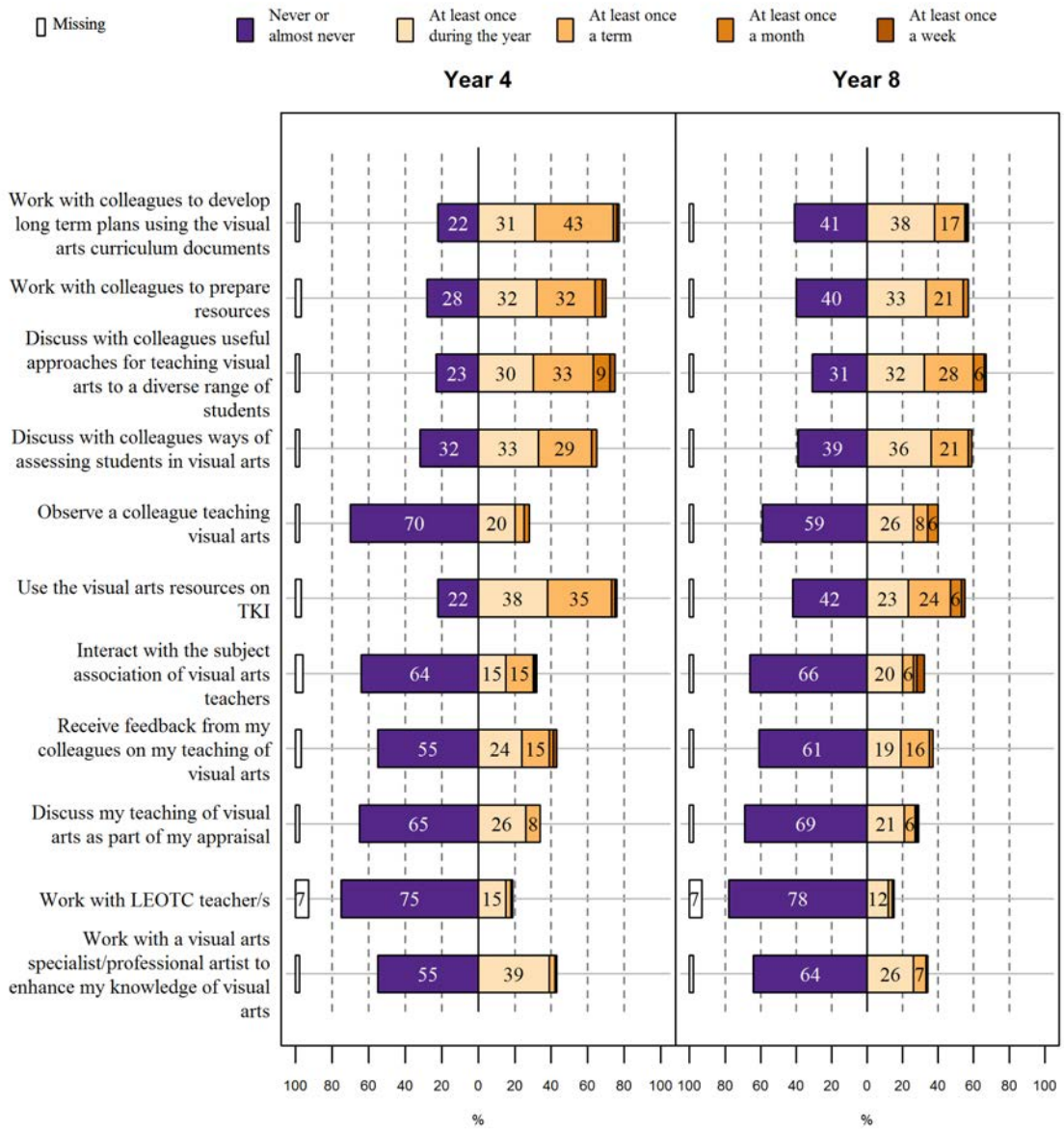



Figure 5.20 Percentage frequency of teachers' responses to statements about professional interactions related to teaching visual arts, by year level

On the basis of these professional interactions, teachers were asked to rate the level of professional support they received for teaching visual arts. Figure 5.21 shows that about 50 percent of Year 4 teachers, and 45 percent of Year 8 teachers, rated the support as 'poor' or 'very poor'. Around 20 percent of Year 4 teachers, and 25 percent of Year 8 teachers, rated it as 'good' or 'excellent'.

