



Programme for International Student Assessment

PISA Australia in Focus Number 1

Sense of belonging at school

First published 2018
by Australian Council for Educational Research Ltd
19 Prospect Hill Road, Camberwell, Victoria, 3124, Australia

www.acer.org
www.acer.org/ozpisa/reports/

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Key findings



PISA has established a profile of what 15-year-old students can do and what they are like as learners. Gaining an understanding about the non-cognitive aspects, including students' motivation, engagement and beliefs, for achieving success in school and in the future is another important goal of PISA. This report seeks to explore an aspect of students' more general attitudes towards school, specifically their sense of belonging at school.

Results for Australia

- ▶ Australian students, on average, reported having a significantly poorer sense of belonging at school compared to students across the OECD.
- ▶ A significantly higher proportion of Australian students compared with the OECD average agreed that they made friends easily at school and that other students liked them.
- ▶ A significantly lower proportion of Australian students than the OECD average agreed that they felt like they belonged at school.
- ▶ A significantly lower proportion of Australian students than the OECD average disagreed that they felt like an outsider or felt left out of things, that they felt awkward and out of place, and that they felt lonely at school.

Results for the Australian jurisdictions

Students from Victoria, New South Wales and Tasmania achieved mean scores on the sense of belonging index that were not significantly different from each other; however, students in Victoria achieved a mean score that was significantly higher than Western Australia, Queensland, South Australia, the Australian Capital Territory and the Northern Territory. Students in New South Wales achieved a mean score that was significantly higher than the Australian Capital Territory and the Northern Territory.

Results for females and males

Male students reported a significantly greater sense of belonging at school than female students.

Results for Indigenous students

Non-Indigenous students reported a significantly greater sense of belonging than Indigenous students.

Results for geographic location of schools

Students from metropolitan schools reported a significantly greater sense of belonging than students from provincial schools and remote schools, while there was no significant difference in students' sense of belonging between students from provincial and remote schools.

Results for socioeconomic background

Students from the highest socioeconomic quartile reported a significantly greater sense of belonging than students in the other three quartiles.

Results for immigrant background

Australian-born students reported a significantly lower sense of belonging than first-generation and foreign-born students, while there were no significant differences in students' reported sense of belonging between first-generation and foreign-born students.

Changes over time in sense of belonging

Australian students' sense of belonging has declined significantly between PISA 2003 and 2015.

Reader's Guide

Target population for PISA

This report uses '15-year-olds' as shorthand for the PISA target population. In practice, the target population was students aged between 15 years and 3 (complete) months and 16 years and 2 (complete) months at the beginning of the assessment period, and who were enrolled and attending an educational institution full-time or part-time. Since the majority of the PISA target population is made up of 15-year-olds, the target population is often referred to as 15-year-olds.

Rounding of figures

Because of rounding, some numbers in tables may not exactly add to the totals reported. Totals, differences and averages are always calculated on the basis of exact numbers and are rounded only after calculation. When standard errors have been rounded to one or two decimal places and the value 0.0 or 0.00 is shown, this does not imply that the standard error is zero, but that it is smaller than 0.05 or 0.005 respectively.

Confidence intervals and standard errors

In this and other reports, student achievement is often described by an average score. For PISA, each average score is calculated from the sample of students who undertook PISA 2015 and is referred to as the sample average. The sample average is an approximation of the actual average score (known as the population average) that would have been obtained had all students in a country actually sat the assessment. Since the sample average is just one point along the range of student achievement scores, more information is needed to gauge whether the sample average is an underestimation or overestimation of the population average. The calculation of confidence intervals can indicate the precision of a sample average as a population average. Confidence intervals provide a range of scores within which we are confident that the population average actually lies.

In this report, each sample average is presented with an associated standard error. The confidence interval, which can be calculated using the standard error, indicates that there is a 95% chance that the actual population average lies within plus or minus 1.96 standard errors of the sample average.

Statistical significance

The term 'significantly' is used throughout the report to describe a difference that meets the requirements of statistical significance at the 0.05 level, indicating that the difference is real, and would be found in at least 95 analyses out of 100 if the comparisons were to be repeated. It is not to be confused with the term 'substantial', which is qualitative and based on judgement rather than statistical comparisons. A difference may appear substantial but not statistically significant (due to factors that affect the size of the standard errors around the estimate, for example) while another difference may seem small but reach statistical significance because the estimate was more accurate.

OECD average

An OECD average was calculated for most indicators in this report and is presented for comparative purposes. The OECD average corresponds to the arithmetical average of the respective country estimates, and can be used to compare a country on a given indicator with a typical OECD country.

- ▶ OECD average-35: refers to the average across all the 35 OECD countries in PISA 2015.

- OECD average-30: refers to the average across all the 30 OECD countries in PISA 2003, with the exceptions of Chile, Estonia, Israel, Slovenia and the United States.

PISA indices

The measures that are presented as indices summarise student responses to a series of related items constructed on the basis of previous research. In describing students in terms of each characteristic (e.g. self-efficacy in science, enjoyment of learning science), scales were originally constructed on which the OECD average was given an index value of 0.¹ About two-thirds of the OECD population were given values between -1 and +1 (the index has a mean of 0 and a standard deviation of 1). Negative values on an index do not necessarily imply that students responded negatively to the underlying items. Rather, a student with a negative score responded less positively than students on average across OECD countries.

The indices are based on all categories for each item, whereas the reported percentages are collapsed into fewer categories. Due to this and the weighting of responses, a ranking based on the value of the indices will sometimes not exactly correspond to one based, say, on the average of the percentages.

Definition of background characteristics

There are a number of definitions used in this report that are particular to the Australian context, as well as many that are relevant to the international context. This section provides an explanation for those that are not self-evident.

Indigenous background

Indigenous background was derived from information provided by schools, which was taken from school records. Students were identified as being of Australian Aboriginal or Torres Strait Islander descent. For the purposes of this report, data for the two groups are presented together under the term 'Indigenous students'.

Socioeconomic background

Two measures are used by the OECD to represent elements of socioeconomic background. One is the highest level of the father's and mother's occupation (known as the highest international social and economic index – HISEI), which is coded in accordance with the International Labour Organization's International Standard Classification of Occupations. The other measure is the index of economic, social and cultural status (ESCS), which was created to capture the wider aspects of a student's family and home background. The ESCS is based on three indices: the highest occupational status of parents (HISEI); the highest educational level of parents in years of education (PARED); and home possessions (HOMEPOS). The index of home possessions (HOMEPOS) comprises all items on the indices of family wealth (WEALTH), cultural resources (CULTPOSS), access to home educational and cultural resources and books in the home (HEDRES). It must be noted that there have been some adjustments to the computation of ESCS over the PISA cycles.

Geographic location

In Australia, participating schools were coded with respect to the Ministerial Council on Education, Employment, Training and Youth Affairs' Schools Geographic Location Classification (Jones, 2004).

¹ However, in instances where a scale has been used in a previous PISA cycle, the OECD average in PISA 2015 may not be equal to 0. This may be due to the increase in the number of OECD countries and/or changes in the responses to the items over time.

For the analysis in this report, only the broadest categories are used:

- ▶ metropolitan – including mainland capital cities or major urban districts with a population of 100 000 or more (e.g. Queanbeyan, Cairns, Geelong, Hobart)
- ▶ provincial – including provincial cities and other non-remote provincial areas (e.g. Darwin, Ballarat, Bundaberg, Geraldton, Tamworth)
- ▶ remote – including areas with very restricted or very little accessibility to goods, services and opportunities for social interaction (e.g. Coolabah, Mallacoota, Capella, Mount Isa, Port Lincoln, Port Hedland, Swansea, Alice Springs, Bourke, Thursday Island, Yalata, Condingup, Nhulunbuy).

Immigrant background

Immigrant background was derived from students' self-report of the country in which they and their parents were born. For the analysis in this report, immigrant background was defined by the following categories:

- ▶ Australian-born students – students born in Australia with both parents born in Australia
- ▶ first-generation students – students born in Australia with at least one parent born overseas
- ▶ foreign-born students – students born overseas with both parents also born overseas.

Sample surveys

PISA is a sample survey and is designed and conducted so that the sample provides reliable estimates about the population of 15-year-old students. The PISA 2015 sample was a two-stage stratified sample. The first stage involved the sampling of schools in which 15-year-old students could be enrolled. The second stage of the selection process randomly sampled students within the sampled schools. The following variables were used in the stratification of the school sample: jurisdiction; school sector; geographic location; sex of students at the school; and a socioeconomic background variable (based on the Australian Bureau of Statistics' Socio-economic Indexes for Areas, which consists of four indexes that rank geographic areas across Australia in terms of their relative socioeconomic advantage and disadvantage).



An introduction to PISA

SECTION

A

What is PISA?

The Programme for International Student Assessment (PISA) is an international study that measures how well 15-year-olds,² who are nearing the end of their compulsory schooling in most participating education systems, are prepared to use their knowledge and skills in particular areas to meet real-life opportunities and challenges. This is in contrast to assessments that seek to measure the extent to which students have mastered a specific curriculum. PISA's orientation reflects a change in the goals and objectives of curricula, which increasingly address how well students are able to apply what they learn at school.

What are the main goals of PISA?

PISA looks to answer several important questions related to education, such as:

- ▶ How well are young adults prepared to meet the challenges of the future? Can they analyse, reason and communicate their ideas effectively? Will their skills enable them to adapt to rapid societal change?
- ▶ Are some ways of organising schools and school learning more effective than others?
- ▶ What influence does the quality of school resources have on student outcomes?
- ▶ What educational structures and practices maximise the opportunities of students from disadvantaged backgrounds?
- ▶ How equitable is the provision of education within a country and across countries?

What does PISA assess?

The core assessment domains of scientific literacy, reading literacy and mathematical literacy are measured in PISA. The PISA 2015 cognitive assessment also included the additional domains of collaborative problem solving and financial literacy.

² Refer to the Reader's Guide for more information about the target population for PISA.





How often is PISA administered?

Since 2000, PISA has been conducted every three years. In each cycle, three core assessment domains are rotated so that one domain is the major focus (the major domain), with a larger amount of the assessment time being devoted to this domain compared to the other two assessment domains (the minor domains).

PISA 2015 was the sixth cycle of PISA and scientific literacy was the major domain, which allowed an in-depth analysis and the reporting of results by subscale to be undertaken. The assessment of scientific literacy as a major domain in PISA 2015 also allows for changes in performance to be reported over a nine-year period, from PISA 2006 when scientific literacy was first assessed as a major domain (Table A.1).

TABLE A.1 Summary of the core assessment domains in PISA

| PISA 2000 | PISA 2003 | PISA 2006 | PISA 2009 | PISA 2012 | PISA 2015 |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Reading literacy | Reading literacy | Reading literacy | Reading literacy | Reading literacy | Reading literacy |
| Mathematical literacy | Mathematical literacy | Mathematical literacy | Mathematical literacy | Mathematical literacy | Mathematical literacy |
| Scientific literacy | Scientific literacy | Scientific literacy | Scientific literacy | Scientific literacy | Scientific literacy |

   Major domain  Minor domain

What did participants do?

