



# The Adult Literacy and Life Skills (ALL) Survey: Gender, Ethnicity and Literacy

By Paul Satherley and Elliot Lawes

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## **Acknowledgements**

The authors gratefully acknowledge the assistance of Raelene Butters, Jit Cheung, Christabel Dillon, David Earle, Shona Ramsay, Lisa Rodgers, Lynne Whitney, and the National Research Bureau. The authors also gratefully acknowledge the time and effort invested by the respondents to the ALL and IALS surveys.

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# Overview

- How is literacy skill distributed across the female New Zealand adult population?
- How is literacy skill distributed across the male New Zealand adult population?
- How is literacy skill distributed across New Zealand's adult population according to ethnicity?
- Have there been any changes in these distributions over the past 10 years?

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- Have there been any changes in these distributions over the past 10 years?

The Adult Literacy and Life Skills (ALL) survey was designed to answer these and other questions. ALL measures literacy skills in the English language.

Why do we need these answers? The skill demands of a modern economy and society are becoming increasingly complex. If New Zealand is to maintain and enhance its position in the world economy, its adult population – including both women and men, and people with different ethnic backgrounds – needs to have high levels of generic and technical skills. The ALL survey provides an insight into our current skill levels for these sub-populations, and this insight is essential for the development of initiatives to maintain and enhance these levels and reduce inequities. In the longer term, having data from the 1996 International Adult Literacy Survey (IALS) and ALL gives us a baseline against which to track movement in levels of skill development for key groups.

This report is the third in a series of four that investigate the initial results of the ALL survey. It presents an overview of New Zealanders' skills in relation to gender and ethnicity, and any changes since 1996.

## Key findings

### Gender

- For both women and men, average prose literacy skill remained relatively stable between 1996 and 2006. However, the proportion of people with very low and very high prose literacy skill decreased.
- For both women and men, average document literacy skill rose and the proportion of people with very low document literacy skill decreased.
- Women had relative strength in prose literacy and men had relative strength in numeracy.
- The distributions of problem-solving skills were very similar for men and women.

### Gender and income

- For both women and men, on average, higher income is associated with greater prose literacy skill and numeracy skill.
- The mean income for men was at least two income deciles higher than for women with the same prose literacy and numeracy skills.
- For full-time employed men and women, the mean income for men was at least one income decile higher than for women with the same prose literacy and numeracy skills.

## **Ethnicity**

- The overall prose literacy skills of the New Zealand European, Māori and Asian ethnic groups rose, but those of the Pasifika ethnic group decreased.
- The overall document literacy skills of New Zealand European, Māori and Asian ethnic groups rose. Those of the Pasifika ethnic group remained relatively stable.
- The New Zealand European, Asian and Other ethnic groups were over-represented in the higher performers in numeracy skill, and the Māori and Pasifika ethnic groups were over-represented in the low performers.
- The New Zealand European and Other ethnic groups were over-represented in the higher performers in problem-solving skill, and the Māori, Pasifika and Asian ethnic groups were over-represented in the low performers.

## **Ethnicity and up-skilling**

- The Asian and Māori ethnic groups had the highest participation rates in formal up-skilling, the New Zealand European and Other ethnic groups had the highest participation rates in non-formal up-skilling, and the Pasifika ethnic group had the highest proportion with self-directed or no up-skilling.
- Across all ethnic groups, those with higher document literacy had higher participation rates in both formal and non-formal up-skilling than those with low document literacy.

## **Language most frequently spoken in the home**

- Those who most frequently spoke a language other than English in the home had substantially lower overall prose literacy in English and numeracy skills (measured in English) than those who most frequently spoke English. This difference was less marked for numeracy than for prose literacy.
- However, there was an increase between 1996 and 2006 in the overall prose literacy skill for both groups.

# 1. Introduction

The Adult Literacy and Life Skills (ALL) survey is an investigation of the distribution of certain skills among people aged 16 to 65. The skills tested are literacy (both prose literacy and document literacy), numeracy and problem-solving. Each of the skills is measured using English-language tests. The survey is conducted across a number of countries, as well as providing information specific to New Zealand.

The ALL survey follows a similar survey conducted in 1996: the International Adult Literacy Survey (IALS). Parts of the ALL survey are directly comparable to this earlier work. In particular, prose literacy and document literacy can be compared to provide a picture of some of the changes that have occurred over the previous decade.

For further information, please refer to *The Adult Literacy and Life Skills (ALL) Survey: An Introduction* (available at [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz)). This publication is intended as a companion to any reporting on the ALL survey and contains general information on the nature of the ALL survey and its application, as well as definitions, and descriptions of the skill domains and levels. Further information can also be found in the glossary on page 39, including definitions of the skills tested by the ALL survey (prose literacy, document literacy, numeracy and problem-solving) and the ways in which these are measured (levels of proficiency).

The focus of this report is on the distribution of literacy skills in New Zealand according to gender and ethnicity. Where possible, this report compares these distributions with those from the 1996 IALS survey – that is, changes in prose and document literacy skills. This report also includes an analysis of literacy skills in New Zealand according to the language most frequently spoken in the home. Two measures of distribution are used:

- the mean score on a 0 – 500 scale
- the proportions of people at each of five proficiency levels.

Over-sampling for the Māori and Pasifika populations was a key design feature of the ALL survey. This allows more detailed statistical analyses of these populations.

This report is the third in a series of four looking at the high-level results from the ALL survey. More in-depth analysis will be undertaken once this initial series has been completed.

## 2. Gender and Literacy

- How did the distributions of literacy skills for women change between 1996 and 2006?
- How did the distributions of literacy skills for men change between 1996 and 2006?
- How did the distribution of literacy skills differ between men and women?

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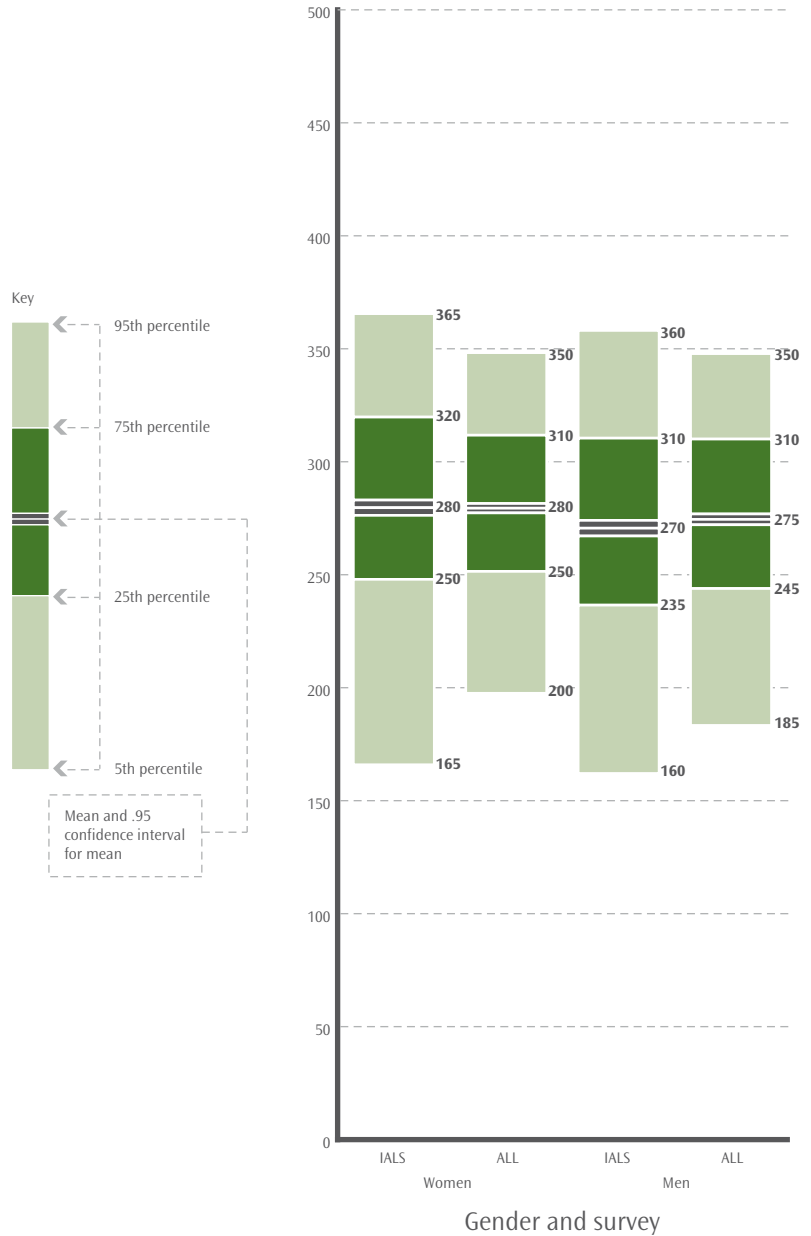
This section examines these questions.

### Prose literacy and gender

Prose literacy is the ability to read and understand continuous texts (such as news stories, editorials, brochures and instruction manuals). Prose literacy skill (in English) was measured by both the IALS and ALL surveys, and its distribution among the adult women and men of New Zealand is shown in Figure 2.1.

**For both women and men, average prose literacy skill remained relatively stable between 1996 and 2006. However, the proportion of people with very low and very high prose literacy skill decreased.**

**Figure 2.1: Prose literacy and gender, IALS and ALL**



**Note:**  
Scores are rounded to the nearest multiple of 5.

Figure 2.1 shows that for both women and men there was little change in mean prose literacy skill, with women remaining stable at around 280 and men moving slightly from 270 to 275. Figure 2.1 also shows that:

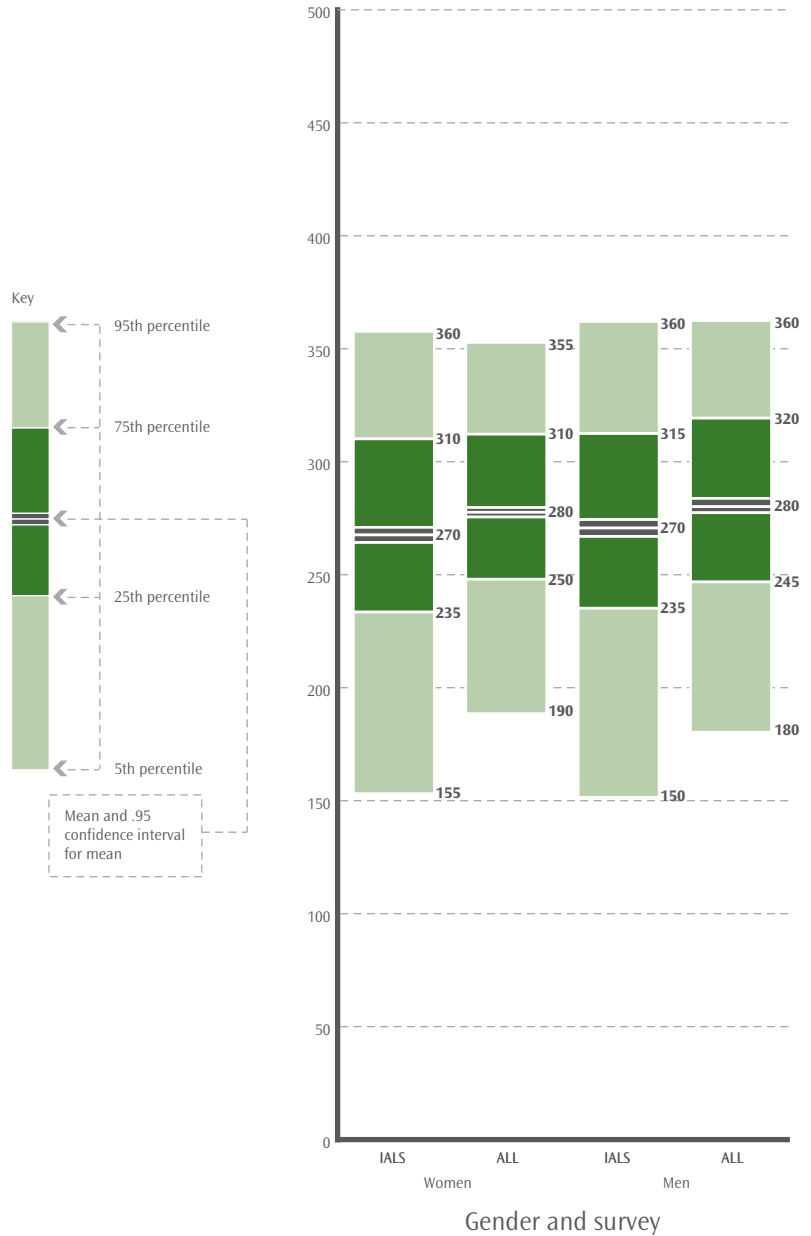
- for both women and men there was a substantial reduction in the spread of scores (for example, the range between the 5th percentile and the 95th percentile shrank substantially between 1996 and 2006)
- for both men and women the 25th and 75th percentiles remained relatively stable between 1996 and 2006.
- when compared with men, prose literacy was a domain of relative strength for women (almost all statistics for women were higher than the corresponding statistics for men).

### Document literacy and gender

Document literacy is the ability to read and understand discontinuous texts (such as charts, maps, tables, job applications, payroll forms and timetables). Document literacy skill was measured by both the IALS and ALL surveys, and its distribution among the adult women and men of New Zealand is shown in Figure 2.2.

**For both women and men, average document literacy skill rose and the proportion of people with very low document literacy skill decreased.**

**Figure 2.2: Document literacy and gender, IALS and ALL**



**Note:**  
Scores are rounded to the nearest multiple of 5.

Figure 2.2 shows that for both women and men, mean document literacy skill rose from 270 to 280. Figure 2.2 also shows that:

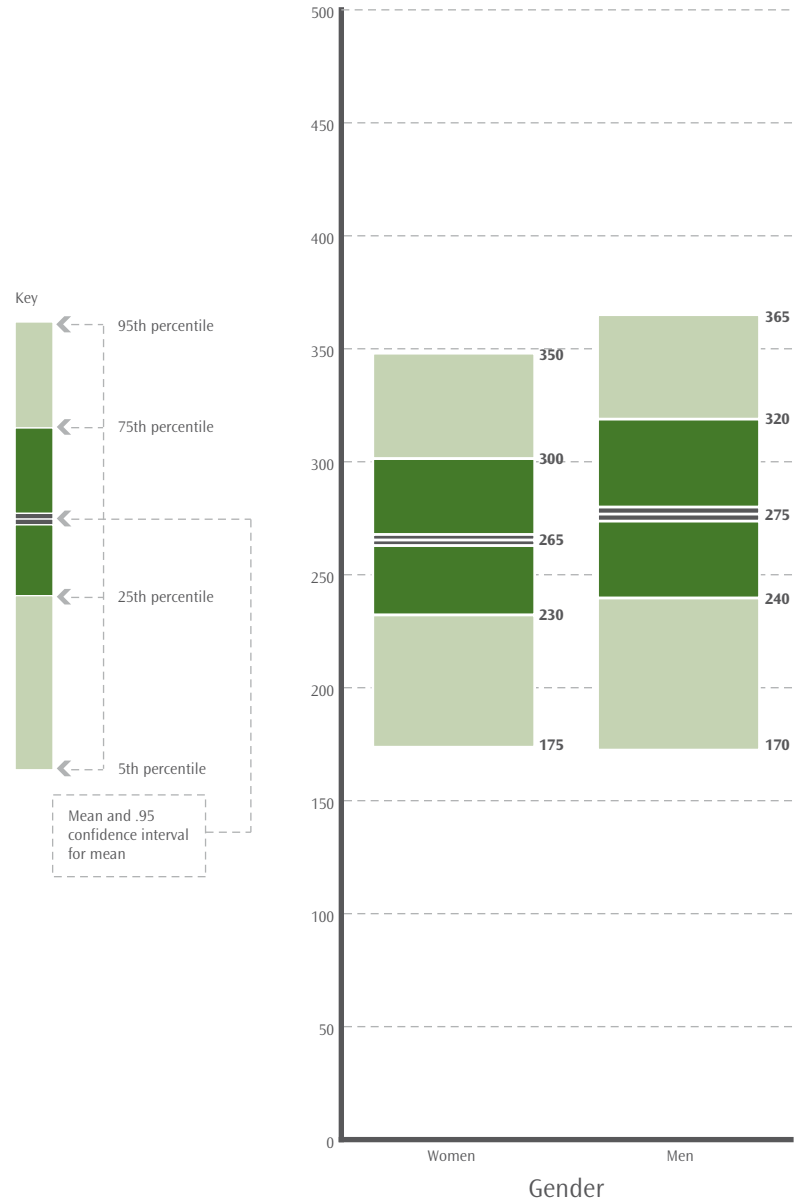
- for both women and men there was a substantial increase in the 5th percentile (the 5th percentile for women moved from around 155 to 190 and the 5th percentile for men from around 150 to 180)
- for both women and men the 95th percentile remained relatively stable (moving only from 360 to 355 for women and remaining at 360 for men)
- for both men and women the 75th percentile remained relatively stable but the 25th percentile increased.

### Numeracy and gender

Numeracy is the ability to read and process mathematical and numeric information in diverse situations. Numeracy skill was measured in the ALL survey only and its distribution among the adult women and men of New Zealand is shown in Figure 2.3.

**Women had relative strength in prose literacy and men had relative strength in numeracy.**

**Figure 2.3: Numeracy and gender, ALL only**



**Note:**

Scores are rounded to the nearest multiple of 5.

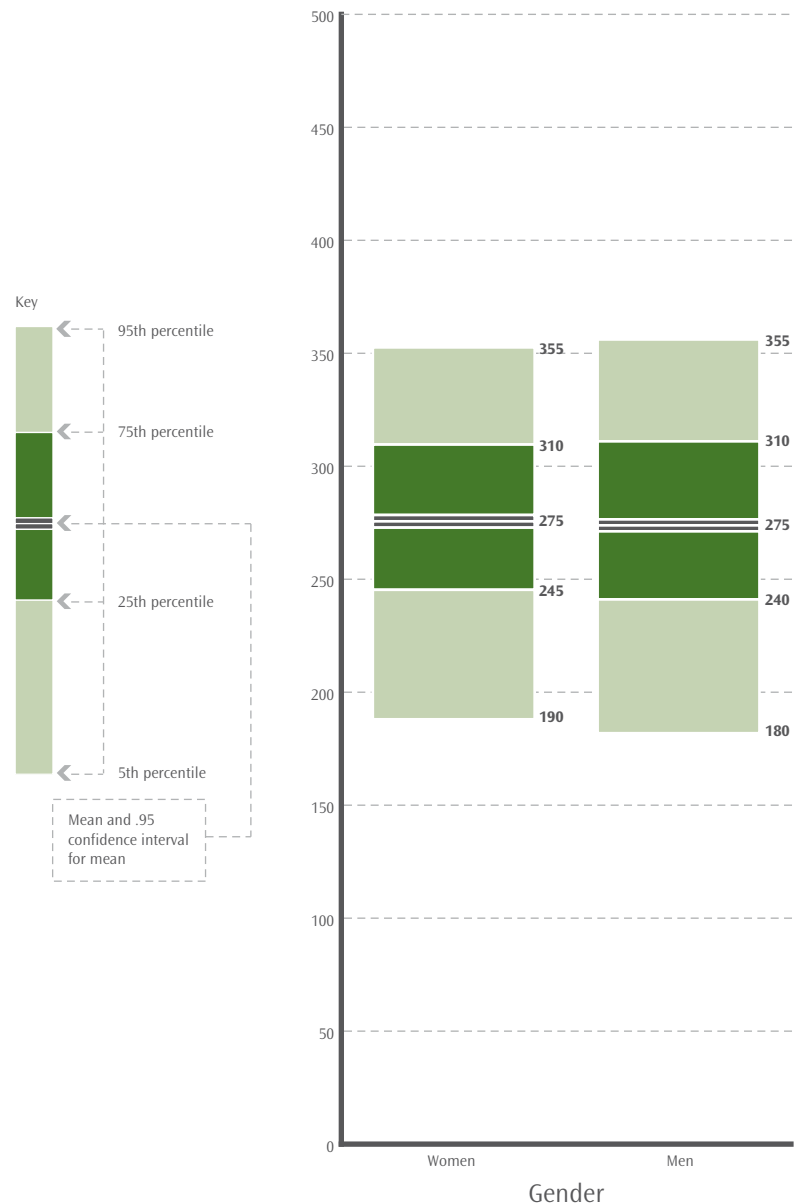
Figure 2.3 shows that the mean numeracy score for men (around 275) was greater than that for women (around 265). Figure 2.3 also shows that the spread of numeracy scores for men (ranging from a 5th percentile of around 170 to a 95th percentile of around 365) was wider than that for women (ranging from a 5th percentile of around 175 to a 95th percentile of around 350). The main gender difference is that a higher proportion of men than women have high numeracy skills. The low end of the numeracy distribution is similar for men and women.

## Problem-solving and gender

Problem-solving is the ability to reason and think analytically in situations where no routine procedure exists. Problem-solving skill was measured in the ALL survey only, and its distribution among the adult women and men of New Zealand is shown in Figure 2.4.

The distributions of problem-solving skill were very similar for men and women.

**Figure 2.4: Problem-solving and gender, ALL only**



**Note:**  
Scores rounded to the nearest multiple of 5.

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Figure 2.4 shows that for women and men the distributions of problem-solving skill are very similar. They have similar 95th percentiles (around 355), 75th percentiles (around 310), and means (around 275). The 25th percentile for women (around 245) is slightly higher than that for men (around 240), as is the 5th percentile (around 190 for women and 180 for men).

# 3. Gender, Income and Literacy

- What proportion of those with both high prose literacy and high numeracy skills are women?
- How do the incomes of women with high prose literacy and numeracy skills compare with similarly skilled men?