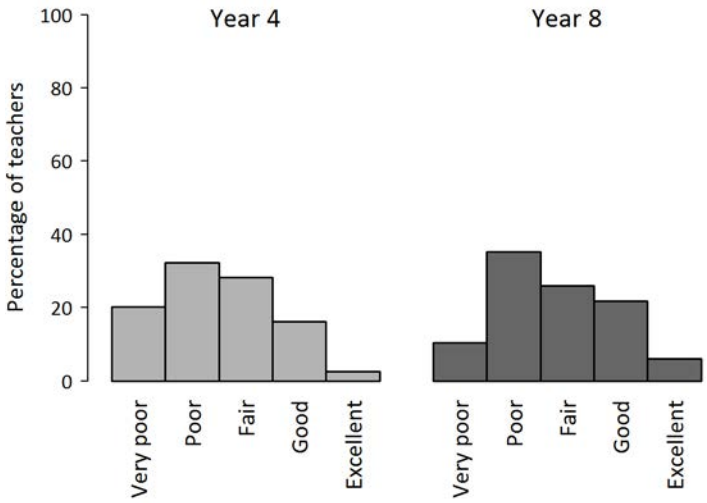



Figure 5.21 Percentage frequency of ratings by teachers about professional support they received for teaching visual arts by year level

### Professional learning and development

Teachers were asked if they had had any opportunities in the last 12 months for professional learning and development (PLD) focused on visual arts. About 30 percent of teachers indicated that they had. Figure 5.22 shows how these teachers responded when asked what impact the PLD had on their development as a teacher. About 75 percent indicated that the PLD had either a moderate or large positive impact.

Teachers who had not received any visual art-focused PLD in the last 12 months were asked how long ago they had received PLD. Figure 5.23 shows that the majority had either received visual arts-focused PLD five years ago or more. About 20 percent had never received external PLD in visual arts.

Principals were asked whether the school could access external professional development (PLD) in visual arts for teachers. They responded by selecting from: 'not at all', 'to a very limited extent', 'to a small extent', 'to a moderate extent', 'to a large extent'. Twenty-six percent of Year 4 principals and 20 percent of Year 8 principals selected 'not at all' or 'to a very limited extent'.

However, 37 percent of Year 4 principals and 52 percent of Year 8 principals indicated that they could access external support in visual arts to a moderate or large extent.

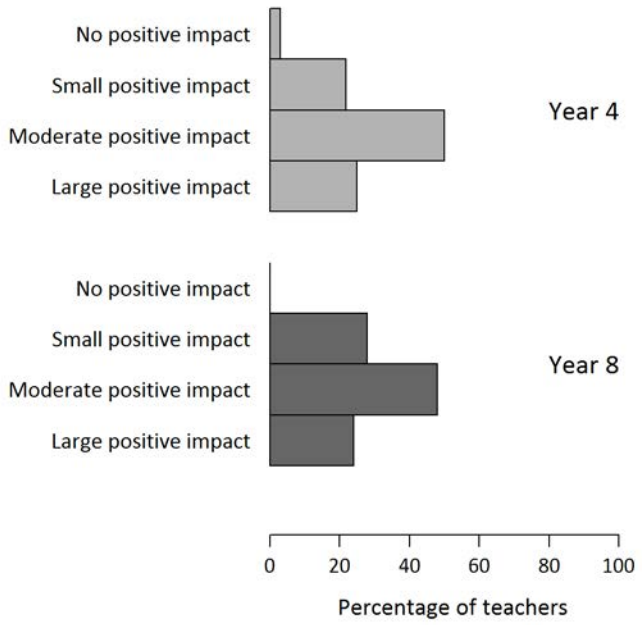



Figure 5.22 Percentage frequency of teachers' responses regarding how much positive impact the PLD undertaken over the last 12 months had on their development as a teacher, by year level