Students

Students completed a two-hour cognitive assessment. Students were also allowed up to 45 minutes to complete the student questionnaires, which they responded to after the completion of the PISA cognitive assessment. Students then undertook the financial literacy assessment.

Students were randomly assigned to a test form that comprised four 30-minute clusters of cognitive materials, with each cluster consisting of units that required them to construct responses to a stimulus and a series of questions. The stimulus material was typically a short written passage or text accompanying a table, chart, graph, photograph or diagram. A range of item-response formats, such as multiple choice questions and questions requiring students to construct their own responses, was used to cover the full range of cognitive abilities and knowledge identified in the Assessment Framework.³

Students were assigned three student questionnaires. These consisted of the internationally standardised student questionnaire, and two additional student questionnaires that were offered as international options: an information and communications technology (ICT) questionnaire and an educational career questionnaire. The student questionnaire sought information on students and their family background, aspects of students' lives, such as their attitudes towards learning, their habits and life in and outside of school, aspects of students' interest, motivation and engagement, and learning and instruction in science, including instructional time and class size. The ICT questionnaire

³ The Assessment Framework explains the guiding principles behind the PISA 2015 assessment. Refer to the *PISA 2015 assessment and analytical framework* (OECD, 2016).

collected information on the availability and use of ICT, students' perceptions of their competence in completing tasks and their attitudes towards computer use. The educational career questionnaire gathered information about whether students had experienced interruptions of schooling and their preparation for their future career.

School principals

Principals from participating schools were asked to complete a school questionnaire, which collected descriptive information about the school, including the quality of their school's human and material resources, decision-making processes, instructional practices and school and classroom climate.

Administration of PISA

The PISA assessment was delivered on USB drives and students completed the cognitive assessment and questionnaires using computers. The school principals and teachers completed their questionnaires online using logins to a secure website. In Australia, PISA 2015 took place during a six-week period from late July to early September 2015. For most countries in the Northern Hemisphere, the testing period took place between March and May 2015. Together with appropriate application of the student age definition, this resulted in the students in Australia being at both a comparable age and a comparable stage in the school year to those in the Northern Hemisphere who had been tested earlier in 2015.

Who participates in PISA?

PISA aims to be as inclusive as possible of the population of 15-year-old students in each country and strict guidelines are enforced with regard to the percentage of schools and of students that could be excluded (which could not exceed 5% of the nationally desired target population).⁴

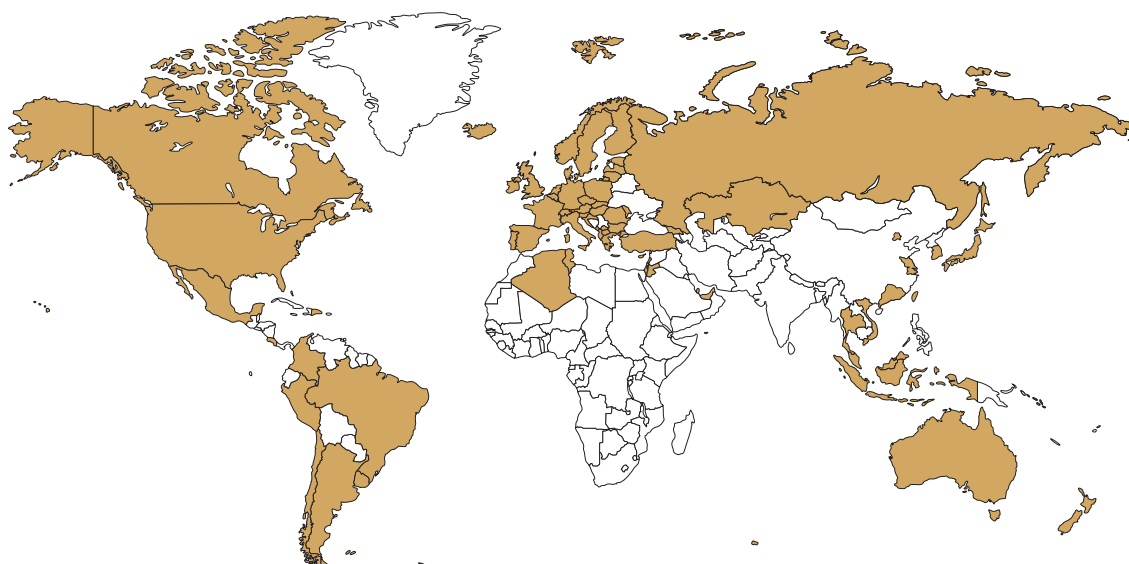
There are strict criteria on population coverage, response rates and sampling procedures. For initially selected schools, a minimum response rate of 85% (weighted and unweighted) was required, as well as a minimum rate of 80% (weighted and unweighted) of selected students. Countries that obtained an initial school response rate between 65% and 85% could still obtain an acceptable school response by the use of replacement schools. Schools with a student participation response rate lower than 50% were not regarded as participating schools. Australia successfully achieved the required response rates.

Countries

Although PISA was originally an OECD assessment created by the governments of OECD countries, it has become a major assessment in many regions and countries around the world. There were 72 countries and economies that participated in PISA 2015, including 35 OECD countries and 37 partner countries or economies (Figure A.1).⁵

⁴ Refer to Appendix B in *PISA 2015: Reporting Australia's results* (Thomson, De Bortoli & Underwood, 2017).

⁵ PISA 2015 assessed the economic regions of Beijing, Shanghai, Jiangsu and Guangdong [B-S-J-G (China)], Chinese Taipei, Hong Kong (China) and Macao (China). Economic regions are required to meet the same PISA technical standards as other participating countries. Results for an economic region are only representative of the region assessed and are not representative of the country. For convenience, this report refers to these economic regions as countries.



| OECD countries | | | Partner countries/economies | | |
|----------------|-----------------|-----------------|-----------------------------|---------------------------------------|----------------------|
| Australia | Hungary | Norway | Albania | Former Yugoslav Republic of Macedonia | Moldova |
| Austria | Iceland | Poland | Algeria | Georgia | Montenegro |
| Belgium | Ireland | Portugal | Argentina† | Hong Kong (China) | Peru |
| Canada | Israel | Slovak Republic | Brazil | Indonesia | Qatar |
| Chile | Italy | Slovenia | B-S-J-G (China)* | Jordan | Romania |
| Czech Republic | Japan | Spain | Bulgaria | Kazakhstan† | Russian Federation |
| Denmark | Korea | Sweden | Chinese Taipei | Kosovo | Singapore |
| Estonia | Latvia | Switzerland | Colombia | Lebanon | Thailand |
| Finland | Luxembourg | Turkey | Costa Rica | Lithuania | Trinidad and Tobago |
| France | Mexico | United Kingdom | Croatia | Macao (China) | Tunisia |
| Germany | The Netherlands | United States | Cyprus | Malta | United Arab Emirates |
| Greece | New Zealand | | Dominican Republic | Malaysia† | Uruguay |
| | | | | | Vietnam |

* B-S-J-G (China) refers to the four PISA participating provinces: Beijing, Shanghai, Jiangsu and Guangdong.

† Results for Argentina, Malaysia and Kazakhstan have not been reported in this report because their coverage was too small to ensure comparability.

Note: 15 countries (Albania, Algeria, Argentina, Georgia, Indonesia, Jordan, Kazakhstan, Kosovo, Lebanon, the Former Yugoslav Republic of Macedonia, Malta, Moldova, Romania, Trinidad and Tobago, and Vietnam) administered PISA as a paper-based assessment.

Although 72 countries and economies participated in PISA 2015, only those countries with an average score higher than the lowest scoring OECD country, Mexico, have been reported in this publication. Further details are provided in the Reader's Guide.

FIGURE A.1 Countries and economies which participated in PISA 2015

Schools

In most countries, 150 schools and 42 students within each school were randomly selected to participate in PISA. In some countries, including Australia, a larger sample of schools and students participated. This allowed countries to carry out specific national options at the same time as the PISA assessment and for meaningful comparisons to be made between different sectors of the population.

In Australia, a larger sample of schools and students participated in PISA to produce reliable estimates that would be representative of each of the Australian jurisdictions⁶ and of Indigenous students. In order for comparisons to be made between jurisdictions, it was necessary to oversample the smaller jurisdictions, because a random sample proportionate to jurisdiction populations would not yield sufficient students in the smaller jurisdictions to give a result that would be sufficiently precise.

6 Throughout this report, the Australian states and territories will be collectively referred to as jurisdictions.

Further, a sufficiently large sample of Australia's Indigenous students was required so that valid and reliable separate analyses could be conducted.

The Australian PISA 2015 school sample consisted of 758 schools (Table A.2). The sample was designed so that schools were selected with a probability proportional to the enrolment of 15-year-olds in each school. Stratification of the sample ensured that the PISA sample was representative of the Australian population of 15-year-olds. Several variables were used in the stratification of the school sample including jurisdiction, school sector, geographic location, sex of students at the school and a socioeconomic background variable.⁷

TABLE A.2 Number of Australian PISA 2015 schools, by jurisdiction and school sector

| Jurisdiction | Sector | | | Total |
|------------------|------------|------------|-------------|------------|
| | Government | Catholic | Independent | |
| ACT | 25 | 8 | 9 | 42 |
| NSW | 105 | 44 | 28 | 177 |
| VIC | 75 | 30 | 25 | 130 |
| QLD | 81 | 27 | 25 | 133 |
| SA | 55 | 22 | 21 | 98 |
| WA | 57 | 20 | 21 | 98 |
| TAS | 33 | 12 | 8 | 53 |
| NT | 15 | 5 | 7 | 27 |
| Australia | 446 | 168 | 144 | 758 |

Note: These numbers are based on unweighted data.

Of the Australian PISA schools, 87% were coeducational. Seven per cent of schools catered for all female students, while 6% catered for all-male students. Two per cent (15 schools) of the PISA 2015 schools were single-sex schools from the government school sector, 8% (58 schools) were from the Catholic school sector, and 3% (26 schools) were from the independent school sector.

Students

The target population for PISA is students who are aged between 15 years and 3 months and 16 years and 2 months at the beginning of the testing period and are enrolled in an educational institution, either full- or part-time. Since the largest part (but not all) of the PISA target population is made up of 15-year-olds, the target population is often referred to as 15-year-olds.

In each country, a random sample of 42 students was selected with equal probability from each of the randomly selected schools using a list of all 15-year-old students submitted by the school. Approximately 540 000 students took part in PISA 2015, representing about 29 million 15-year-old students internationally.

PISA 2015 students across the jurisdictions

In most Australian jurisdictions, 20 students and all age-eligible Indigenous students were sampled per school. In the Australian Capital Territory, 30 students and all age-eligible Indigenous students were sampled per school, and in the Northern Territory, 27 students and all age-eligible Indigenous students were sampled per school. The Australian PISA 2015 sample of 14 530 students, whose results feature in the national and international reports, was drawn from all jurisdictions and school sectors according to the distributions shown in Table A.3.

⁷ Based on the Australian Bureau of Statistic's Socio-Economic Indexes for Areas.