- What proportion of those with both high prose literacy and high numeracy skills are women?
- How do the incomes of women with high prose literacy and numeracy skills compare with similarly skilled men?

This section examines these and similar questions.

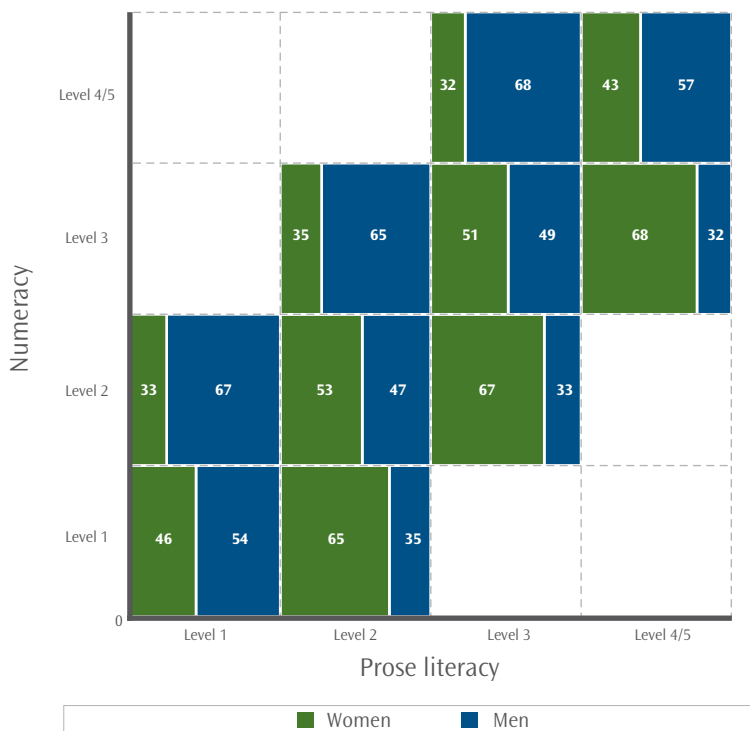
Prose literacy and numeracy are singled out for analysis in this section because they are the domains of relative strength for women and men respectively (see Section 2).

## Prose literacy, numeracy and gender

Prose literacy and numeracy skills were measured by the ALL survey, and the (simultaneous) distribution of both among the adult population of New Zealand by gender is shown in Figure 3.1.

For the populations at different prose literacy levels, the higher the prose literacy level, the greater the proportion that are women. This applies regardless of the populations' numeracy skill. For the populations at different numeracy levels, the higher the numeracy level, the greater the proportion that are men. This applies regardless of the populations' prose literacy skill.

**Figure 3.1: Prose literacy and numeracy, by gender, ALL only**



**Note:**

1. Percentages are rounded to the nearest whole number.
2. Blank cells indicate that cell membership was too low to allow accurate statistical analyses.

Figure 3.1 shows how the proportion of men and women varies for different combinations of high and low prose literacy and numeracy. It shows, for example, that the population with level 4 or 5 numeracy skill and level 3 prose literacy skill was 32% women and 68% men.

Looking at Figure 3.1:

- and reading up the columns, regardless of prose literacy skill, for the populations at different numeracy levels, the higher the numeracy level the greater the proportion of men
- and reading across the rows, regardless of numeracy skill, for the populations at different prose literacy levels, the higher the prose literacy level the greater the proportion of women.

## Prose literacy, numeracy, income and gender

The income variable analysed in this section is gross personal income from all sources. Income is reported by 'decile'.<sup>1</sup> A decile is one of ten sub-populations of approximately equal size into which a population can be divided. For example, the lowest income decile is the tenth of the population with the lowest income.

The reason for reporting income by decile is that it controls for changes in all incomes over time. This allows incomes from 2006, for example, to be meaningfully compared with any similar data collected in the past or in the future.

The income decile ranges for the ALL survey are as follows:

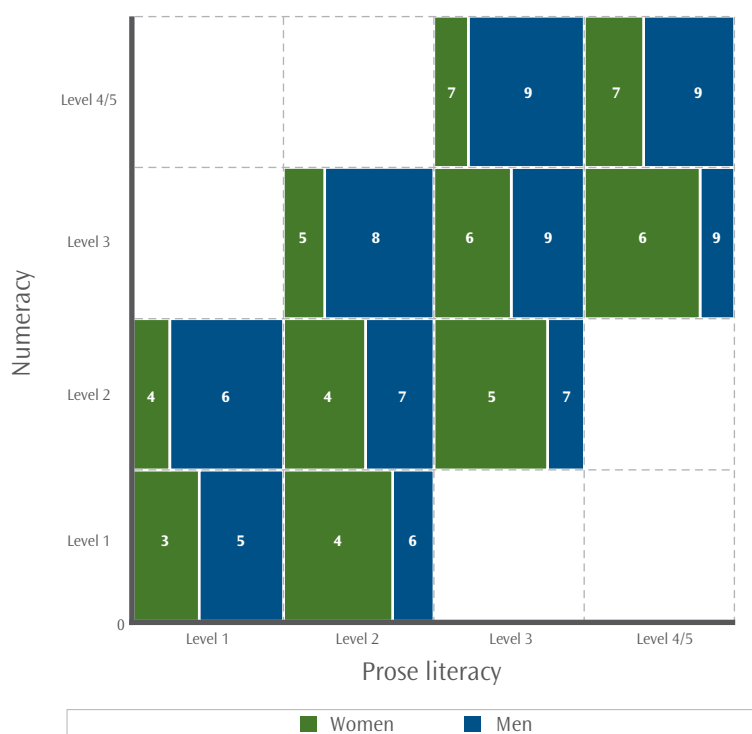
- decile 1: \$0 – \$3,000
- decile 2: \$3,001 – \$10,000
- decile 3: \$10,001 – \$17,000
- decile 4: \$17,001 – \$24,000
- decile 5: \$24,001 – \$30,000
- decile 6: \$30,001 – \$39,000
- decile 7: \$39,001 – \$46,000
- decile 8: \$46,001 – \$57,000
- decile 9: \$57,001 – \$75,000
- decile 10: \$75,001 and higher.

Figure 3.2 shows the same information as Figure 3.1 but adds, in each cell, the income decile of its mean income.

**For both men and women, higher income is associated with both greater prose literacy and greater numeracy skills. The mean income for men was at least two deciles higher than for women with the same prose literacy and numeracy skills.**

<sup>1</sup> In this report income deciles are used to represent patterns (including relationships between skill, gender and income) within the ALL data in finer detail than is possible with income quintiles. Note that: quintile 1 corresponds to deciles 1 and 2; quintile 2 corresponds to deciles 3 and 4; quintile 3 corresponds to deciles 5 and 6, and so on.

**Figure 3.2: Prose literacy, numeracy and income decile, by gender, ALL only**



**Note:**

Blank cells indicate that cell membership was too low to allow accurate statistical analyses.

Figure 3.2 contrasts income for men and women while controlling for their skill levels. It shows, for example, that, for the population with level 4 or 5 numeracy skill and level 3 prose literacy skill, women’s mean income was in the 7th income decile and men’s was in the 9th. Figure 3.2 also shows that the mean income for men was at least two deciles higher than for women across all skill categories.

One question raised by Figure 3.2 is whether these differences persist after controlling for time spent in the workplace. Men and women have different rates of labour force participation, including full-time and part-time work, and thus different patterns of earnings. The ALL survey collected information on whether employed respondents worked full- or part-time to allow this question to be investigated.

Figure 3.3 shows, for men and women in full-time employment, income decile by prose literacy and numeracy skill profile.<sup>2</sup>

<sup>2</sup> Note that Figure 3.3 does not contain information about proportions of men and women with various prose literacy and numeracy skill profiles.

**Figure 3.3: Prose literacy, numeracy and income decile for the full-time employed, by gender, ALL only**

Numeracy	Level 4/5					8	10	8	10
	Level 3			7	9	7	9	8	9
	Level 2	5	7	6	8	7	8		
	Level 1	5	6	5	7	6	8		
		Women	Men	Women	Men	Women	Men	Women	Men
		Level 1		Level 2		Level 3		Level 4/5	
		Prose literacy							

**Note:**

Blank cells indicate that cell membership was too low to allow accurate statistical analyses.

Figure 3.3 shows similar but less pronounced patterns to Figure 3.2. In particular, Figure 3.3 shows that the mean income for men employed full-time was at least one decile higher than for women employed full-time across all skill categories.

**For full-time employed men and women, the mean income for men was at least one decile higher than for women with the same prose literacy and numeracy skills.**

### Prose literacy, income and gender

The mean prose literacy score for the men and women in each income decile is shown in Figure 3.4. This provides a more detailed perspective on the rows of Figure 3.2.

**For both women and men, on average, as income increases so does prose literacy skill. For each income decile, the mean prose literacy skill of women is higher than that of men.**

**Figure 3.4: Prose literacy, income and gender**

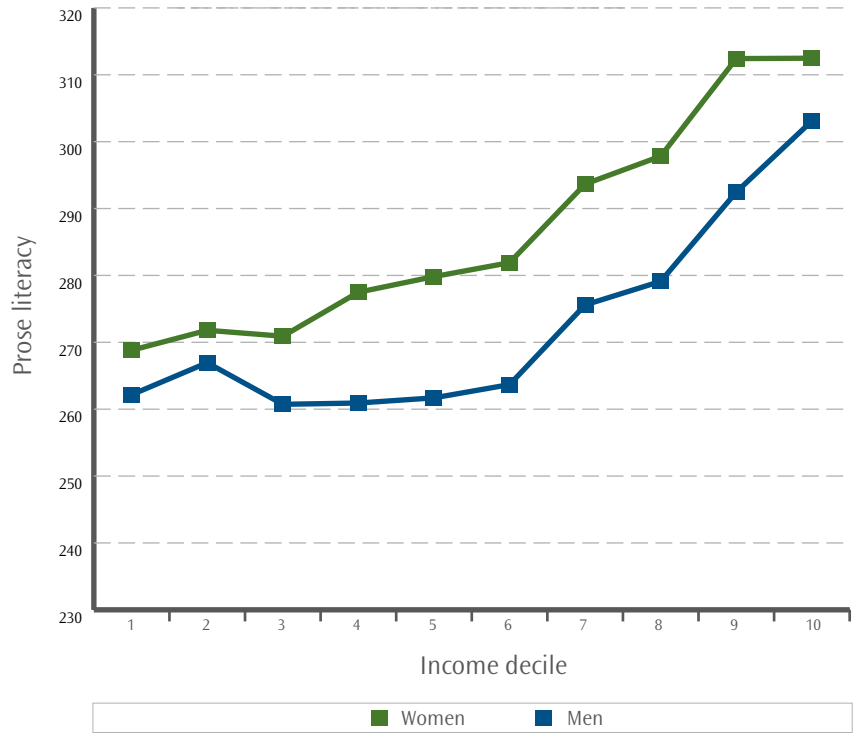


Figure 3.4 shows that, for both women and men, higher income deciles are associated with higher mean prose literacy skill. Figure 3.3 also shows that for each income decile, the mean prose literacy skill of women is higher than that of men. This difference is more marked for income deciles 4 to 9.