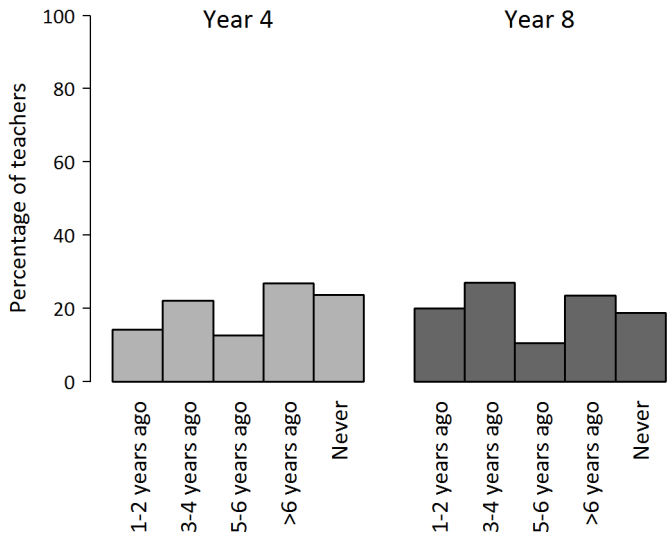



Figure 5.23 Percentage frequencies of teachers' responses regarding the last time they received PLD for visual arts if no PLD had occurred in the last 12 months, by year level

Principals were asked to indicate how well two statements about professional support for teachers described their school. They responded by selecting from: 'not at all like our school', 'a little like our school', 'moderately like our school' and 'very like our school'. Figure 5.24 shows that 87 percent of principals at Year 4 and 62 percent at Year 8 indicated that the statement 'the school has a comprehensive programme of PLD in visual arts' was not at all, or only a little like their school. However, in response to the statement: 'teachers with responsibility for visual arts are given appropriate support, including release time', 37 percent of Year 4 and 68 percent of Year 8 principals chose 'moderately like' or 'very like our school'.

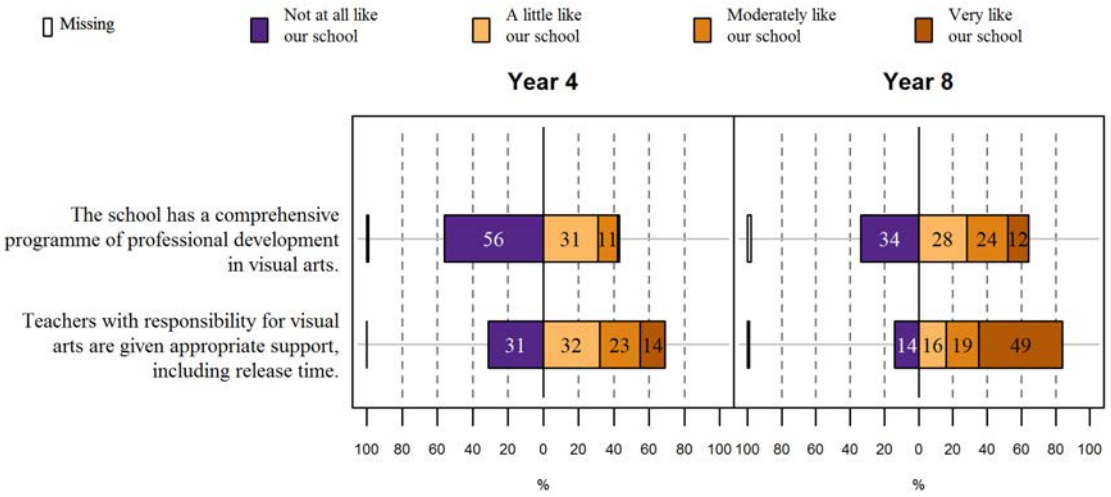



Figure 5.24 Percentage frequencies of principals' responses to statements about the professional support for teachers in visual arts, by year level

Principals were asked whether visual arts had been a focus area for development in their school in the last five years. Figure 5.25 shows how they responded. About 50 percent of Year 4 principals and 40 percent of Year 8 principals indicated that visual arts has not been a focus for development in the last five years. Fourteen percent of Year 4 and 19 percent of Year 8 principals said that visual arts had been a major focus for development.