TABLE A.3 Number of Australian PISA 2015 students, by jurisdiction and school sector

| Sector | | Jurisdiction | | | | | | | | Total |
|------------------|-------------------|--------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|----------------|
| | | ACT | NSW | VIC | QLD | SA | WA | TAS | NT | |
| Government | N students | 496 | 2 053 | 1 253 | 1 905 | 922 | 1 104 | 654 | 275 | 8 662 |
| | Weighted N | 2 304 | 46 660 | 36 144 | 31 221 | 10 273 | 16 236 | 3 710 | 1 377 | 147 925 |
| Catholic | N students | 210 | 849 | 530 | 579 | 391 | 355 | 248 | 115 | 3 277 |
| | Weighted N | 1 406 | 20 634 | 14 810 | 10 784 | 4 039 | 5 635 | 1 296 | 259 | 58 863 |
| Independent | N students | 211 | 471 | 403 | 456 | 367 | 410 | 133 | 140 | 2 591 |
| | Weighted N | 822 | 12 906 | 13 252 | 10 903 | 3 887 | 6 356 | 944 | 472 | 49 542 |
| Australia | N students | 917 | 3 373 | 2 186 | 2 940 | 1 680 | 1 869 | 1 035 | 530 | 14 530 |
| | Weighted N | 4 532 | 80 200 | 64 206 | 52 908 | 18 199 | 28 227 | 5 950 | 2 108 | 256 330 |

Note: N students is based on the achieved (unweighted) sample; weighted N is based on the number of students in the target population represented by the sample.

As the sample is age-based in PISA, the students come from various year levels but they are mostly from Years 9, 10 and 11. There are some variations to the year-level composition of the sample in the different jurisdictions as shown in Table A.4, because of differing school starting ages in different jurisdictions.

TABLE A.4 Percentage of Australian PISA 2015 students, by jurisdiction and year level

| Jurisdiction | Year level | | | | | |
|------------------|------------|----------|-----------|-----------|-----------|----------|
| | 7 | 8 | 9 | 10 | 11 | 12 |
| ACT | | | 12 | 81 | 7 | |
| NSW | ^ | ^ | 12 | 81 | 6 | |
| VIC | ^ | ^ | 23 | 75 | 1 | ^ |
| QLD | | ^ | 2 | 51 | 47 | ^ |
| SA | | ^ | 8 | 87 | 5 | ^ |
| WA | | | 1 | 86 | 13 | |
| TAS | | | 32 | 68 | ^ | |
| NT | ^ | ^ | 8 | 79 | 13 | |
| Australia | ^ | ^ | 11 | 75 | 14 | ^ |

^ denotes percentages ≤ 1

Note: These percentages are based on unweighted data; the jurisdiction totals are reported as whole numbers without rounding off decimal places.

Table A.5 shows the number of Australian female and male students who participated in PISA by jurisdiction. There were equal proportions of females and males in four jurisdictions (the Australian Capital Territory, New South Wales, Victoria and Western Australia), while the proportion of males was higher than the proportion of females: Queensland: 49% female, 51% male; South Australia: 49% female, 51% male; Tasmania: 48% female, 52% male; and Northern Territory: 49% female, 51% male.

TABLE A.5 Percentage of Australian PISA 2015 students, by jurisdiction and sex

| Sex | | Jurisdiction | | | | | | | | Total |
|---------|------------|--------------|--------|--------|--------|-------|--------|-------|-------|---------|
| | | ACT | NSW | VIC | QLD | SA | WA | TAS | NT | |
| Females | N students | 441 | 1 686 | 1 102 | 1 430 | 798 | 928 | 513 | 265 | 7 163 |
| | Weighted N | 2 254 | 40 118 | 32 163 | 25 851 | 8 828 | 14 061 | 2 835 | 1 041 | 127 151 |
| Males | N students | 476 | 1 687 | 1 084 | 1 510 | 882 | 941 | 522 | 265 | 7 367 |
| | Weighted N | 2 278 | 40 081 | 32 043 | 27 057 | 9 370 | 14 165 | 3 116 | 1 067 | 129 177 |

PISA 2015 students and geographic location of schools

The locations of schools in PISA were classified using the MCEETYA Schools Geographic Location Classification (Jones, 2004).⁸ Table A.6 shows about 75% of PISA 2015 participants attended schools in metropolitan areas, 25% were from provincial areas and the remaining 1% of participants attended schools in remote areas.

TABLE A.6 Number and percentage of Australian PISA 2015 students, by geographic location

| Geographic location | N students | Weighted N | Weighted (%) |
|---------------------|------------|------------|--------------|
| Metropolitan | 9947 | 188606 | 74 |
| Provincial | 4065 | 64073 | 25 |
| Remote | 518 | 3650 | 1 |

Note: N students is based on the achieved (unweighted) sample; weighted N is based on the number of students in the target population represented by the sample.

PISA 2015 students and Indigenous background

In PISA 2015, Australian Indigenous students were identified from information provided by their schools. Every student from a participating school who identified as Indigenous was sampled for Australia's PISA. Four per cent of the PISA sample was of Indigenous background. Table A.7 shows the number of Australian Indigenous and non-Indigenous students who participated in PISA.

TABLE A.7 Number and percentage of Australian PISA 2015 students, by Indigenous background

| Indigenous background | N Students | Weighted N | Weighted (%) |
|-----------------------|------------|------------|--------------|
| Indigenous | 2807 | 10659 | 4 |
| Non-Indigenous | 11723 | 245670 | 96 |

Note: N students is based on the achieved (unweighted) sample; weighted N is based on the number of students in the target population represented by the sample.

PISA 2015 students and socioeconomic background

Information about students' socioeconomic background was collected in the student questionnaire. Students were asked several questions about their family and home background. This information was used to construct a measure of socioeconomic background: the economic, social and cultural status index (ESCS). Using this index, participating students were distributed into quartiles of socioeconomic background.

The distribution of Australian students by school sector is provided in Table A.8, and shows there were higher proportions of students from lower socioeconomic backgrounds who attended government schools (34%) compared to the proportions of students who attended Catholic schools (16%) or independent schools (10%). Conversely, there were lower proportions of students from higher socioeconomic backgrounds who attended government schools (17%) compared to the proportions of students who attended Catholic schools (29%) or independent schools (44%).

⁸ The Reader's Guide provides more information about the MCEETYA Schools Geographic Location Classification.

TABLE A.8 Number and percentage of Australian PISA 2015 students, by socioeconomic background quartiles and school sector

| Socioeconomic background | Government | | | Catholic | | |
|--------------------------|------------|------------|--------------|------------|------------|--------------|
| | N students | Weighted N | Weighted (%) | N students | Weighted N | Weighted (%) |
| Lowest quartile | 3 122 | 48 261 | 34 | 577 | 9 043 | 16 |
| Second quartile | 2 212 | 38 663 | 27 | 833 | 14 671 | 25 |
| Third quartile | 1 696 | 31 483 | 22 | 927 | 17 366 | 30 |
| Highest quartile | 1 192 | 23 596 | 17 | 888 | 16 927 | 29 |

| Socioeconomic background | Independent | | | Total weighted % of PISA population |
|--------------------------|-------------|------------|--------------|-------------------------------------|
| | N students | Weighted N | Weighted (%) | |
| Lowest quartile | 283 | 4 828 | 10 | 25 |
| Second quartile | 486 | 8 812 | 18 | 25 |
| Third quartile | 728 | 13 366 | 28 | 25 |
| Highest quartile | 1 045 | 21 585 | 44 | 25 |

Note: N students is based on the achieved (unweighted) sample; weighted N is based on the number of students in the target population represented by the sample.

PISA 2015 students and immigrant status

The student questionnaire collected information about the country of birth of students and their parents. This data was used to create a measure of immigrant status, with three categories: Australian-born, first-generation and foreign-born.⁹

Table A.9 shows that just over 50% of students who sat PISA 2015 were Australian-born, 30% were first-generation and 12% of students were foreign-born.

TABLE A.9 Number and percentage of Australian PISA 2015 students, by immigrant background

| Immigrant background | N students | Weighted N | Weighted (%) |
|----------------------|------------|------------|--------------|
| Australian-born | 8 483 | 137 006 | 53 |
| First-generation | 3 795 | 76 985 | 30 |
| Foreign-born | 1 465 | 31 468 | 12 |

Note: N students is based on the achieved (unweighted) sample; weighted N is based on the number of students in the target population represented by the sample. The weighted % doesn't sum to 100% as 4% of students didn't provide these details.

PISA in Australia

PISA is a key part of the National Assessment Program (NAP). Components of NAP include the National Assessment Program – Literacy and Numeracy (NAPLAN), which is conducted annually for every student in Years 3, 5, 7 and 9; the national sample assessments of civics and citizenship, information and communication technology (ICT) literacy, and science literacy; and the international assessments, which comprise – in addition to PISA – the IEA's Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS).

Unlike NAPLAN, PISA is not a curriculum-based assessment and assesses a nationally representative sample of 15-year-olds (rather than a year-level based sample), providing national and group estimates rather than providing individual student results.

The results collected from these assessments allow for nationally comparable reporting of progress towards the *Melbourne Declaration on Educational Goals for Young Australians* (MCEETYA, 2008),

⁹ The Reader's Guide provides more information about immigrant status.

which set goals for high-quality schooling in Australia designed to secure students the necessary knowledge, understanding, skills and values for a productive and rewarding life.

The Australian Curriculum, Assessment and Reporting Authority (ACARA) reports on these assessments annually in its *National Report on Schooling in Australia*, which is the main vehicle for reporting against nationally agreed key performance measures defined in the *Measurement Framework for Schooling in Australia 2015* (ACARA, 2015).

The *Measurement Framework for Schooling in Australia 2015* outlines national standards for each of the elements of the NAP, including PISA. The national standard for PISA is a proficient standard, which represents a ‘challenging but reasonable’ expectation of student achievement. The National Proficient Standard for PISA has been set at Level 3 on the PISA proficiency scales for each domain.

The focus of this report

PISA has established a profile of what 15-year-old students can do and what they are like as learners. Gaining an understanding about the non-cognitive aspects, including students’ motivation, engagement and beliefs, for achieving success in school and in the future is another important goal of PISA.

This report seeks to explore an aspect of students’ more general attitudes towards school, specifically sense of belonging at school. It presents responses from PISA 2015 participants on the student background questionnaire with results compared with other countries and for states and territories and demographic groups of interest in Australia.

Students’ sense of belonging was measured in PISA 2015, and has also been measured in two previous cycles of PISA, in 2003 and 2012. This allows for changes over time ‘in the quality of students’ engagement with their school community’ to be monitored.

Further information

PISA is an international comparative study which assesses a sample of 15-year-old students in reading, mathematical and scientific literacy. Further information about PISA in Australia, including the full national PISA 2015 report, is available from the national PISA website: www.acer.org/ozpisa/.