## Numeracy, income and gender

The mean numeracy score for the men and women in each income decile is shown in Figure 3.5. This provides a more detailed perspective on the columns of Figure 3.2.

For both women and men, on average, as income increases so does numeracy skill. For most income deciles, the mean numeracy skill of women is equal to or greater than that of men.

**Figure 3.5: Numeracy means and income decile, by gender, ALL only**

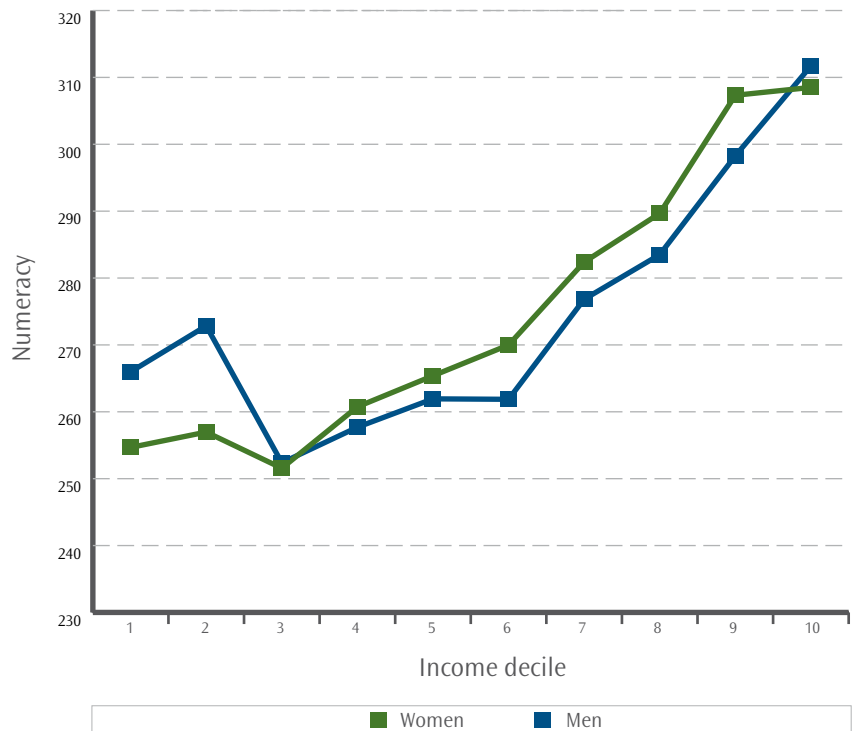


Figure 3.5 shows that, for both women and men, as income decile increases so does mean numeracy skill (although income deciles 2 and 3 do not follow this trend).<sup>3</sup> Figure 3.5 also shows that for most income deciles, the mean numeracy skill of women is equal to or greater than that of men (although income deciles 1, 2 and 10 don't follow this pattern.)

<sup>3</sup> This phenomenon occurs in other analyses by income. For example, in Statistics New Zealand's Household Economic Survey (for the year ended 30 June 2007), the number of employed people aged 15 and over increased as income decile increased except for between income deciles 2 and 3, where it decreased.

# 4. Ethnicity and Literacy

- How are the literacy skills of different ethnic groups distributed?
- How does the overall distribution of ethnicity compare with the distribution of ethnicity at each skill level?

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- How does the overall distribution of ethnicity compare with the distribution of ethnicity at each skill level?

This section examines these questions.

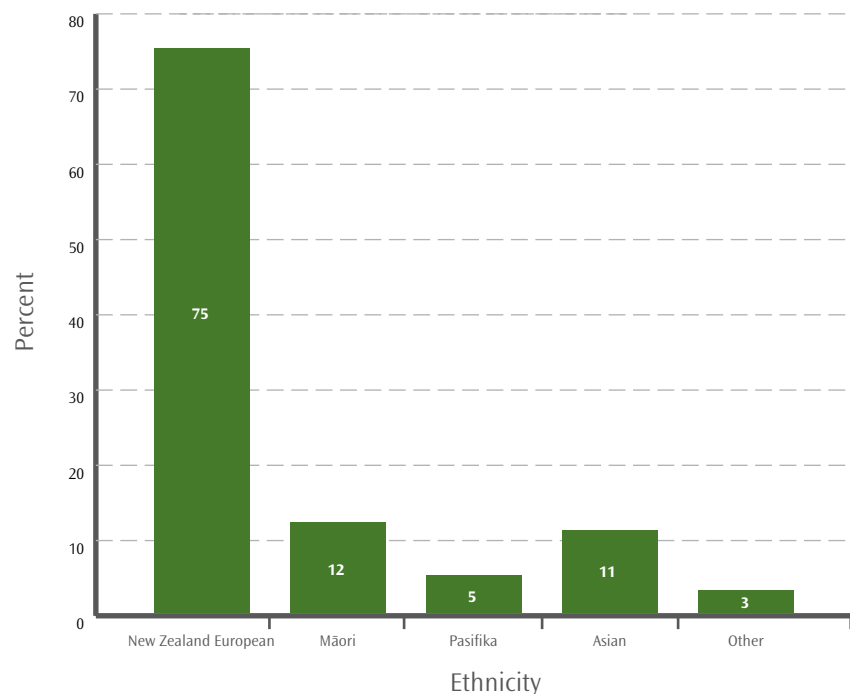
## Ethnicity

The IALS and ALL surveys collected information on respondents' self-reported ethnicity. As is standard with surveys like ALL, respondents could identify with several ethnicities. This means that some reported percentages (for example, those in Figure 4.1) may sum to more than 100%. Approximately 6% of the population identified with more than one ethnicity.

A feature of the ALL survey design was that it included 'over-sampling' for the Māori and Pasifika populations. This allows robust statistics to be reported for these populations and does not affect any of the other reported statistics.

Figure 4.1 shows the distribution of ethnicity in the adult population of New Zealand, as measured by the ALL survey.

**Figure 4.1: Distribution of ethnicity, ALL only**



**Note:**

1. Percentages are rounded to the nearest whole number.
2. In ALL, approximately 6% identified with more than one ethnicity. This compares with approximately 10% in the 2006 Census.

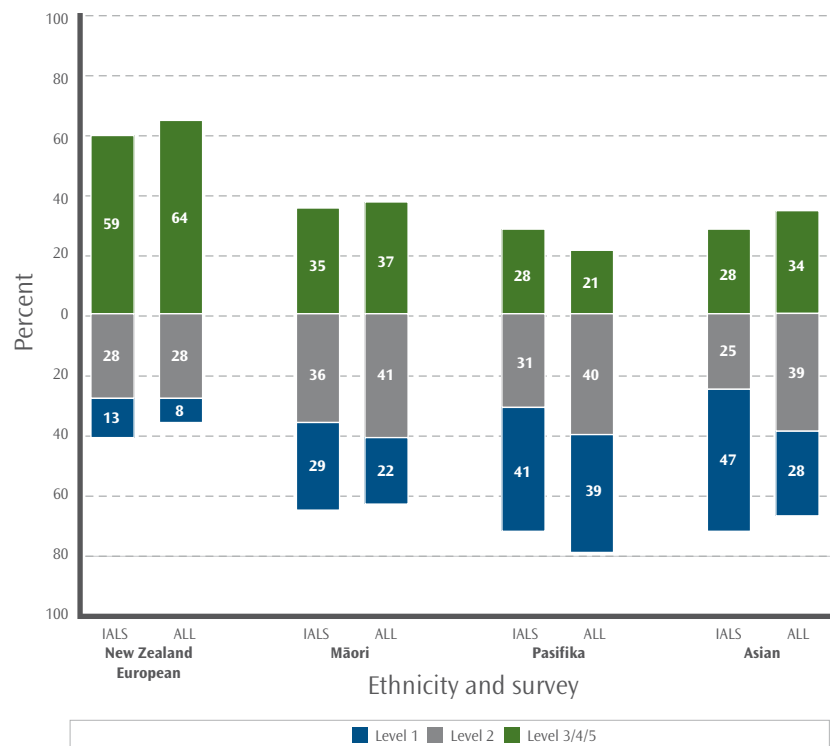
Figure 4.1 shows that around three-quarters of the adult population of New Zealand identify as New Zealand European. The next largest ethnic groups are Māori and Asian, followed by Pasifika and Other.

## Prose literacy and ethnicity

Prose literacy is the ability to read and understand continuous texts (such as news stories, editorials, brochures and instruction manuals). Prose literacy skill in English was measured by both the IALS and ALL surveys, and its distribution among ethnic groups in the New Zealand adult population is shown in Figure 4.2. Figure 4.3 shows the distributions of ethnicity in the populations with level 1, level 2, and levels 3, 4 or 5 prose literacy skill.

The overall prose literacy skills of New Zealand European, Māori and Asian ethnic groups rose or remained relatively stable. However, those of the Pasifika ethnic group decreased.

Figure 4.2: Prose literacy and ethnicity, IALS and ALL



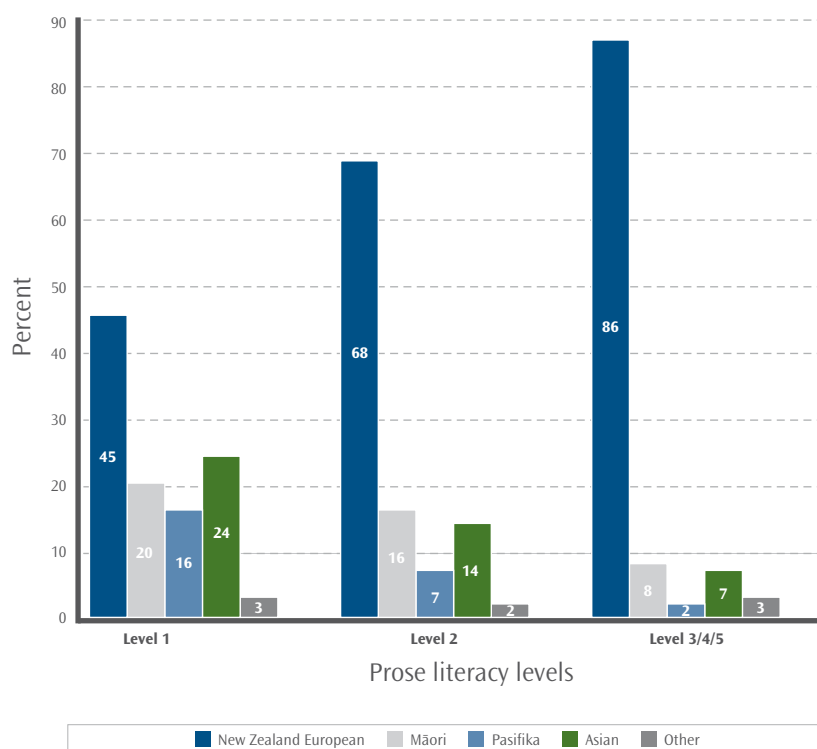
**Note:**

1. Levels 3, 4 and 5 are combined to give more robust statistical information.
2. Robust statistics were unable to be generated for the ethnicity Other.
3. The reported statistics for the IALS survey for the Pasifika and Asian groups are of marginal quality.
4. Percentages are rounded to the nearest whole number.