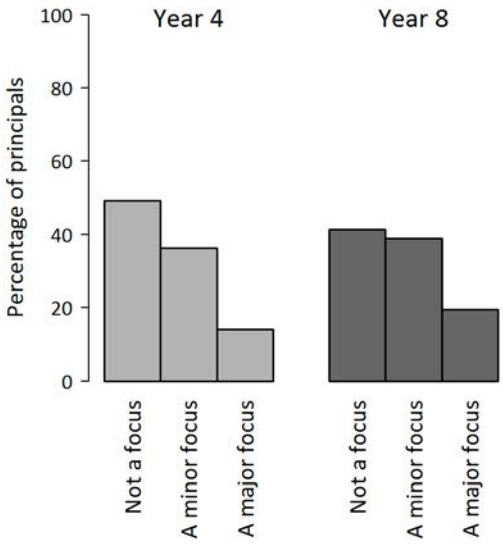



Figure 5.25 Percentage frequency of principals' responses regarding whether visual arts had been a focus area for development in the last five years, by year level

# 5. Resourcing visual arts

This section describes how principals and teachers responded to questions about the resourcing of the visual arts programme in their school.

## Teachers' responses

Teachers were asked to rate their level of agreement with three statements related to resourcing the visual arts programme at their school. Figure 5.26 shows the statements and how teachers responded.

Teachers held mixed views about the availability of visual arts resources with sizeable proportions of teachers indicating some level of disagreement with each statement. Overall, Year 4 teachers reported having greater access to each type of resource than Year 8 teachers.

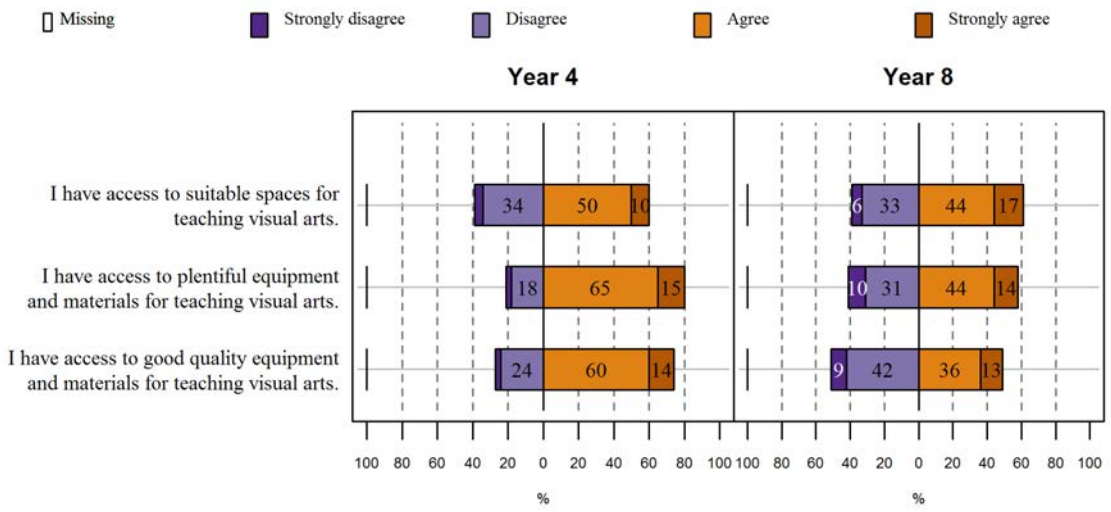



Figure 5.26 Percentage frequency of teachers' responses to statements about access to resources for teaching visual arts, by year level

### Availability of teaching spaces

Figure 5.27 shows how teachers responded when asked to select, from a list, the specialist spaces that were available to them for teaching visual arts.