Sense of belonging in PISA 2015

SECTION

B

How sense of belonging is measured in PISA 2015

Sense of belonging ‘has to do with feelings of being accepted and valued by their peers, and by others at their school’ (Willms, 2003, p.8). In 2015, PISA collected information on the students’ reports about their sense of belonging at their school. Students were asked to rate their level of agreement, with responses made on a four-point Likert scale: strongly agree; agree; disagree; and strongly disagree, to the following statements:

- ▶ I feel like an outsider (or left out of things) at school
- ▶ I make friends easily at school
- ▶ I feel like I belong at school
- ▶ I feel awkward and out of place in my school
- ▶ Other students seem to like me
- ▶ I feel lonely at school

The second, third and fifth statements were worded such that ‘agree’ or ‘strongly agree’ indicated a stronger sense of belonging.¹⁰ The first, fourth and sixth items were worded such that ‘disagree’ or ‘strongly disagree’ indicated a stronger sense of belonging.¹¹

Students’ responses to these six statements were combined to construct the Sense of Belonging index. The index, when it was originally constructed in PISA 2003, was standardised to have a mean of 0 and a standard deviations of 1 across OECD countries. Higher scores on the index are illustrative of students feeling a greater sense of belonging at school.

¹⁰ For ease of reading, from this point onward ‘agree’ or ‘strongly agree’ will be referred to as ‘agree’, and will appear in parenthesis after those statements that agreeing reflects a stronger sense of belonging.

¹¹ Likewise, from this point onward, ‘disagreed or strongly disagreed’ will be referred to as ‘disagreed’, and will appear in parenthesis after those statements that disagreeing reflects a stronger sense of belonging.

The importance of sense of belonging

Sense of belonging has been shown to be an important schooling outcome in its own right, and for some students, is indicative of educational success and long-term health and well-being (OECD, 2004).

School is a central part of a student's life, and students who feel part of, and accepted by their school community are not only more likely to participate in school activities, both academically and non-academically, but will be actively engaged in these activities (OECD, 2017). Acceptance from peers and others at school has also been found to have a direct positive relationship with self-esteem and motivation (Strudwicke, 2000).

Sense of belonging has an influence in promoting positive attitudes towards students' learning (Ma, 2003), as a means of stimulating students' desire to learn. This learning is fostered by the building of good relationships with teachers and other students in the classroom, which directly influences students' sense of belonging at school, which in turn, directly affects students' academic achievement (Juvenon, 2006).

Sense of belonging across countries

Figure B.1 presents the students' mean scores on the sense of belonging index for participating countries in PISA 2015. Students in Spain had the highest levels of sense of belonging with a mean index score of 0.47, followed by students in Austria (mean index score of 0.44) and Albania (mean index score of 0.40), while students in Turkey had the lowest level of sense of belonging (mean index score of -0.44), followed by students in Macao (China) and the Dominican Republic (mean index score of -0.40).

Students in Australia had a mean index score of -0.12 on the sense of belonging index, which was significantly lower than the OECD average¹² of 0.02. This indicates that Australian students reported having a significantly poorer sense of belonging at school compared to students across the OECD.

¹² In this chapter, the OECD average refers to OECD average-35

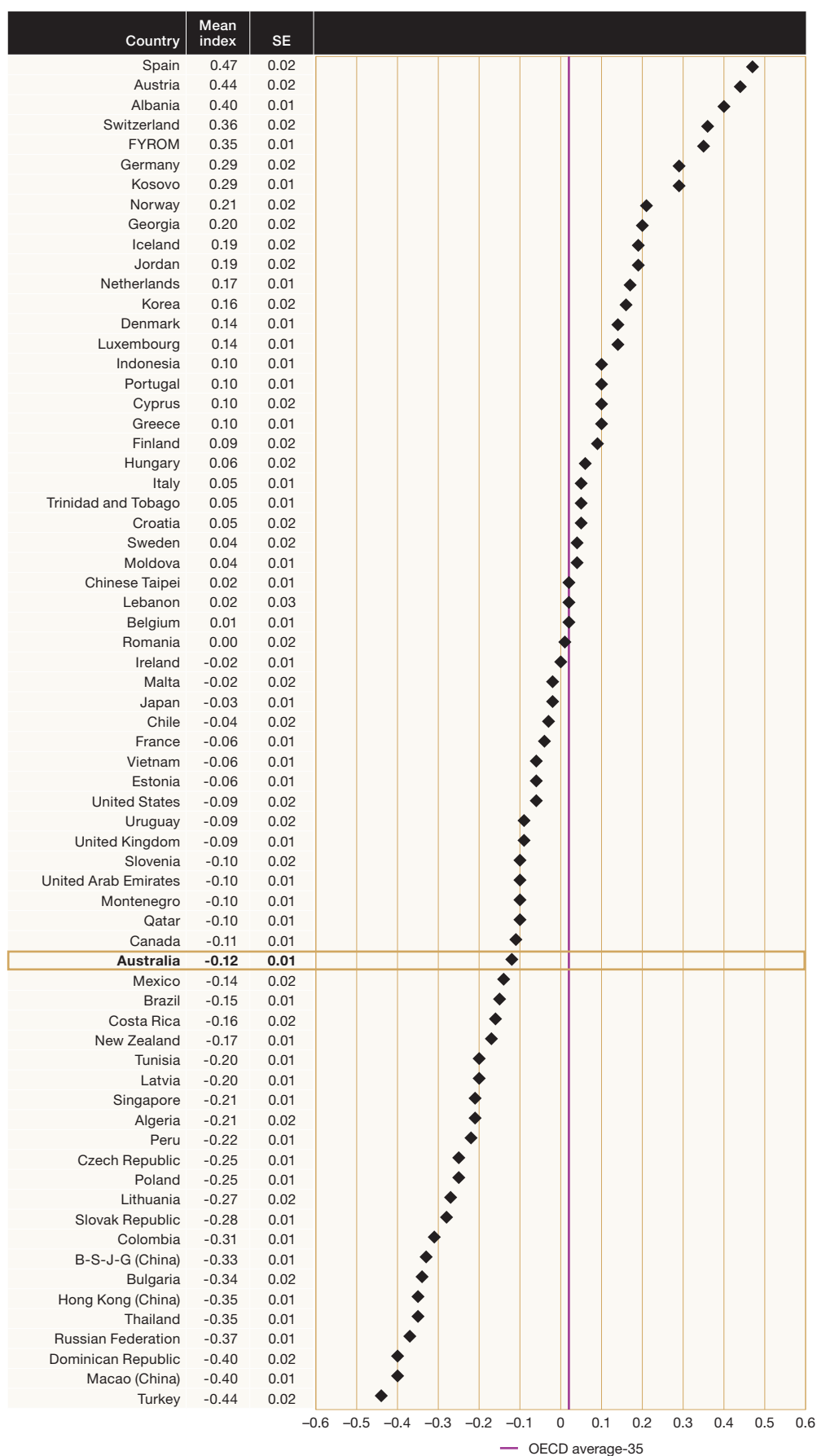


FIGURE B.1 Mean scores on the sense of belonging index, by country¹³

13 FYROM is the Former Yugoslav Republic of Macedonia.

In order to place Australian students' responses within a wider context, ten countries were selected for comparison with Australia. These were the high-performing countries, Canada, Estonia, Finland, Hong Kong (China), Japan, Macao (China), and Singapore (which performed significantly higher in all three assessment domains i.e., scientific, reading and mathematical literacy than Australia), in addition to the culturally similar English-speaking OECD countries New Zealand, the United Kingdom and the United States.

Students in high performing countries did not necessarily report a greater sense of belonging. Macao (China), Hong Kong (China), Singapore, Canada, Estonia, and Japan had a mean score that was lower than the OECD average (ranging from a mean score index of -0.40 in Macao (China) to a mean score index of -0.03 in Japan), while Finland's mean index score (of 0.09) was higher than the OECD average. Students in the English-speaking countries also did not report a greater sense of belonging, achieving a mean score lower than the OECD average (with a mean index of -0.17 for New Zealand and a mean index score of -0.09 for the United Kingdom and the United States).

Figure B.2 shows the relationship between sense of belonging (by quartiles) and scientific literacy performance for Australia and the OECD average.¹⁴ For Australian students, there was a very small positive relationship between sense of belonging and student performance (scientific and mathematical literacy performance, $r = 0.08$; reading literacy performance, $r = 0.11$). The strength of the relationship between sense of belonging and student performance in Australia was also found to be similar across the OECD. There was a very small positive relationship between sense of belonging and student performance across the OECD (scientific and mathematical literacy performance, $r = 0.08$; reading literacy performance, $r = 0.10$).

Australian students in the highest quartile scored 24 points on average higher in scientific literacy performance than Australian students in the lowest quartile. This score point difference is equal to around three-quarters of a year of schooling. The results for students across the OECD were similar, with students in the highest quartile scoring 21 points on average higher in scientific literacy performance than students in the lowest quartile.

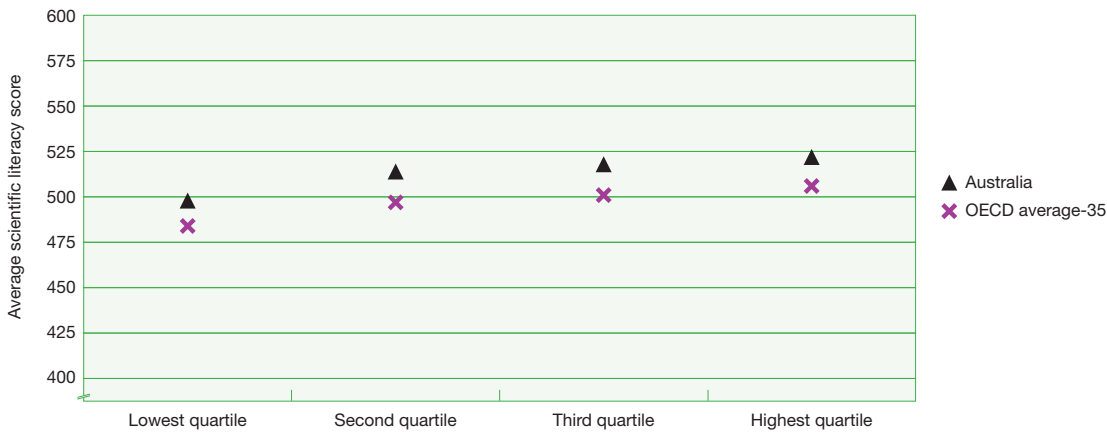


FIGURE B.2 Relationship between students' sense of belonging and scientific literacy performance for Australia and the OECD average

The relationship between sense of belonging and other constructs related to relationships at school showed a small positive association. For example, sense of belonging and teacher support in a science classroom, $r = 0.15$; and sense of belonging and disciplinary climate in science classes, $r = 0.13$.

¹⁴ The Reader's Guide provides more information about the OECD average.

Figure B.3 shows the percentage of students who reported their agreement or disagreement with the six statements that measured sense of belonging in PISA 2015 for Australia and across OECD countries. On average in Australia, 79% of students agreed that they *make friends easily at school*, 72% of students *feel like I belong at school*, and 88% of students felt that *other students seem to like me*, while 77% of students disagreed that they *feel like an outsider (or left out of things) at school*, 78% of students disagreed that *they feel awkward and out of place in my school*, and 84% of students disagreed that they *feel lonely at school*.

A significantly higher proportion of Australian students compared with the OECD average agreed that *other students seem to like me* and that they *make friends easily at school*. A significantly lower proportion of Australian students than the OECD average agreed that they *feel like I belong at school*, and a significantly lower proportion of Australian students disagreed that they *feel like an outsider (or left out of things) at school*, that they *feel awkward and out of place in my school*, and that they *feel lonely at school*.