Figure 4.2 shows the following.

- For all ethnic groups, the percentage of the population at prose literacy level 1 decreased. These decreases were substantial for the New Zealand European, Māori and Asian ethnic groups
- For the Māori, Pasifika and Asian ethnic groups, the percentage of the population at prose literacy level 2 increased substantially. For the New Zealand European ethnic group this percentage remained stable at around 28%.
- For the New Zealand European, Māori, and Asian ethnic groups the percentage of the population at prose literacy level 3, 4 or 5 increased. For the New Zealand European and Asian ethnic groups this increase was substantial. For the Pasifika ethnic group the percentage of the population at prose literacy level 3, 4 or 5 decreased substantially.

**Figure 4.3: Distribution of ethnicity, by prose literacy skill level, ALL only**



**Note:**

1. Percentages are rounded to the nearest whole number.
2. Approximately 6% of 16-65 year-olds identified with more than one ethnicity.

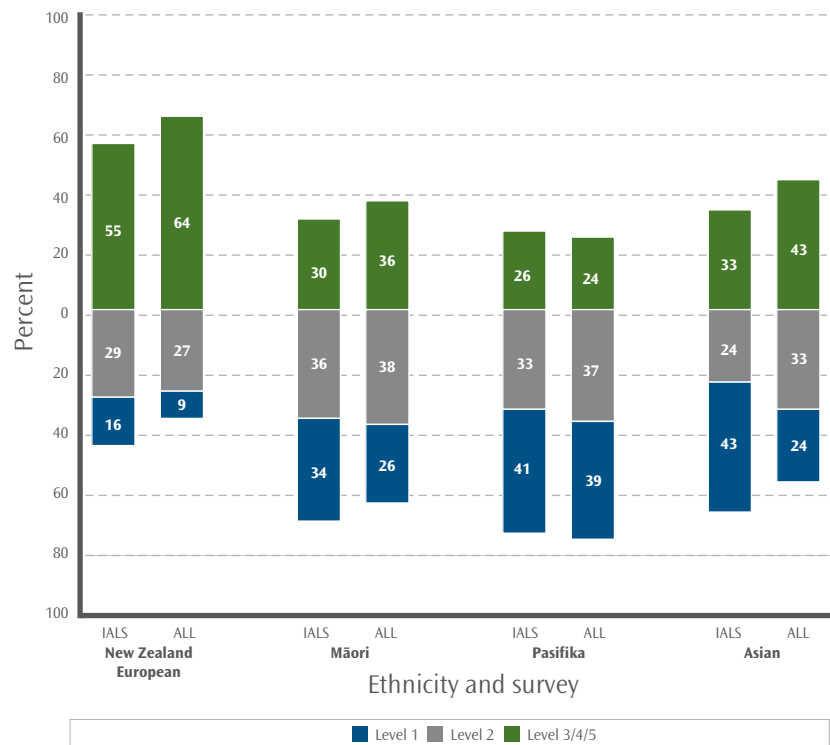
Figure 4.3 shows that as prose literacy skill level increases, the percentage of the population at that skill level occupied by New Zealand Europeans increases and the percentage occupied by every other ethnic group decreases. However, as the prose literacy skill level increases, the relative positions of the ethnic groups remain largely unchanged (with the New Zealand European group occupying the largest percentage, Māori or Asian the next largest, and so on). In fact these are the same as the relative positions in the total adult population (see Figure 4.1).

## Document literacy and ethnicity

Document literacy is the ability to read and understand discontinuous texts (such as charts, maps, tables, job applications, payroll forms and timetables). Document literacy skill in English was measured by both the IALS and ALL surveys, and its distribution among the ethnic groups of the New Zealand adult population is shown in Figure 4.4. Figure 4.5 shows the distributions of ethnicity in the populations with level 1, level 2, and levels 3, 4 or 5 document literacy skill.

The overall document literacy skills of New Zealand European, Māori and Asian ethnic groups rose. Those of the Pasifika ethnic group remained relatively stable.

Figure 4.4: Document literacy and ethnicity, IALS and ALL



**Note:**

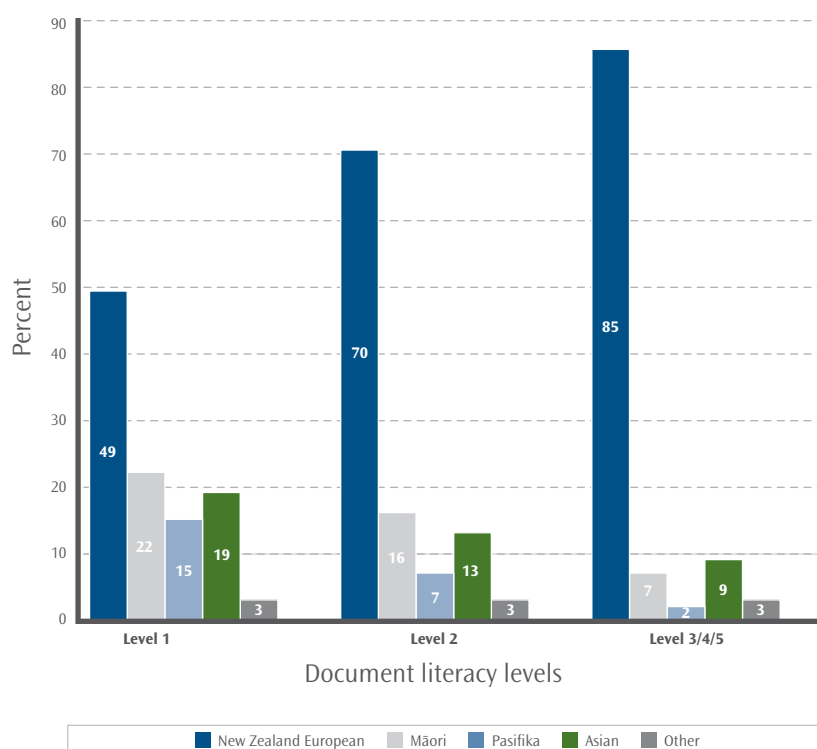
1. Levels 3, 4 and 5 are combined to give more robust statistical information.
2. Robust statistics were unable to be generated for the ethnicity Other.
3. The reported statistics for the IALS survey for Pasifika and Asian are of marginal quality.
4. Percentages are rounded to the nearest whole number.

Figure 4.4 shows the following.

- For all ethnic groups, the percentage of the population at document literacy level 1 decreased. These decreases were substantial for the New Zealand European, Māori and Asian ethnic groups.
- For the Māori, Pasifika and Asian ethnic groups, the percentage of the population at document literacy level 2 increased; for the Asian ethnic group this increase was substantial. For the New Zealand European ethnic group the percentage of the population at document literacy level 2 remained relatively stable (from around 29% to 27%).

For the New Zealand European, Māori, and Asian ethnic groups the percentage of the population at document literacy level 3, 4 or 5 increased substantially. For the Pasifika ethnic group the percentage of the population at document literacy level 3, 4 or 5 remained relatively stable (from around 26% to 24%).

**Figure 4.5: Distribution of ethnicity, by document literacy skill level, ALL only**



**Note:**

1. Percentages are rounded to the nearest whole number.
2. Approximately 6% identified with more than one ethnicity.

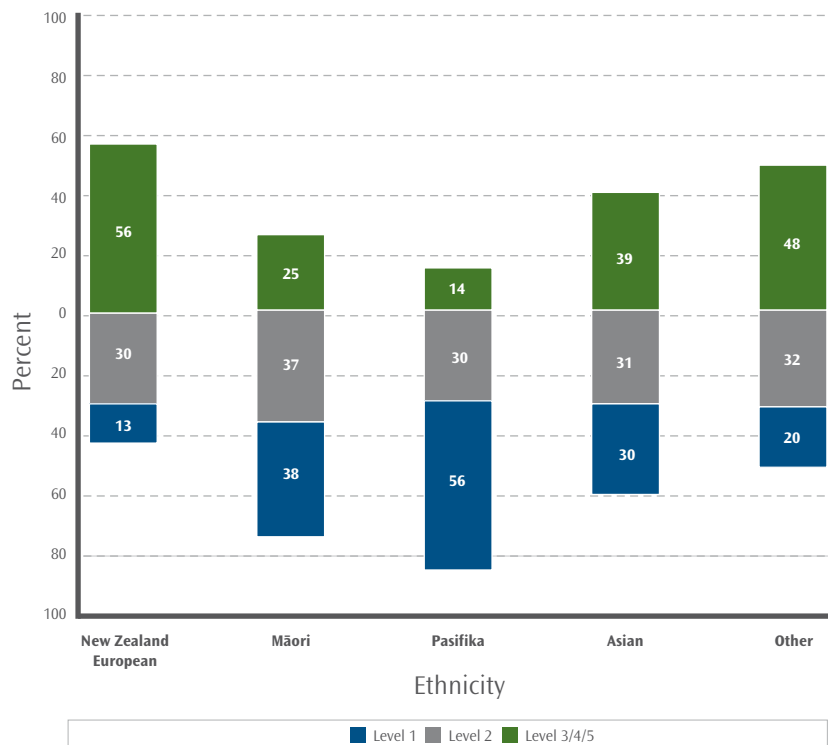
Figure 4.5 shows that as document literacy skill level increases, the percentage of the population at that skill level occupied by New Zealand Europeans increases and the percentage occupied by every other ethnic group decreases. As for prose literacy, as the document literacy skill level increases, the relative positions of the ethnic groups remain largely unchanged (with the New Zealand European group occupying the largest percentage, Māori or Asian the next largest, and so on). These are the same as the relative positions in the total adult population (see Figure 4.1).

## Numeracy and ethnicity

Numeracy is the ability to read and process mathematical and numeric information in diverse situations. Numeracy skill was measured in the ALL survey only, and was measured using English-language tests. Its distribution among ethnic groups in the New Zealand adult population is shown in Figure 4.6. Figure 4.7 shows the distributions of ethnicity in the populations with level 1, level 2, and levels 3, 4 or 5 numeracy skill.

The New Zealand European, Asian and Other ethnic groups were the higher performers in numeracy skill and the Māori and Pasifika ethnic groups were the lower performers.