A greater proportion of Year 8 than Year 4 teachers reported having access to a greater range of the specialist spaces, particularly to a studio and an art room. Nearly 40 percent of Year 8 teachers reported access to an art room compared with 5 percent of Year 4 teachers. Around 40 percent of Year 4 teachers and 32 percent of Year 8 teachers specified that there were other spaces, not on the list, that were available to them to teach visual arts. Many of these teachers specified their own classroom.

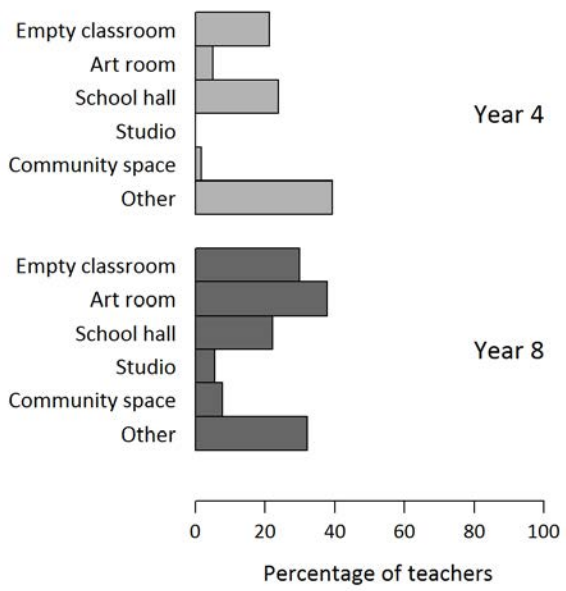



Figure 5.27 Percentage frequency of teachers' responses to which specialist spaces were available for teaching visual arts, by year level

**Availability of equipment**

Teachers were also asked to select, from a list, the equipment that they had access to for teaching visual arts. Figure 5.28 shows how they responded. Teachers' responses were fairly consistent across year levels, with the most notable difference being access to materials for 3D work (61 percent at Year 4 and 48 percent at Year 8). 'Other' equipment that was not listed was specified by 15 percent of teachers at Year 4, and 18 percent at Year 8. Pastels, crayons, paints and ink were mentioned by several teachers at each year level. Generally, teachers reported being relatively well-resourced in the visual arts.

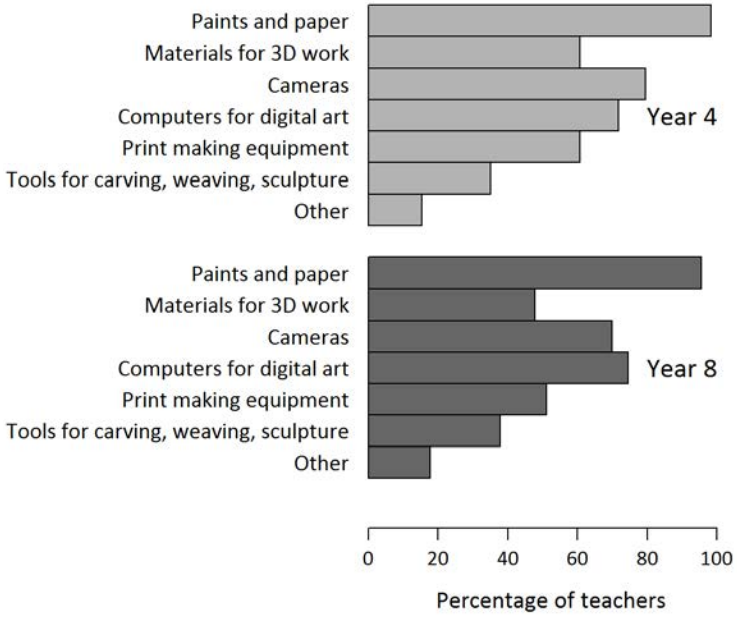



Figure 5.28 Percentage frequency of teachers' responses to what specialist equipment was available for teaching visual arts, by year level