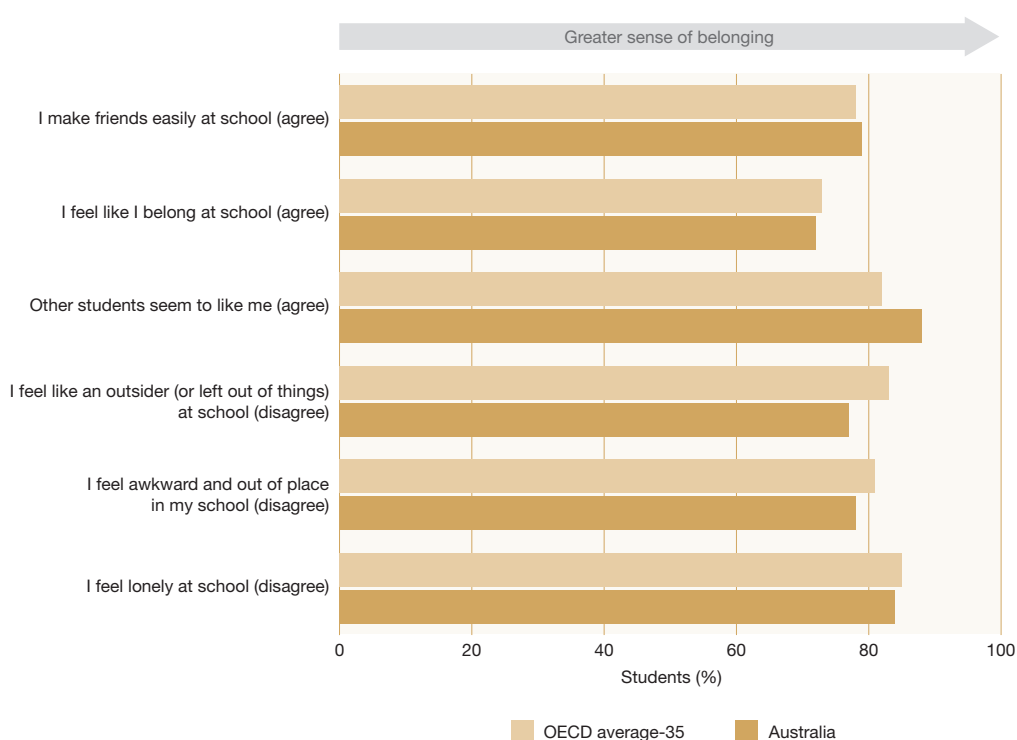


FIGURE B.3 Students' sense of belonging at school, for Australia and the OECD average

Table B.1 shows the percentage of students in the comparison countries who agreed or disagreed with each of the statements about sense of belonging. Results for Australia and the OECD average have been included for comparison.

Of the comparison countries, students in Japan had the lowest percentage (69%), and students in Hong Kong (China) had the highest percentage (81%) who agreed that they *make friends easily at school*. Students in Macao (China) had the lowest percentage who agreed that they *feel like I belong at school* (60%) and that *other students seem to like me* (66%), compared to students in Japan, who had the highest percentage (82%) who agreed that they *feel like I belong at school*, and students in the United States, who had the highest percentage (89%) who agreed that *other students seem to like me*.

Students in Hong Kong (China) had the lowest percentage (75%) and students in Finland and Japan had the highest percentage (88%) who disagreed that they *feel like an outsider (or left out of things) at school* while students in Canada had the lowest percentage (76%) and students in Finland and Estonia had the highest percentage (83%) who disagreed that they *feel awkward and out of place in my school*. Finally, students in Macao (China) had the lowest percentage (80%) and students in Finland and Japan had the highest percentage (88%) who disagreed that they *feel lonely at school*.

TABLE B.1 Students' sense of belonging at school, Australian and international results

| | Percentage of students who reported agree/disagree with the following statements: | | | | | | | | | | | |
|-------------------|---|-----|--|-----|--|-----|--|-----|---|-----|------------------------------------|-----|
| | I make friends easily at school (agree) | | I feel like I belong at school (agree) | | Other students seem to like me (agree) | | I feel like an outsider (or left out of things) at school (disagree) | | I feel awkward and out of place in my school (disagree) | | I feel lonely at school (disagree) | |
| | % | SE | % | SE | % | SE | % | SE | % | SE | % | SE |
| Canada | 78 | 0.5 | 72 | 0.5 | 87 | 0.4 | 77 | 0.5 | 76 | 0.4 | 82 | 0.4 |
| Estonia | 76 | 0.7 | 78 | 0.6 | 76 | 0.7 | 87 | 0.4 | 83 | 0.5 | 85 | 0.6 |
| Finland | 80 | 0.5 | 80 | 0.6 | 82 | 0.5 | 88 | 0.4 | 83 | 0.6 | 88 | 0.5 |
| Hong Kong (China) | 81 | 0.7 | 71 | 0.9 | 78 | 0.7 | 75 | 0.7 | 79 | 0.6 | 81 | 0.7 |
| Japan | 69 | 0.7 | 82 | 0.6 | 74 | 0.6 | 88 | 0.5 | 81 | 0.6 | 88 | 0.5 |
| Macao (China) | 76 | 0.6 | 60 | 0.8 | 66 | 0.7 | 79 | 0.6 | 78 | 0.6 | 80 | 0.7 |
| New Zealand | 79 | 0.6 | 74 | 0.7 | 88 | 0.5 | 78 | 0.7 | 78 | 0.7 | 83 | 0.7 |
| Singapore | 80 | 0.6 | 76 | 0.6 | 81 | 0.5 | 76 | 0.6 | 77 | 0.6 | 82 | 0.6 |
| United Kingdom | 79 | 0.6 | 68 | 0.7 | 88 | 0.5 | 80 | 0.6 | 80 | 0.6 | 86 | 0.4 |
| United States | 79 | 0.6 | 74 | 0.7 | 89 | 0.5 | 76 | 0.6 | 77 | 0.6 | 82 | 0.6 |
| Australia | 79 | 0.5 | 72 | 0.5 | 88 | 0.3 | 77 | 0.4 | 78 | 0.4 | 84 | 0.4 |
| OECD average-35 | 78 | 0.1 | 73 | 0.1 | 82 | 0.1 | 83 | 0.1 | 81 | 0.1 | 85 | 0.1 |

Sense of belonging across the Australian jurisdictions

Figure B.4 shows students' sense of belonging at school in Australian schools by jurisdiction. Students from Victoria had the highest levels of sense of belonging with a mean index score of -0.06 , while students from the Northern Territory had the lowest levels of sense of belonging with a mean index score of -0.24 .

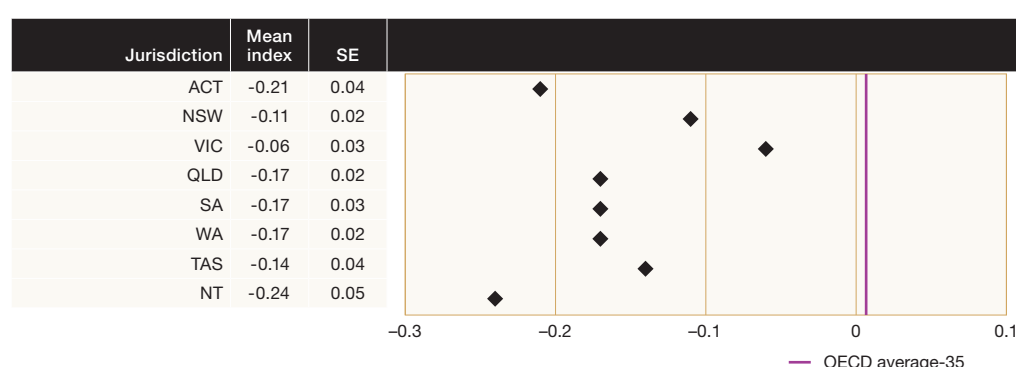


FIGURE B.4 Mean scores on the sense of belonging index, by jurisdiction

Table B.2 shows a pairwise comparison of the mean scores on the sense of belonging index between any two jurisdictions. Students from Victoria reported significantly higher levels on the sense of belonging index than students in Western Australia, Queensland, South Australia, the Australian

Capital Territory and the Northern Territory, and reported levels not significantly different to students from New South Wales and Tasmania.

Students from New South Wales reported significantly higher levels on the sense of belonging index than students in the Australian Capital Territory and the Northern Territory, and reported levels not significantly different to students from Victoria, Tasmania, Western Australia, Queensland and South Australia.

Students from Tasmania, Western Australia, Queensland, South Australia, the Australian Capital Territory and the Northern Territory reported levels on the sense of belonging index that were not significantly different to one another.

All jurisdictions reported a significantly lower level on the sense of belonging index than students on average across OECD countries.

TABLE B.2 Multiple comparisons of mean scores on the sense of belonging index, by jurisdiction

| Jurisdiction | Mean score | SE | VIC | NSW | TAS | WA | QLD | SA | ACT | NT | OECD average-35 |
|-----------------|------------|------|-----|-----|-----|----|-----|----|-----|----|-----------------|
| VIC | -0.06 | 0.03 | | ● | ● | ▲ | ▲ | ▲ | ▲ | ▲ | ▼ |
| NSW | -0.11 | 0.02 | ● | | ● | ● | ● | ● | ▲ | ▲ | ▼ |
| TAS | -0.14 | 0.04 | ● | ● | | ● | ● | ● | ● | ● | ▼ |
| WA | -0.17 | 0.02 | ▼ | ● | ● | | ● | ● | ● | ● | ▼ |
| QLD | -0.17 | 0.02 | ▼ | ● | ● | ● | | ● | ● | ● | ▼ |
| SA | -0.17 | 0.03 | ▼ | ● | ● | ● | ● | | ● | ● | ▼ |
| ACT | -0.21 | 0.04 | ▼ | ▼ | ● | ● | ● | ● | | ● | ▼ |
| NT | -0.24 | 0.05 | ▼ | ▼ | ● | ● | ● | ● | ● | | ▼ |
| OECD average-35 | 0.02 | 0.00 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | |

Note: read across the row to compare a jurisdiction's performance with the performance of each jurisdiction listed in the column heading.

▲ Average performance statistically significantly higher than in comparison jurisdiction

● No statistically significant difference from comparison jurisdiction

▼ Average performance statistically significantly lower than in comparison jurisdiction

Table B.3 shows the percentage of students in the Australian jurisdictions who agreed or disagreed with each of the statements about sense of belonging. The OECD average has been included for comparison.