**Figure 4.6: Numeracy and ethnicity, ALL only**

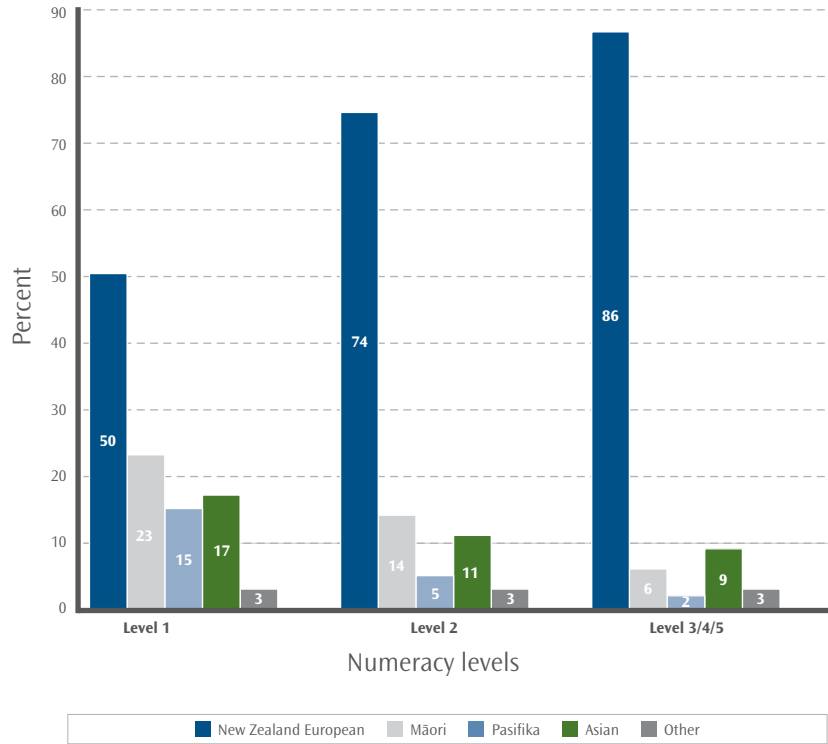


**Note:**

1. Levels 3, 4 and 5 are combined to give more robust statistical information.
2. The reported statistics for the ethnicity Other are of marginal quality.
3. Percentages are rounded to the nearest whole number.

Figure 4.6 shows that the New Zealand European, Asian and Other ethnic groups were the higher performers in numeracy skill, and the Māori and Pasifika ethnic groups were the lower performers.

**Figure 4.7: Distribution of ethnicity, by numeracy skill level, ALL only**



**Note:**

1. Percentages are rounded to the nearest whole number.
2. Approximately 6% identified with more than one ethnicity.

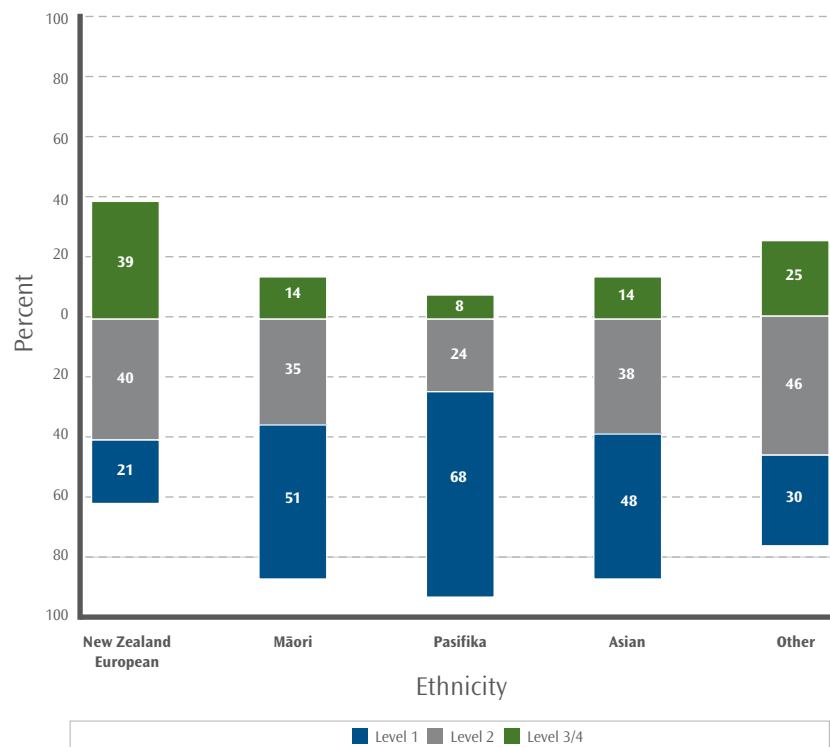
Figure 4.7 shows that, as before, as numeracy skill level increases, the percentage of the population at that skill level occupied by New Zealand Europeans increases and the percentage occupied by every other ethnic group decreases. However, the Pasifika ethnic group makes up a disproportionately large part of the population with level 1 numeracy skills. As for prose literacy, as the numeracy skill level increases, the relative positions of the ethnic groups remain largely unchanged (with the New Zealand European group occupying the largest percentage, Māori or Asian the next largest, and so on). These are the same as the relative positions in the total adult population (see Figure 4.1).

## Problem-solving and ethnicity

Problem-solving is the ability to reason and think analytically in situations where no routine procedure exists. Problem-solving skill was measured in the ALL survey only, and its distribution among ethnic groups of the New Zealand adult population is shown in Figure 4.8. Figure 4.9 shows the distributions of ethnicity in the populations with level 1, level 2, and levels 3 or 4 problem-solving skill.

The New Zealand European and Other ethnic groups were the higher performers in problem-solving skill, and the Māori, Pasifika and Asian ethnic groups were the lower performers.

**Figure 4.8: Problem-solving and ethnicity, ALL only**



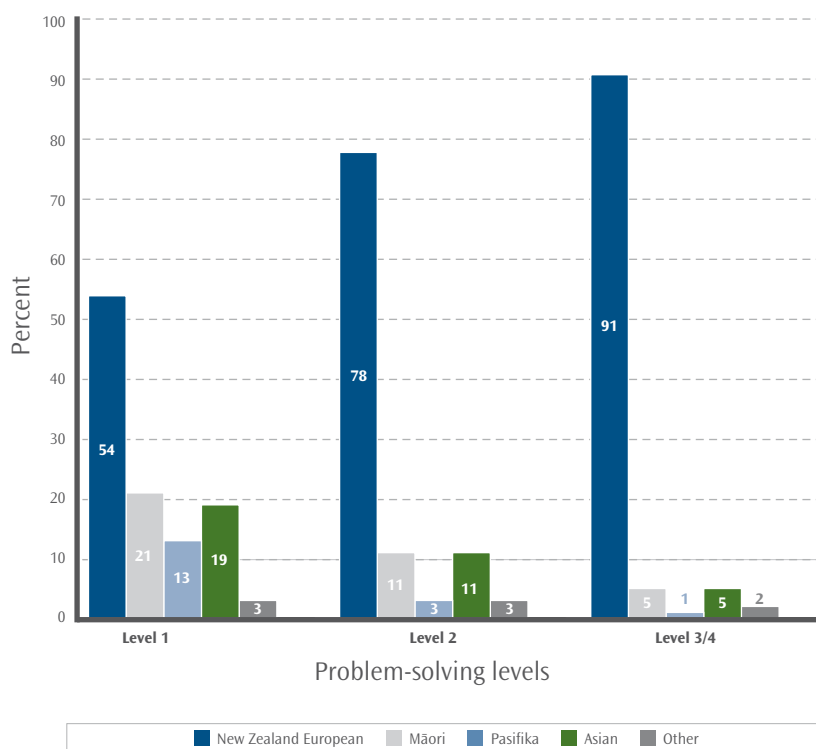
**Note:**

1. Four levels of proficiency were measured in problem-solving.
2. Levels 3 and 4 are combined to give more robust statistical information.
3. The reported statistics for the ethnicity Other are of marginal quality.
4. Percentages are rounded to the nearest whole number.

Figure 4.8 shows that the New Zealand European and Other ethnic groups made up the higher performers in problem-solving skill, and the Māori, Pasifika and Asian ethnic groups made up the lower performers.

Figure 4.8 also shows that for the New Zealand European ethnic group, as problem-solving skill level increases, so does the percentage of the population at that skill level. The reverse is true for the Pasifika, Māori and Asian ethnic groups: as problem-solving skill level increases, the percentage of the population at that skill level decreases.

**Figure 4.9: Distribution of ethnicity, by problem-solving skill level, ALL only**



**Note:**

1. Percentages are rounded to the nearest whole number.
2. Approximately 6% identified with more than one ethnicity.

Figure 4.9 shows once more that, as for prose literacy, as problem-solving skill level increases, the percentage of the population at that skill level occupied by New Zealand Europeans increases and the percentage occupied by every other ethnic group decreases. As the problem-solving skill level increases, the relative positions of the ethnic groups remain largely unchanged (with the New Zealand European group occupying the largest percentage, Māori or Asian the next largest, and so on). These are the same as the relative positions in the total adult population (see Figure 4.1).

# 5. Ethnicity, Up-skilling and Literacy

- How is ethnicity associated with participation in up-skilling?
- How is ethnicity, in combination with literacy skill, associated with participation in up-skilling?

Here, 'up-skilling' refers to adult education in a broad sense: any further education and training activities undertaken to increase one's skills.

- How is ethnicity associated with participation in up-skilling?
- How is ethnicity, in combination with literacy skill, associated with participation in up-skilling?

This section examines these questions.

## Ethnicity and up-skilling

In the graphs and analysis provided in this section the following definitions are used.