## Principals' responses

Principals were asked to rate how well the statement: 'the school has sufficient facilities, equipment and resources to allow full involvement of all students in learning visual arts' described their school. They responded by selecting from: 'not at all like our school', 'a little like our school', 'moderately like our school' and 'very like our school'. Nearly 90 percent of principals at both year levels responded by using 'moderately like our school' or 'very like our school'.

Ninety-one percent of Year 8 principals indicated that the statement: 'the teachers responsible for delivering the classroom visual arts programme are highly effective in their use of teaching and learning resources to facilitate learning in visual arts' was 'moderately' or 'very like our school'. Year 4 principals showed slightly less agreement with 82 percent selecting 'moderately like our school' or 'very like our school'.

# Appendix: Summary Statistics

## Tables:



**Note about the tables contained in Appendix 1**

The structure of the NMSSA sample is complex: first schools are selected for the sample, and then clusters of students are selected from within those schools. While this is a practical solution to the challenge of drawing a representative sample of students from across New Zealand, it means that the width of confidence intervals around estimates of average scores will be underestimated if they are calculated using formulae that assume the sample was a simple random sample. To adjust for the clustering effect, NMSSA has determined an 'effective sample size' for each reporting group and used these to calculate all confidence intervals. The effective sample size is smaller than the actual sample size, and has the effect of increasing the width of the confidence intervals by about the right amount. The tables in this appendix provide the actual sample size and the adjusted sample size for each group reported on.

Table A1.1 Achievement on the Performance in Visual Arts (PVA score units): Summary statistics for Year 4 and Year 8 students

| Group | Actual sample size | Effective sample size | Mean | Confidence interval for the average | Standard deviation |
|---|---|---|---|---|---|
| **Year 4** | | | | | |
| All | 250 | 175 | 89 | (86.0, 91.5) | 19 |
| Girls | 120 | 84 | 92 | (88.5, 95.5) | 17 |
| Boys | 130 | 91 | 86 | (81.5, 89.5) | 19 |
| **Year 8** | | | | | |
| All | 241 | 169 | 111 | (108.0, 114.5) | 21 |
| Girls | 117 | 82 | 115 | (111.0, 120.0) | 21 |
| Boys | 124 | 87 | 107 | (103.0, 112.0) | 21 |

Table A1.2 Achievement on the Performance in Visual Arts (PVA score units): Differences between subgroup averages for Year 4 and Year 8 students

| Subgroup 1 | Subgroup 1 effective sample size | Subgroup 2 | Subgroup 2 effective sample size | Difference in averages | Confidence interval for difference in averages | Effect size |
|---|---|---|---|---|---|---|
| **Year 4** | | | | | | |
| Girls | 84 | Boys | 91 | 6 | (1.0, 12.0) | 0.35 |
| **Year 8** | | | | | | |
| Girls | 62 | Boys | 87 | 8 | (2.0, 14.5) | 0.39 |

Table A1.3 Achievement on the Performance in Visual Arts (PVA score units): Differences between Year 4 and Year 8 by subgroup

| Subgroup 1 | Year 8 effective sample size | Year 4 effective sample size | Difference in Year 8-Year 4 averages | Confidence interval for difference in averages | Effect size |
|---|---|---|---|---|---|
| All | 169 | 175 | 23 | (18.5, 27.0) | 1.13 |
| Girls | 82 | 84 | 23 | (17.5, 29.0) | 1.23 |
| Boys | 87 | 91 | 22 | (15.5, 27.5) | 1.06 |