TABLE B.3 Students' sense of belonging, by jurisdiction

| Jurisdiction | Percentage of students who reported agree or disagree with the following statements | | | | | | | | | | | |
|-----------------|---|-----|--|-----|--|-----|--|-----|---|-----|------------------------------------|-----|
| | I make friends easily at school (agree) | | I feel like I belong at school (agree) | | Other students seem to like me (agree) | | I feel like an outsider (or left out of things) at school (disagree) | | I feel awkward and out of place in my school (disagree) | | I feel lonely at school (disagree) | |
| | % | SE | % | SE | % | SE | % | SE | % | SE | % | SE |
| ACT | 76 | 1.8 | 75 | 1.7 | 87 | 1.4 | 77 | 1.7 | 77 | 1.8 | 82 | 1.6 |
| NSW | 80 | 0.8 | 72 | 1.0 | 86 | 0.7 | 76 | 0.8 | 78 | 1.0 | 82 | 0.8 |
| VIC | 81 | 1.1 | 76 | 1.1 | 89 | 0.7 | 78 | 1.0 | 79 | 0.8 | 85 | 0.8 |
| QLD | 79 | 1.0 | 69 | 1.1 | 88 | 0.8 | 76 | 0.9 | 78 | 1.1 | 84 | 0.8 |
| SA | 78 | 1.4 | 71 | 1.2 | 87 | 0.9 | 76 | 1.2 | 77 | 1.0 | 83 | 1.2 |
| WA | 78 | 1.1 | 70 | 1.2 | 89 | 0.8 | 77 | 1.1 | 77 | 1.0 | 85 | 0.9 |
| TAS | 77 | 1.4 | 72 | 1.7 | 85 | 1.0 | 74 | 1.3 | 77 | 1.1 | 81 | 1.3 |
| NT | 76 | 2.3 | 72 | 2.4 | 86 | 1.6 | 73 | 2.8 | 76 | 2.5 | 81 | 2.4 |
| OECD average-35 | 78 | 0.1 | 73 | 0.1 | 82 | 0.1 | 83 | 0.1 | 81 | 0.1 | 85 | 0.1 |

Sense of belonging for different demographic groups in Australia

Figure B.5 shows the mean index scores for Australian students' sense of belonging at school for the different demographic groups. Male students reported a significantly greater sense of belonging at school than female students. Non-Indigenous students reported a significantly greater sense of belonging than Indigenous students. Students from metropolitan schools reported a significantly greater sense of belonging than students from provincial schools and remote schools, while there was no significant difference in students' sense of belonging between students from provincial and remote schools. Students from the highest socioeconomic quartile reported a significantly greater sense of belonging than students in the other three quartiles. Lastly, Australian-born students reported a significantly lower sense of belonging than first-generation and foreign-born students, while there were no significant differences between first-generation and foreign-born students' reported sense of belonging.

Students' sense of belonging for almost all of the categories in the different demographic groups were significantly lower than for students across the OECD, except for students in the highest socioeconomic quartile and foreign-born students, whereby there were no significant differences in their mean index score and the OECD average for sense of belonging.

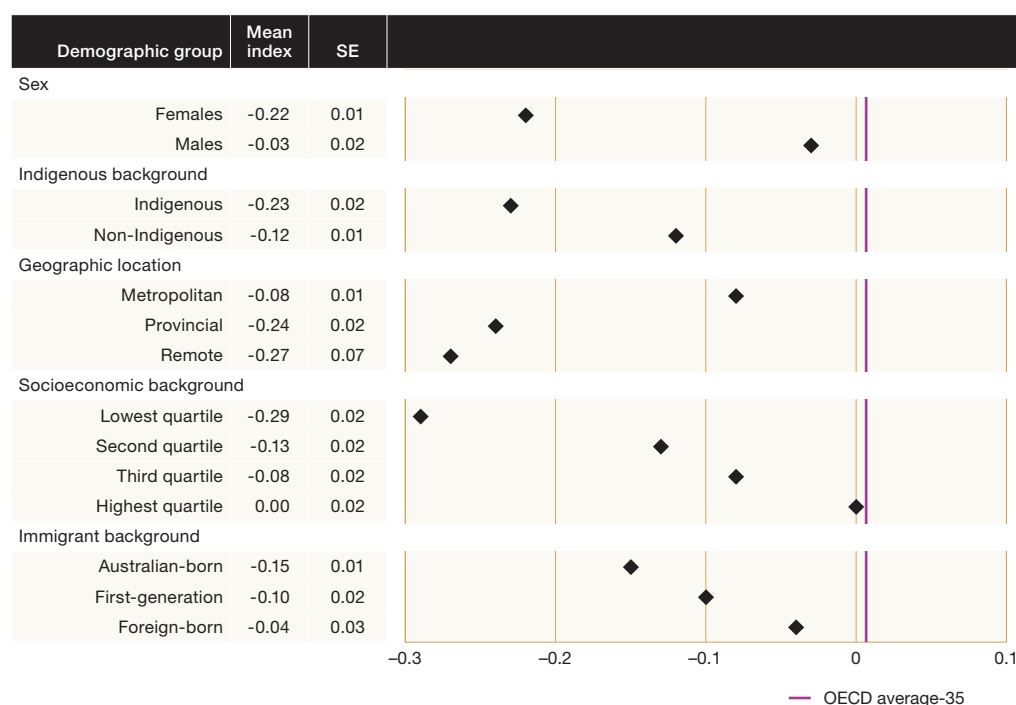


FIGURE B.5 Mean scores on the sense of belonging index by sex, Indigenous background, geographic location, socioeconomic background and immigrant background

Table B.4 shows the percentage of students from different demographic groups who agreed or disagreed with each of the statements about sense of belonging. The OECD average has been included for comparison.

A significantly higher percentage of male students than female students agreed that they *make friends easily at school* (5% difference) and that they *feel like I belong at school* (4% difference). There were also significantly more male students than female students who disagreed that they *feel like an outsider (or left out of things) at school* (7% difference), that they *feel awkward and out of place in my school* (6% difference) and that they *feel lonely at school* (7% difference).

There was a significantly higher percentage of non-Indigenous students than Indigenous students who agreed that they *make friends easily at school* (2% difference), that they *feel like I belong at school* (8% difference), and that *other students seem to like me* (4% difference). There were also significantly more non-Indigenous students than Indigenous students who disagreed that they *feel like an outsider (or left out of things) at school* (5% difference) and that they *feel awkward and out of place in my school* (3% difference).

There was a significantly higher percentage of students from metropolitan schools than students from provincial schools and remote schools who agreed that they *make friends easily at school* (4% and 8% difference respectively), that they *feel like I belong at school* (8% and 11% difference respectively) and that they *feel that other students seem to like me* (4% and 6% difference respectively).

There were also significantly more students from metropolitan schools than students from provincial schools who disagreed that they *feel like an outsider (or left out of things) at school* (4% difference), that they *feel awkward and out of place in my school* (4% difference) and that they *feel lonely at school* (3% difference).

There was a significantly higher percentage of students in the highest socioeconomic background quartile than students in the lowest socioeconomic background quartile who agreed that they *make friends easily at school* (8% difference), that they *feel like I belong at school* (13%), and that they *feel that other students seem to like me* (7%). There were also significantly more students in the highest socioeconomic background quartile than students in the lowest socioeconomic background quartile who disagreed that they *feel like an outsider (or left out of things) at school* (9% difference), that they *feel awkward and out of place in my school* (9% difference) and that that they *feel lonely at school* (4% difference).

There was a significantly lower percentage of Australian-born students than first-generation students who agreed that they *make friends easily at school* (3% difference), that they *feel like I belong at school* (6% difference) and that they *feel that other students seem to like me* (2% difference), and a significantly lower percentage of Australian-born students than first-generation students who disagreed that they *feel like an outsider or left out of things at school* (3% difference).

There was a significantly lower percentage of Australian-born students than foreign-born students who agreed that they *feel like I belong at school* (10% difference), and a significantly lower percentage of Australian-born students than foreign-born students who disagreed that they *feel like an outsider (or left out of things) at school* (5% difference) and that they *feel lonely at school* (4% difference).

There was also a significantly lower percentage of first-generation students than foreign-born students who agreed that they *feel like I belong at school* (4% difference) and a significantly lower percentage of first-generation students than foreign-born students who disagreed that they *feel lonely at school* (3% difference).

TABLE B.4 Students' sense of belonging by sex, Indigenous background, geographic location, socioeconomic background and immigrant background

| Demographic group | Percentage of students who reported agree or disagree to the following statements | | | | | | | | | | | |
|---------------------------------|---|-----|--|-----|--|-----|--|-----|---|-----|------------------------------------|-----|
| | I make friends easily at school (agree) | | I feel like I belong at school (agree) | | Other students seem to like me (agree) | | I feel like an outsider (or left out of things) at school (disagree) | | I feel awkward and out of place in my school (disagree) | | I feel lonely at school (disagree) | |
| | % | SE | % | SE | % | SE | % | SE | % | SE | % | SE |
| Sex | | | | | | | | | | | | |
| Females (F) | 77 | 0.7 | 70 | 0.7 | 88 | 0.5 | 73 | 0.6 | 75 | 0.6 | 80 | 0.6 |
| Males (M) | 82 | 0.6 | 74 | 0.7 | 88 | 0.5 | 80 | 0.4 | 81 | 0.5 | 87 | 0.4 |
| Difference F-M | -5 | 0.9 | -4 | 1.0 | 0 | 0.7 | -7 | 0.7 | -6 | 0.7 | -7 | 0.7 |
| Indigenous background | | | | | | | | | | | | |
| Indigenous (I) | 77 | 1.2 | 64 | 1.4 | 84 | 1.0 | 72 | 1.5 | 75 | 1.2 | 83 | 1.1 |
| Non-Indigenous (N) | 79 | 0.5 | 72 | 0.5 | 88 | 0.3 | 77 | 0.4 | 78 | 0.4 | 84 | 0.4 |
| Difference I -N | -2 | 1.2 | -8 | 1.4 | -4 | 1.0 | -5 | 1.4 | -3 | 1.1 | -1 | 1.1 |
| Geographic location | | | | | | | | | | | | |
| Metropolitan (M) | 80 | 0.5 | 74 | 0.6 | 89 | 0.4 | 78 | 0.5 | 79 | 0.5 | 84 | 0.4 |
| Provincial (P) | 76 | 1.1 | 66 | 0.9 | 85 | 0.6 | 74 | 0.8 | 75 | 1.0 | 81 | 0.7 |
| Remote (R) | 72 | 3.0 | 63 | 2.8 | 83 | 2.0 | 74 | 3.9 | 75 | 5.3 | 84 | 3.1 |
| Difference M -R | 8 | 3.1 | 11 | 2.8 | 6 | 2.0 | 4 | 4.0 | 4 | 5.2 | 0 | 3.2 |
| Difference M -P | 4 | 1.2 | 8 | 1.1 | 4 | 0.7 | 4 | 1.0 | 4 | 1.1 | 3 | 0.9 |
| Difference P-R | 4 | 3.3 | 3 | 2.9 | 2 | 2.1 | 0 | 4.0 | 0 | 5.3 | -3 | 3.3 |
| Socioeconomic background | | | | | | | | | | | | |
| Lowest quartile (L) | 74 | 0.9 | 65 | 1.0 | 83 | 0.8 | 72 | 0.9 | 73 | 1.0 | 81 | 0.9 |
| Second quartile | 80 | 0.9 | 70 | 0.9 | 89 | 0.7 | 76 | 0.8 | 78 | 0.8 | 83 | 0.8 |
| Third quartile | 81 | 0.9 | 74 | 0.9 | 89 | 0.8 | 78 | 0.8 | 80 | 0.7 | 85 | 0.7 |
| Highest quartile (H) | 82 | 0.7 | 78 | 0.9 | 90 | 0.6 | 80 | 0.7 | 82 | 0.8 | 85 | 0.7 |
| Difference L -H | -8 | 1.1 | -13 | 1.3 | -7 | 1.0 | -9 | 1.2 | -9 | 1.3 | -4 | 1.0 |
| Immigrant background | | | | | | | | | | | | |
| Australian-born (AB) | 78 | 0.6 | 69 | 0.6 | 87 | 0.4 | 75 | 0.6 | 77 | 0.6 | 83 | 0.5 |
| First-generation (FG) | 81 | 0.7 | 75 | 0.9 | 89 | 0.5 | 78 | 0.8 | 79 | 0.9 | 84 | 0.7 |
| Foreign-born (FB) | 80 | 1.2 | 79 | 1.3 | 88 | 0.9 | 80 | 1.2 | 79 | 1.4 | 87 | 1.0 |
| Difference AB-FG | -3 | 0.9 | -6 | 1.1 | -2 | 0.6 | -3 | 1.0 | -2 | 1.1 | -1 | 0.8 |
| Difference AB-FB | -2 | 1.3 | -10 | 1.5 | -1 | 1.0 | -5 | 1.4 | -2 | 1.5 | -4 | 1.1 |
| Difference FG-FB | 1 | 1.3 | -4 | 1.4 | 1 | 1.1 | -2 | 1.5 | 0 | 1.5 | -3 | 1.2 |
| OECD average-35 | 78 | 0.1 | 73 | 0.1 | 82 | 0.1 | 83 | 0.1 | 81 | 0.1 | 85 | 0.1 |

Note: Values that are statistically significant are indicated in bold.