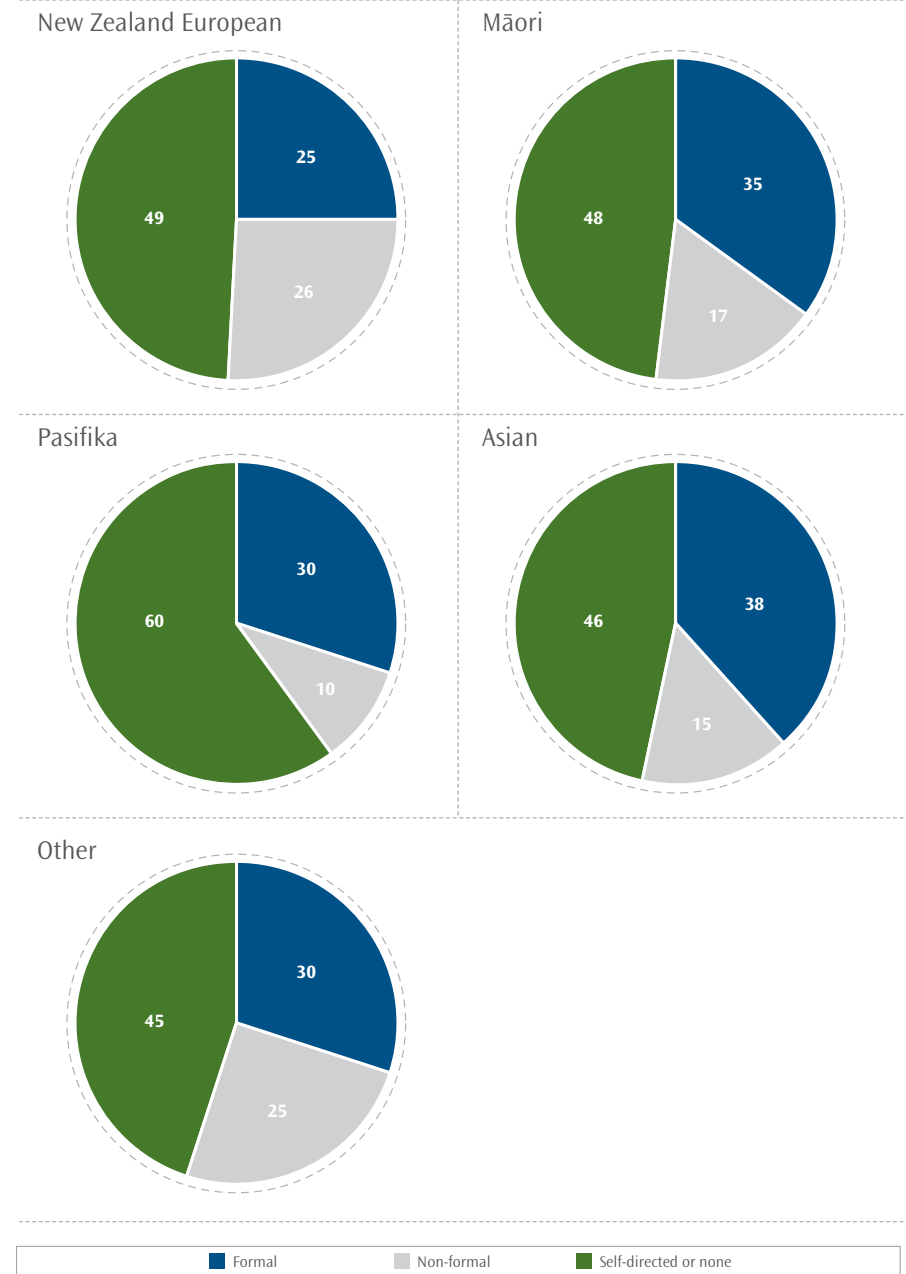
- **Formal** up-skilling refers to full-time or part-time participation in any course that is part of a programme of study leading toward a certificate, degree or diploma (for example, participation in a plumbing apprenticeship).
- **Non-formal** up-skilling refers to participation in any course that is not part of a programme of study leading toward a certificate, degree or diploma (for example, participation in a photography course at night-school).
- **Self-directed or none** refers to either no participation in any up-skilling activities, or participation in up-skilling activities such as guided tours, trade fairs or learning from instructional media.

Respondents who reported undertaking up-skilling in the 12 months before their interview, both formally and in any other way, were recorded as undertaking up-skilling formally. Respondents who reported undertaking up-skilling non-formally and in a self-directed way were reported as undertaking up-skilling non-formally.

**The Asian and Māori ethnic groups had the highest participation rates in formal up-skilling, the New Zealand European and Other ethnic groups had the highest participation rates in non-formal up-skilling, and the Pasifika ethnic group had the highest proportion of self-directed or no up-skilling.**

Figure 5.1 shows the percentages of various ethnic populations who self-reported as participating in various types of up-skilling.

**Figure 5.1: Up-skilling and ethnicity, ALL only**



**Note:**  
Percentages are rounded to the nearest whole number.

Figure 5.1 shows the following.

- The Asian and Māori ethnic groups have the highest participation rates in formal up-skilling, followed by the Pasifika and Other ethnic groups, followed in turn by the New Zealand European ethnic group. This finding is congruent with the younger age profiles of the Māori, Pasifika and Asian populations compared to the New Zealand European population. These groups have higher proportions of young people, who are more likely to be students (although Māori also have higher rates of adult participation in education and training).
- The New Zealand European and Other ethnic groups have the highest participation rates in non-formal up-skilling, followed by the Māori and Asian ethnic groups, followed in turn by the Pasifika ethnic group.
- The Pasifika ethnic group has the highest rate of self-directed or no up-skilling. The remaining ethnic groups have lower rates of participation in self-directed or no up-skilling.

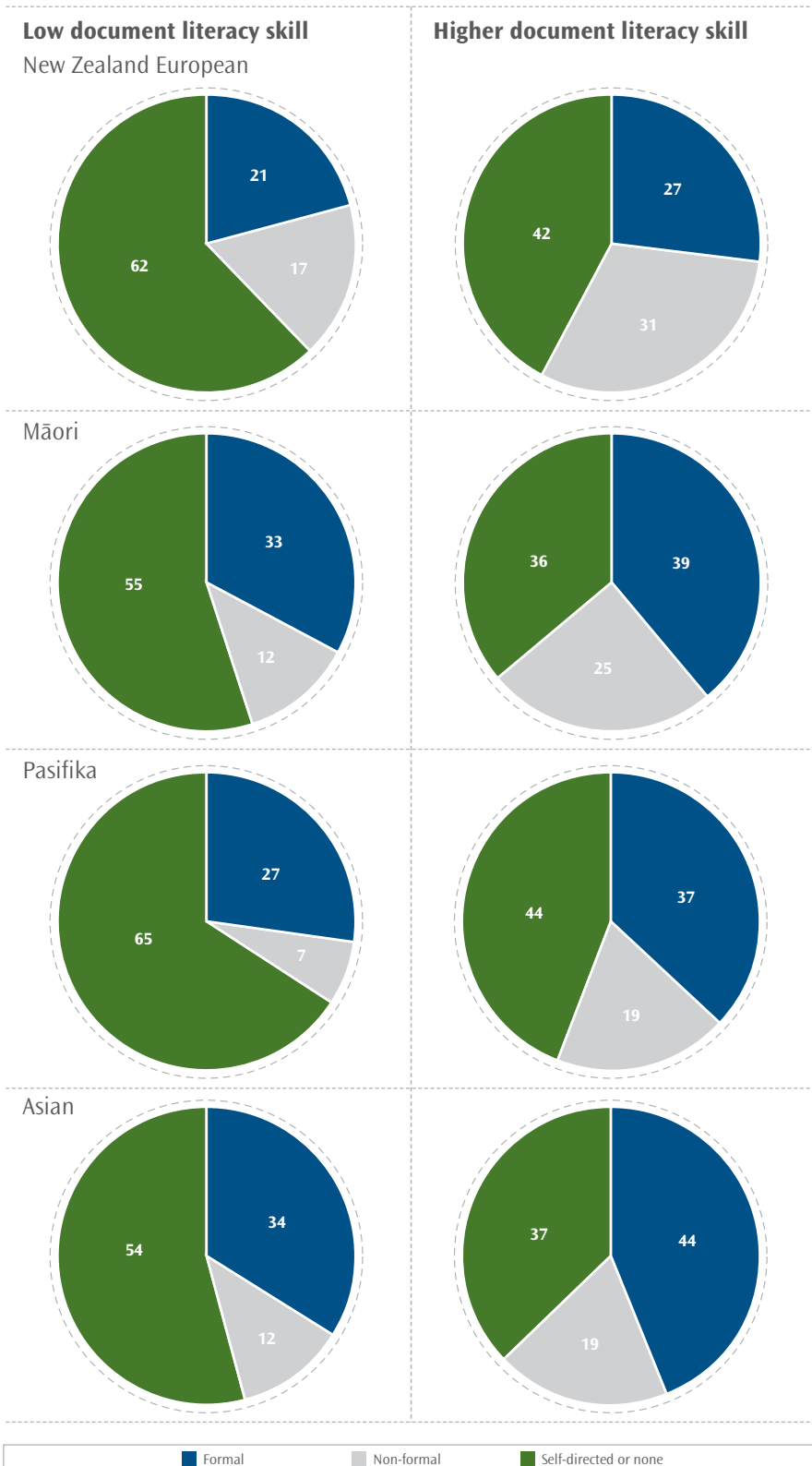
### Document literacy, ethnicity and up-skilling

Document literacy is a key work-related skill. It measures typical work-relevant skills such as recording activity and interpreting charts, for a range of occupations. There are differences in patterns of participation in up-skilling for the whole New Zealand adult population between those with low document literacy skill and those with higher (see *The Adult Literacy and Life Skills (ALL) Survey: Overview and International Comparisons*).

**For all ethnic groups, those with higher document literacy had higher participation rates in both formal and non-formal up-skilling (and lower proportions in self-directed or no up-skilling) than those with low document literacy.**

Figure 5.2 shows, for each ethnic sub-population, the percentages of those with low (levels 1 or 2) document literacy skill and the percentages of those with higher (levels 3, 4 or 5) document literacy skill who self-reported as participating in various types of up-skilling.

**Figure 5.2: Up-skilling, document literacy and ethnicity, ALL only**



**Note:**  
 1. Percentages are rounded to the nearest whole number.  
 2. Robust statistics were unable to be generated for the ethnicity Other.

Figure 5.2 shows that, for all ethnic groups, those with higher document literacy have higher participation rates in both formal and non-formal up-skilling (and lower participation rates in self-directed or no up-skilling) compared to those with low document literacy.

The New Zealand European and Māori ethnic groups have a similar pattern of up-skilling participation between those with low and those with higher document literacy skills: a difference of around 6 percentage points for formal up-skilling and a difference of around 13 or 14 percentage points for non-formal up-skilling.

In contrast, the Pasifika ethnic group has a difference of around 10 percentage points for formal up-skilling and around 12 for non-formal. The Asian ethnic group shows a slightly different pattern of differences in participation in up-skilling again: a difference of around 10 percentage points for formal up-skilling and around 7 for non-formal.

# 6. Language and Literacy

- How was the language most frequently spoken in the home associated with English literacy skill?
- How did this association change between 1996 and 2006?

- How was the language most frequently spoken in the home associated with English literacy skill?
- How did this association change between 1996 and 2006?

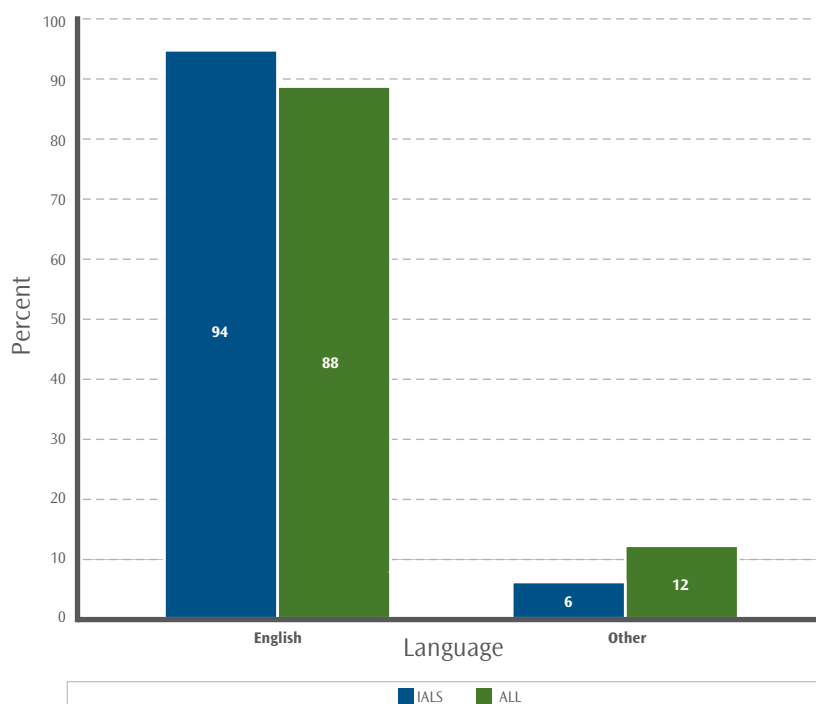
This section examines these questions.