Table A1.4 Achievement on the Attitude to Visual Arts (scale score units): Summary statistics for Year 4 students

| Group | Actual sample size | Effective sample size | Average | Confidence interval for the average | Standard deviation |
|---|---|---|---|---|---|
| All | 1087 | 761 | 106 | (104.0, 107.0) | 19 |
| **Gender** | | | | | |
| Girls | 506 | 354 | 110 | (108.5, 112.0) | 17 |
| Boys | 581 | 407 | 101 | (99.5, 103.5) | 21 |
| **Ethnicity** | | | | | |
| Māori | 229 | 160 | 105 | (102.0, 108.0) | 20 |
| Non-Māori | 858 | 601 | 106 | (104.0, 107.0) | 19 |
| Pasifika | 136 | 95 | 107 | (103.0, 111.5) | 21 |
| Non-Pasifika | 951 | 666 | 105 | (104.0, 106.5) | 19 |
| NZE | 627 | 439 | 104 | (102.5, 106.0) | 20 |
| Non-NZE | 460 | 322 | 107 | (105.0, 109.0) | 19 |
| Asian | 133 | 93 | 108 | (104.0, 111.5) | 18 |
| Non-Asian | 954 | 668 | 105 | (103.5, 106.5) | 20 |
| **School decile** | | | | | |
| Low decile | 287 | 201 | 108 | (105.0, 110.0) | 19 |
| Mid decile | 392 | 274 | 104 | (101.0, 106.0) | 20 |
| High decile | 408 | 286 | 106 | (103.5, 108.0) | 19 |
| **Special education needs (SEN)** | | | | | |
| No SEN | 1015 | 710 | 105 | (104.0, 107.0) | 19 |
| SEN (combined) | 72 | 50 | 107 | (101.5, 113.0) | 21 |

Table A1.5 Achievement on the Attitude to Visual Arts (scale score units): Summary statistics for Year 8 students

| Group | Actual sample size | Effective sample size | Average | Confidence interval for the average | Standard deviation |
|---|---|---|---|---|---|
| All | 1048 | 734 | 94 | (93.0, 96.0) | 21 |
| **Gender** | | | | | |
| Girls | 508 | 356 | 99 | (97.0, 101.0) | 18 |
| Boys | 540 | 378 | 90 | (88.0, 92.5) | 22 |
| **Ethnicity** | | | | | |
| Māori | 221 | 155 | 96 | (93.0, 99.5) | 20 |
| Non-Māori | 827 | 579 | 94 | (92.5, 95.5) | 21 |
| Pasifika | 112 | 78 | 99 | (94.5, 103.5) | 20 |
| Non-Pasifika | 936 | 655 | 94 | (92.5, 95.5) | 21 |
| NZE | 619 | 433 | 93 | (91.5, 95.0) | 21 |
| Non-NZE | 429 | 300 | 96 | (94.0, 98.5) | 20 |
| Asian | 98 | 69 | 96 | (91.5, 100.5) | 19 |
| Non-Asian | 950 | 665 | 94 | (92.5, 96.0) | 21 |
| **School decile** | | | | | |
| Low decile | 226 | 158 | 99 | (95.5, 101.5) | 20 |
| Mid decile | 370 | 259 | 93 | (91.0, 96.0) | 20 |
| High decile | 452 | 316 | 93 | (91.0, 95.5) | 21 |
| **Special education needs (SEN)** | | | | | |
| No SEN | 986 | 690 | 94 | (92.5, 95.5) | 21 |
| SEN (combined) | 60 | 42 | 99 | (92.5, 105.0) | 21 |

Table A1.6 Achievement on the Attitude to Visual Arts (scale score units): Differences between subgroup averages for Year 4 students