Sense of belonging over time

SECTION



Changes in sense of belonging for Australia

Sense of belonging at school has been measured in three cycles of PISA: in 2003, 2012 and 2015. In Australia, over this 12-year period, students' sense of belonging has declined significantly. Figure C.1 shows the percentage of students in Australia who agreed or disagreed with each of the statements about sense of belonging in PISA 2003, 2012 and 2015, and illustrates that there was a decline in students' sense of belonging between 2003 and 2012, and then a further decline between 2012 and 2015. The OECD average-30¹⁵ has been included for comparison.

Between PISA 2003 and 2015, there has been a decrease of between 8 and 16 percentage points reported on the sense of belonging statements:

- ▶ In 2003, 91% of Australian students agreed that they *make friends easily at school*, and by 2015 this percentage decreased to 79%. This difference of 12 percentage points for Australia was similar to the decrease reported for the OECD average-30 (a difference of 11 percentage points).
- ▶ In 2003, 88% of Australian students agreed that they *feel like they belong at school*, and by 2015 this decreased to 72%. This difference of 16 percentage points for Australia was larger than the decrease reported for the OECD average-30 (a difference of 9 percentage points).
- ▶ In 2003, 95% of Australian students agreed that they *feel that other students seem to like me*, and by 2015 this percentage had decreased to 88%. This difference of seven percentage points for Australia was similar to the decrease reported for the OECD average-30.
- ▶ In 2003, 92% of Australian students disagreed that they *feel like an outsider (or left out of things) at school*, and by 2015 this percentage decreased to 77%. This difference of 15 percentage points for Australia was larger than the decrease reported for the OECD average-30 (a difference of 10 percentage points).

15 The OECD average-30 includes all OECD countries, with the exceptions of Chile, Estonia, Israel, Slovenia and the United States.

- ▶ In 2003, 91% of Australian students disagreed that they *feel awkward and out of place in their school*, and by 2015 this percentage decreased to 78%. This difference of 13 percentage points for Australia was larger than the decrease reported for the OECD average-30 (a difference of 9 percentage points).
- ▶ In 2003, 94% of Australian students disagreed that they *feel lonely at school*, and by 2015 this percentage decreased to 84%. This difference of 10 percentage points for Australia was larger than the decrease reported for the OECD average-30 (a difference of 7 percentage points).

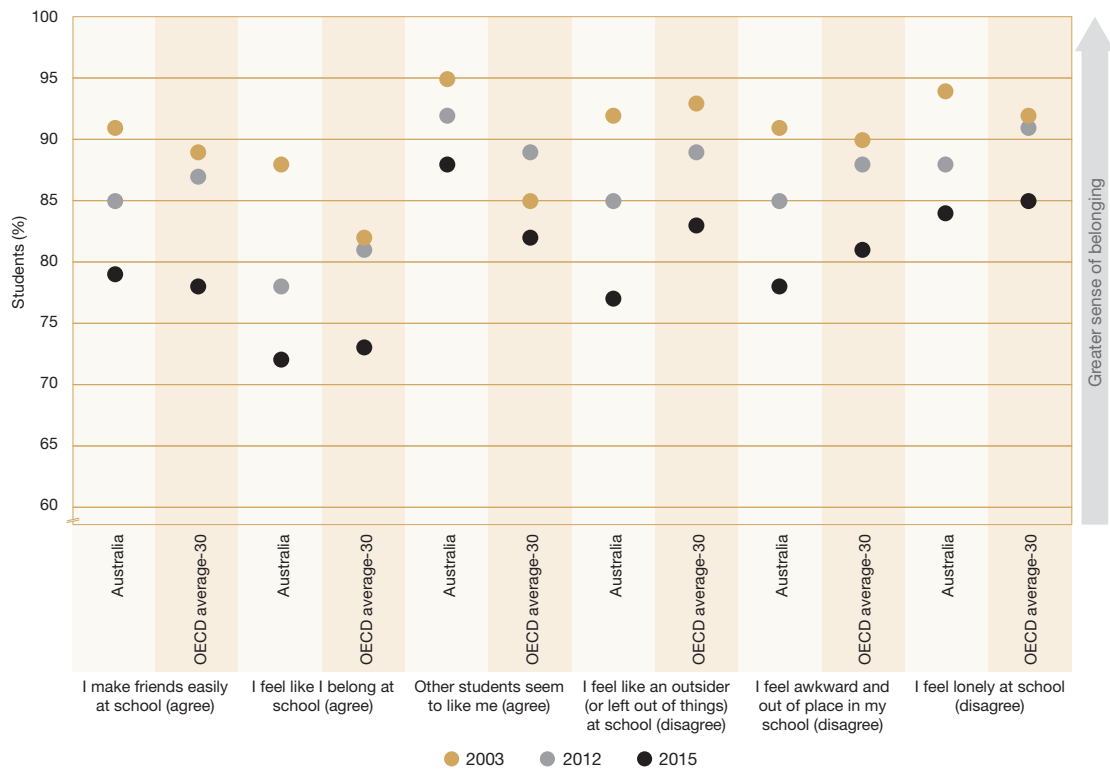


FIGURE C.1 Students' sense of belonging at school in PISA 2003, 2012 and 2015, for Australia and the OECD average

Changes in sense of belonging for the comparison countries

Table C.1 shows the change between PISA 2003 and 2015 in the percentage of students who agreed or disagreed with each of the statements about sense of belonging for the comparison countries, Australia and the OECD average. Over this 12-year period, there was a significant decline in students' sense of belonging across all except one of the comparison countries, Japan.

In Japan in 2015, there was an increase of five percentage points for students who agreed that *other students seem to like me*, and there was an increase of 18 percentage points of students who disagreed that they *feel lonely at school* than in 2003. There was also an increase, by 3%, of students in Hong Kong (China) who agreed that they *feel like they belong at school*. All of these changes between 2003 and 2015 were significant.

For the other comparison countries, there was a decrease of between three and 17 percentage points reported on the sense of belonging statements. The difference in the percentage of students who agreed that they *make friends easily at school*, and who agreed that they *feel like they belong at school*, was larger in the English-speaking countries compared to the other comparison countries. Similarly, the difference in the percentage of students who disagreed that they *feel like an outsider (or left out of things) at school* was larger in the English-speaking countries compared to the other comparison countries.

TABLE C.1 Change in students' sense of belonging between 2003 and 2015 (PISA 2015 – PISA 2003)¹⁶

| Country | I make friends easily at school (agree) | | I feel like I belong at school (agree) | | Other students seem to like me (agree) | | I feel like an outsider (or left out of things) at school (disagree) | | I feel awkward and out of place in my school (disagree) | | I feel lonely at school (disagree) | |
|-------------------|---|-----|--|-----|--|-----|--|-----|---|-----|------------------------------------|-----|
| | % | SE | % | SE | % | SE | % | SE | % | SE | % | SE |
| Canada | -12 | 0.6 | -10 | 0.7 | -7 | 0.4 | -14 | 0.6 | -13 | 0.5 | -11 | 0.5 |
| Finland | -8 | 0.7 | -9 | 0.8 | -5 | 0.8 | -7 | 0.5 | -9 | 0.7 | -5 | 0.6 |
| Hong Kong (China) | -7 | 0.9 | 3 | 1.3 | 1 | 1.0 | -7 | 0.9 | -11 | 0.8 | -8 | 0.9 |
| Japan | -8 | 1.0 | 2 | 0.9 | 5 | 1.0 | -6 | 0.6 | -2 | 0.9 | 18 | 1.0 |
| Macao (China) | -7 | 1.3 | -5 | 1.9 | -7 | 1.5 | -5 | 1.3 | -8 | 1.3 | -5 | 1.4 |
| New Zealand | -12 | 0.8 | -12 | 0.9 | -6 | 0.6 | -14 | 0.8 | -11 | 0.9 | -10 | 0.8 |
| United Kingdom | -13 | 0.7 | -17 | 0.9 | -8 | 0.6 | -13 | 0.7 | -11 | 0.7 | -8 | 0.6 |
| Australia | -12 | 0.5 | -16 | 0.6 | -7 | 0.4 | -15 | 0.5 | -13 | 0.5 | -10 | 0.5 |
| OECD average-30 | -11 | 0.1 | -9 | 0.2 | -3 | 0.2 | -10 | 0.1 | -9 | 0.1 | -7 | 0.1 |

Note: Values that are statistically significant are indicated in bold.

¹⁶ Estonia, Singapore and the United States have not been included in this table as data on sense of belonging from PISA 2003 is not available.

Changes in sense of belonging for different demographic groups in Australia

Figure C.2 shows the percentage of female and male students who agreed or disagreed with each of the statements about sense of belonging in PISA 2003, 2012 and 2015. During this time there has been a gradual¹⁷ and significant decline in both female students' and male students' sense of belonging between PISA 2003 and 2015.

Female students showed a greater decline in their sense of belonging than male students. Between PISA 2003 and 2015:

- ▶ the percentage of female students who disagreed that they *feel like an outsider (or left out of things) at school* decreased by 20 percentage points compared to the 12 percentage point decrease for male students.
- ▶ the percentage of female students who disagreed that they *feel awkward and out of place in their school* decreased by 17 percentage points compared to the 10 percentage point decrease for male students.
- ▶ the percentage of female students who disagreed that they *feel lonely at school* decreased by 13 percentage points compared to the 7 percentage point decrease for male students.
- ▶ the percentage of female students who reported that they *make friends easily at school* decreased by 15 percentage points compared to the 9 percentage point decrease for male students.
- ▶ the percentage of female students who reported that they *feel like they belong at school* decreased by 19 percentage points compared to the 13 percentage point decrease for male students.

The decline in the proportion of female students and male students reporting that *other students seem to like them* between PISA 2003 and 2015 was very similar, with an eight percentage point decrease for female students and a 7 percentage point decrease for male students.