## Language

ALL measures literacy and numeracy in English. The test booklets are written in English only and answers are required in English. However, an increasing proportion of New Zealanders speak other languages more frequently at home. This section looks at the effect of home language on English-language-based literacy and numeracy.

Evidence suggests that, for school students, the language spoken most frequently in the home influences literacy skill (in the test language) more than numeracy skill (as measured through the test language medium).<sup>4</sup> This section investigates whether this applies for the adult population. The relative sizes of the population who most frequently spoke English in the home and the population who most frequently spoke another language are compared in Figure 6.1.

**Figure 6.1: Language spoken most frequently in the home, IALS and ALL**



**Note:**

Percentages are rounded to the nearest whole number.

Figure 6.1 shows that there was an increase over the decade from 1996 to 2006 in the percentage of people who spoke a language other than English most frequently in the home.

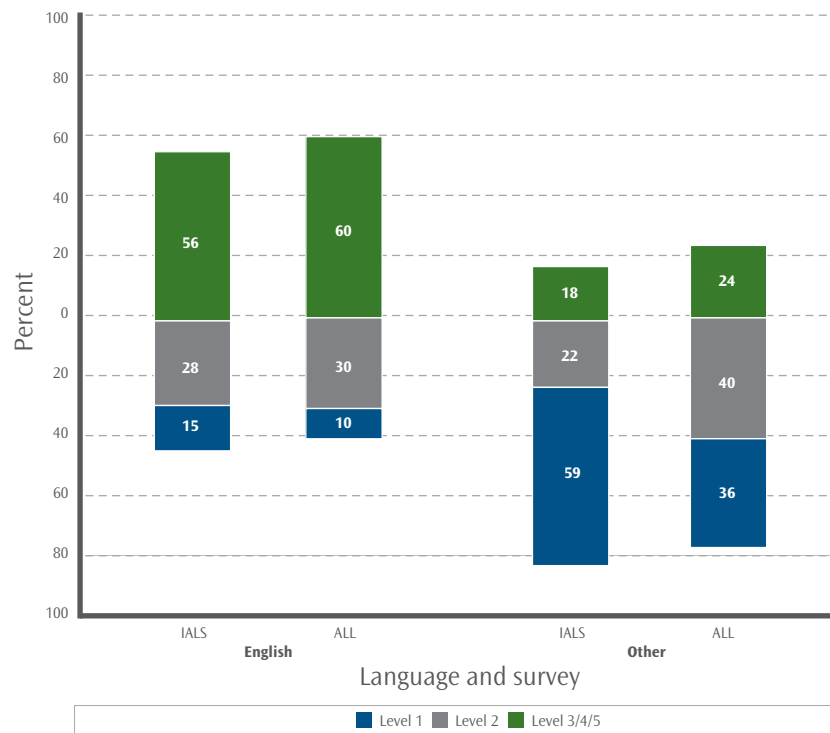
<sup>4</sup> See, for example, Table 4.3b of OECD (2007) *PISA 2006 Volume 2: Data*.

## Prose literacy and language

The distributions of prose literacy skill are shown in Figure 6.2.

Those who most frequently spoke a language other than English in the home had substantially lower overall English prose literacy skills than those who most frequently spoke English. However, there was an increase in the overall English prose literacy skill for both those who most frequently spoke English in the home and those who most frequently spoke another language.

**Figure 6.2: Prose literacy and language spoken, IALS and ALL**



**Note:**

1. Levels 3, 4 and 5 are combined to give more robust statistical information.
2. The reported statistics for the IALS survey for Other are of marginal quality.
3. Percentages are rounded to the nearest whole number.

Figure 6.2 shows that those who most frequently spoke a language other than English in the home had substantially lower overall prose literacy skills than those who most frequently spoke English.

Figure 6.2 also shows that the overall prose literacy skill increased from 1996 to 2006 for both those who most frequently spoke English in the home and those who most frequently spoke another language in the home. For both populations the percentage at prose literacy level 1 decreased substantially. This decrease was particularly marked for those who most frequently spoke a language other than English in the home, moving from around 59% to 36%. For those who most frequently spoke English in the home, the percentage at prose literacy skill level 2 remained relatively

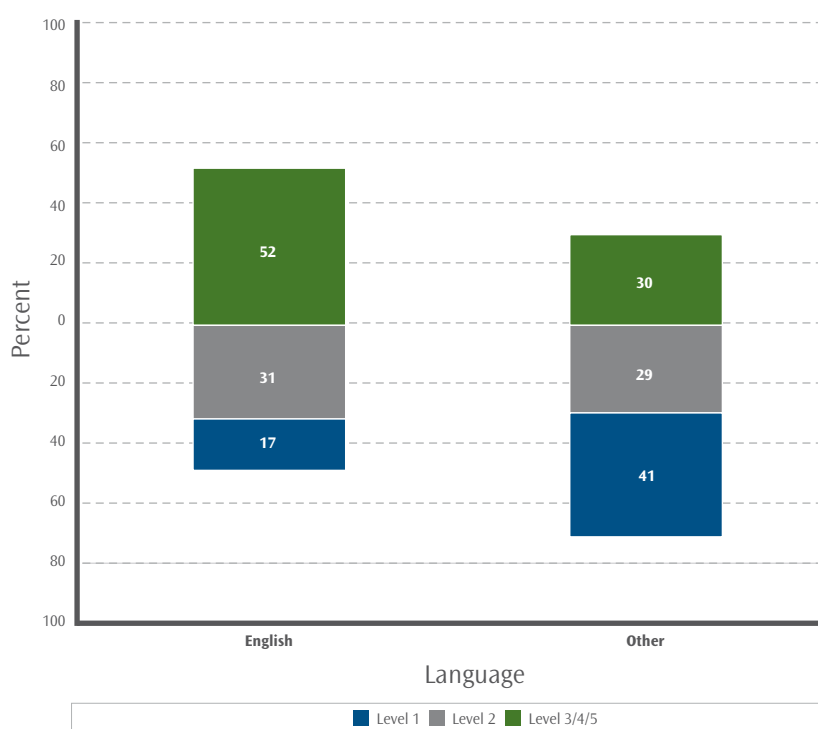
stable (moving from around 28% to 30%), but for those who most frequently spoke a language other than English, the percentage increased substantially (from around 22% to 40%). For both populations the percentage at prose literacy skill level 3, 4 or 5 increased (and for those who most frequently spoke a language other than English, the percentage increased substantially).

### Numeracy and language

The distributions of numeracy skill are shown in Figure 6.3.

**Those who most frequently spoke a language other than English in the home had substantially lower overall numeracy skills (measured in English) than those who most frequently spoke English.**

**Figure 6.3: Numeracy and language spoken, ALL only**



**Note:**

- 1. Levels 3, 4 and 5 are combined to give more robust statistical information.
- 2. Percentages are rounded to the nearest whole number.

Figure 6.3 shows that those who most frequently spoke a language other than English in the home had substantially lower overall numeracy skills than those who most frequently spoke English. However, the effect of language most frequently spoken in the home was smaller for numeracy skill than it was for prose literacy skill. This is seen by comparing the difference in percentages at level 2 for the two populations in prose literacy skill with the difference in percentages at level 2 for the two populations in numeracy skill. These comparisons can also be made for levels 3, 4 and 5.

# 7. Glossary

**ALL** – the Adult Literacy and Life Skills survey, which was conducted by 12 countries between 2003 and 2008/09 (note that at the beginning of 2008 three of these countries had still to complete their participation in ALL).

**Decile** – for the purposes of this document, a decile is one of ten sub-populations of approximately equal size into which a population can be divided. For example, the lowest income decile is the tenth of the population with the lowest income. Income decile boundaries relate to the total population, though income distributions differ for men and women, for those working and those not working, and for other population groups.

**Document literacy** – deals with discontinuous text, such as graphs, charts and tables.

**IALS** – the International Adult Literacy Survey, which was conducted by 23 countries/regions between 1994 and 1998.

**Higher literacy or numeracy** – levels 3, 4 or 5.

**Levels** – prose literacy, document literacy and numeracy are assigned five cognitive levels.

Level 1	Read simple documents, accomplish literal information matching with no distracting information, and perform simple one-step calculations.
Level 2	Search a document and filter out some simple distracting information, make low-level inferences, and execute one- or two-step calculations and estimations.
Level 3	Perform more complex information filtering, sometimes requiring inferences, and manipulate mathematical symbols, perhaps in several stages.
Level 4	Integrate information from a long passage, perform more complex inferences and complete multiple-step calculations requiring some reasoning.
Level 5	Make high-level inferences or syntheses, use specialised knowledge, filter out multiple distractors, and understand and use abstract mathematical ideas with justification.

Problem-solving has been assigned four cognitive levels. For a description of typical tasks for the problem-solving domain (and a fuller description of prose and document literacy along with numeracy), see pages 17 and 18 of *Learning a Living: First Results of the Adult Literacy and Life Skills Survey* (available at [www.statcan.ca/english/freepub/89-603-XIE/2005001/pdf.htm](http://www.statcan.ca/english/freepub/89-603-XIE/2005001/pdf.htm)).

**Low literacy or numeracy** – levels 1 or 2.

**Mean** – in general, the mean of a set of scores is the sum of the scores divided by the number of scores.

**Numeracy** – addresses mathematical and numerical information.

**Problem-solving** – involves analytical thinking, reasoning and logic.

**Prose literacy** – is concerned with continuous text, of the type found in books and newspaper articles.

**Up-skilling** – undertaking further education and training.

- **Formal** – participation in any course that is part of a programme of study leading toward a certificate, degree or diploma.
- **Non-formal** – participation in any course that is not part of a programme of study leading toward a certificate, degree or diploma.
- **Self-directed or none** – either no participation in any up-skilling activities or participation in up-skilling activities such as guided tours, trade fairs, learning from instructional media, etc.

**Very high literacy or numeracy** – level 4 or 5.


**Very low literacy or numeracy** – level 1.

# 8. Publications

## Adult Literacy and Life Skills Survey releases

September 2007	<i>The Adult Literacy and Life Skills (ALL) Survey: An Introduction</i>
December 2007	<i>The Adult Literacy and Life Skills (ALL) Survey: Headline Results and Background</i>
December 2007	<i>The Adult Literacy and Life Skills (ALL) Survey: Further Investigation</i>
March 2008	<i>The Adult Literacy and Life Skills (ALL) Survey: Overview and International Comparisons</i>
May 2008	<i>The Adult Literacy and Life Skills (ALL) Survey: Education, Work and Literacy</i>
August 2008	<i>The Adult Literacy and Life Skills (ALL) Survey: Gender, Ethnicity and Literacy</i>

These are available at [www.educationcounts.govt.nz](http://www.educationcounts.govt.nz).



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