| Subgroup 1 | Subgroup 1 effective sample size | Subgroup 2 | Subgroup 2 effective sample size | Difference in averages | Confidence interval for difference in averages | Effect size |
|---|---|---|---|---|---|---|
| **Gender** | | | | | | |
| Girls | 354 | Boys | 407 | 9 | (6.5, 11.5) | 0.48 |
| **Ethnicity** | | | | | | |
| Māori | 160 | Non-Māori | 601 | 0 | (-4.0, 3.0) | -0.02 |
| Pasifika | 95 | Non-Pasifika | 666 | 2 | (-2.5, 6.5) | 0.11 |
| Asian | 93 | Non-Asian | 668 | 2 | (-1.5, 6.5) | 0.13 |
| NZE | 439 | Non-NZE | 322 | -3 | (-5.5, 0.0) | -0.14 |
| **Decile band** | | | | | | |
| High decile | 286 | Mid decile | 274 | 2 | (-1.0, 5.5) | 0.12 |
| High decile | 286 | Low decile | 201 | -2 | (-5.0, 2.0) | -0.09 |
| Mid decile | 274 | Low decile | 201 | -4 | (-7.5, -0.5) | -0.20 |
| **Special education needs (SEN)** | | | | | | |
| No SEN | 710 | SEN (combined) | 50 | -2 | (-8.0, 4.0) | -0.10 |

Table A1.7 Achievement on the Attitude to Visual Arts (scale score units): Differences between subgroup averages for Year 8 students

| Subgroup 1 | Subgroup 1 effective sample size | Subgroup 2 | Subgroup 2 effective sample size | Difference in averages | Confidence interval for difference in averages | Effect size |
|---|---|---|---|---|---|---|
| **Gender** | | | | | | |
| Girls | 356 | Boys | 378 | 9 | (6.0, 12.0) | 0.45 |
| **Ethnicity** | | | | | | |
| Māori | 155 | Non-Māori | 579 | 2 | (-1.5, 5.5) | 0.10 |
| Pasifika | 78 | Non-Pasifika | 655 | 5 | (0.5, 9.5) | 0.24 |
| Asian | 69 | Non-Asian | 665 | 2 | (-3.0, 6.5) | 0.09 |
| NZE | 433 | Non-NZE | 300 | -3 | (-6.0, 0.0) | -0.15 |
| **Decile band** | | | | | | |
| High decile | 316 | Mid decile | 259 | 0 | (-3.5, 3.0) | -0.01 |
| High decile | 316 | Low decile | 158 | -5 | (-9.0, -1.5) | -0.26 |
| Mid decile | 259 | Low decile | 158 | -5 | (-9.0, -1.0) | -0.26 |
| **Special education needs (SEN)** | | | | | | |
| No SEN | 690 | SEN (combined) | 42 | -4 | (-11.0, 2.0) | -0.22 |

Table A1.8 Achievement on the Attitude to Visual Arts (scale score units): Differences between Year 4 and Year 8 by subgroup

| Subgroup 1 | Year 8 effective sample size | Year 4 effective sample size | Difference in Year 8-Year 4 averages | Confidence interval for difference in averages | Effect size |
|---|---|---|---|---|---|
| All | 734 | 761 | -11 | (-13.0, -9.0) | -0.55 |
| **Gender** | | | | | |
| Girls | 356 | 354 | -11 | (-14.0, -8.5) | -0.64 |
| Boys | 378 | 407 | -11 | (-14.0, -8.0) | -0.53 |
| **Ethnicity** | | | | | |
| Māori | 155 | 160 | -9 | (-13.5, -4.5) | -0.45 |
| Pasifika | 78 | 95 | -8 | (-14.5, -2.5) | -0.41 |
| Asian | 69 | 93 | -12 | (-17.5, -5.5) | -0.62 |
| NZE | 433 | 439 | -11 | (-14.0, -8.5) | -0.55 |
| **Decile band** | | | | | |
| Low decile | 158 | 201 | -9 | (-13.0, -5.0) | -0.46 |
| Mid decile | 259 | 274 | -10 | (-13.5, -6.5) | -0.50 |
| High decile | 316 | 286 | -13 | (-16.0, -9.5) | -0.63 |
| **Special education needs (SEN)** | | | | | |
| SEN (combined) | 42 | 50 | -9 | (-17.0, -0.0) | -0.42 |

National Monitoring Study of Student Achievement

VISUAL ARTS 2015 – KEY FINDINGS

Report 10.5

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