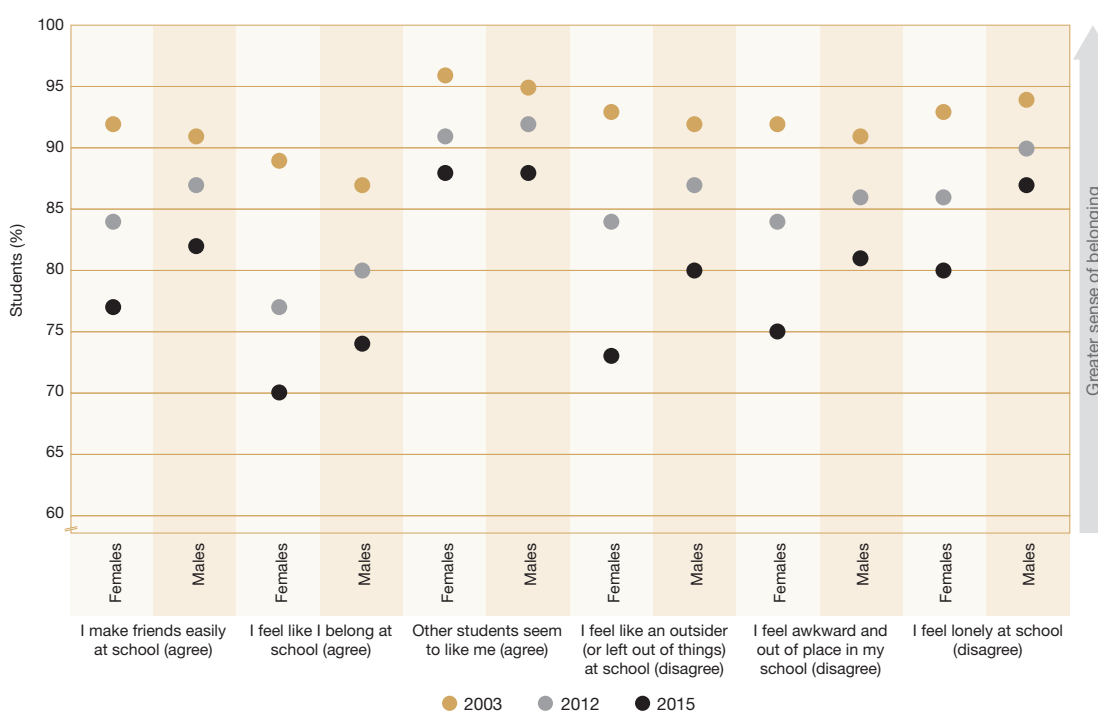


FIGURE C.2 Students' sense of belonging at school in PISA 2003, 2012 and 2015, by sex

¹⁷ Change between 2003 and 2012, and change between 2012 and 2015.

Figure C.3 shows the percentage of Indigenous and non-Indigenous students who agreed or disagreed with each of the statements about sense of belonging in PISA 2003, 2012 and 2015. Students' sense of belonging at school declined significantly for both Indigenous and non-Indigenous students between PISA 2003 and 2015.

Over the 12 year period, the proportion of Indigenous students who reported positive views declined significantly on most of the statements relating to a sense of belonging. Between PISA 2003 and 2015, there was a 24 percentage point decrease in Indigenous students reporting that they *feel like they belong at school*, a 17 percentage point decrease in their reports that they *make friends easily at school*, a 10 percentage point decrease in their reports that *other students seem to like them* and a 14 percentage point decrease on items indicating that they *feel like an outsider (or left out of things) at school*. Indigenous students' reporting that they *feel awkward and out of place in my school*, and that they *feel lonely at school* did not change significantly between PISA 2003 and 2015.

The proportion of non-Indigenous students who reported positively about sense of belonging declined significantly between PISA 2003 and 2015. The differences in this proportion ranged from seven percentage points (on the item *other students seem to like me*) to 16 percentage points (on the item that they *feel like they belong at school*).

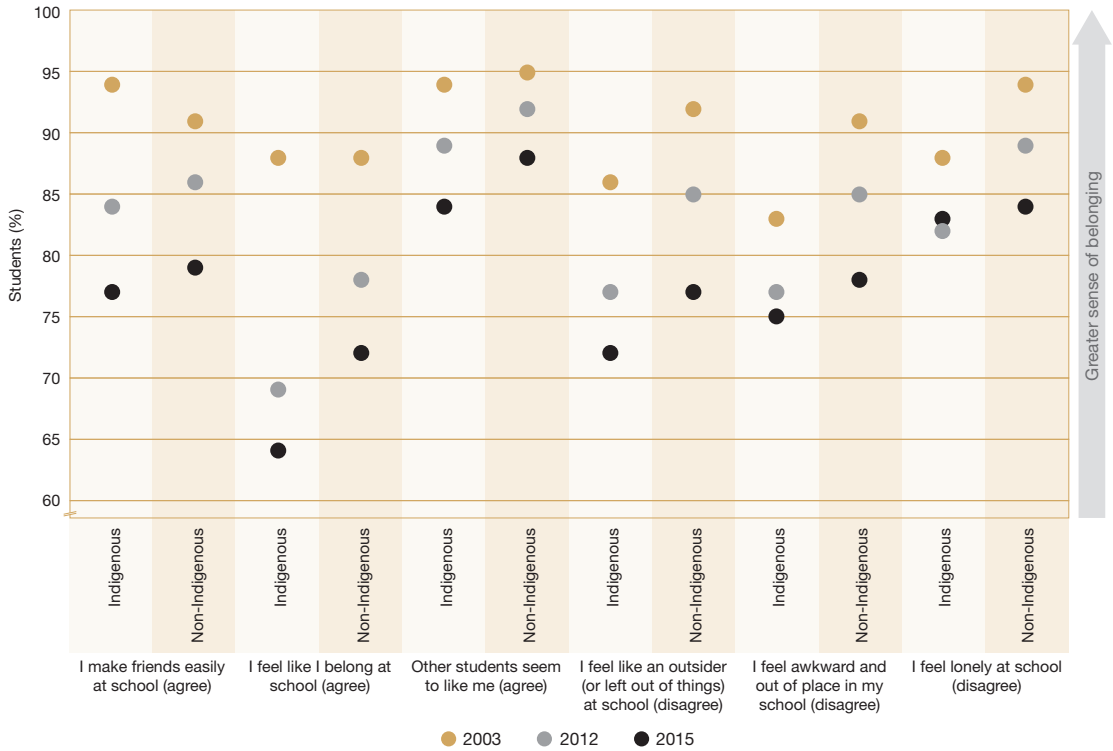


FIGURE C.3 Students' sense of belonging at school in PISA 2003, 2012 and 2015, by Indigenous background

Figure C.4 shows the percentage of students across the three geographic locations of schools who agreed or disagreed with each of the statements about sense of belonging in PISA 2003, 2012 and 2015. The proportion of students who reported more positively to statements about sense of belonging in all three of the geographic locations declined significantly between PISA 2003 and 2015.

- ▶ For students in metropolitan schools, the differences in this proportion ranged from 6 percentage points (on the item, *other students seem to like me*) to 15 percentage points (on the items where students *feel like they belong at school* and *feel like an outsider (or left out of things) at school*).
- ▶ For students in provincial schools, the differences in this proportion ranged from nine percentage points (on the item, *other students seem to like me*) to 16 percentage points (on the item where students *feel like an outsider (or left out of things) at school*).
- ▶ For students in remote schools, the differences in this proportion ranged from eight percentage points (on the item, *other students seem to like me*) to 20 percentage points (on the item where students *feel like they belong at school*).

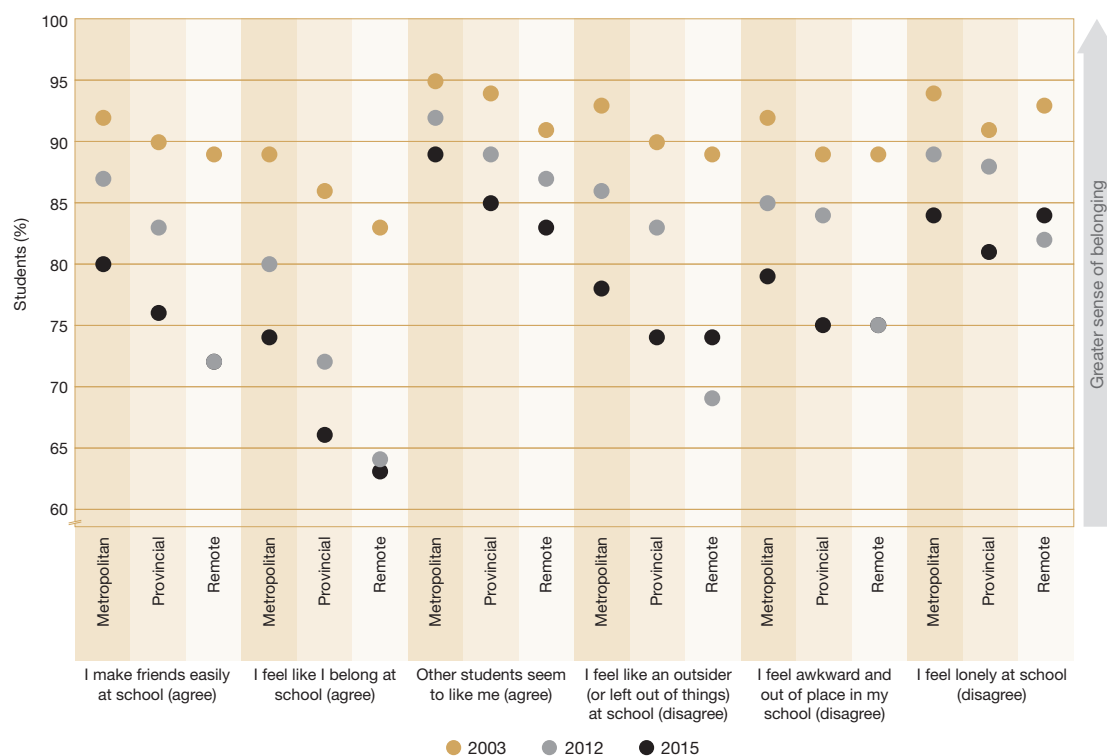


FIGURE C.4 Students' sense of belonging at school in PISA 2003, 2012 and 2015, by geographic location

Figure C.5 shows the percentage of students for each quartile of socioeconomic background who agreed or disagreed with each of the statements about sense of belonging in PISA 2003, 2012 and 2015. The proportion of students who reported more positively to statements about sense of belonging in each quartile declined significantly between PISA 2003 and 2015.

- ▶ For students in the lowest quartile, the most disadvantaged students, the differences in this proportion ranged from 10 percentage points (on the item *other students seem to like me*) to 20 percentage points (on the items where students *feel like they belong at school* and *feel like an outsider (or left out of things) at school*).
- ▶ For students in the highest quartile, the most advantaged students, the differences in this proportion ranged from 6 percentage points (on the item *other students seem to like me*) to 11 percentage points (on the items where students *feel like they belong at school* and *feel like an outsider (or left out of things) at school*).

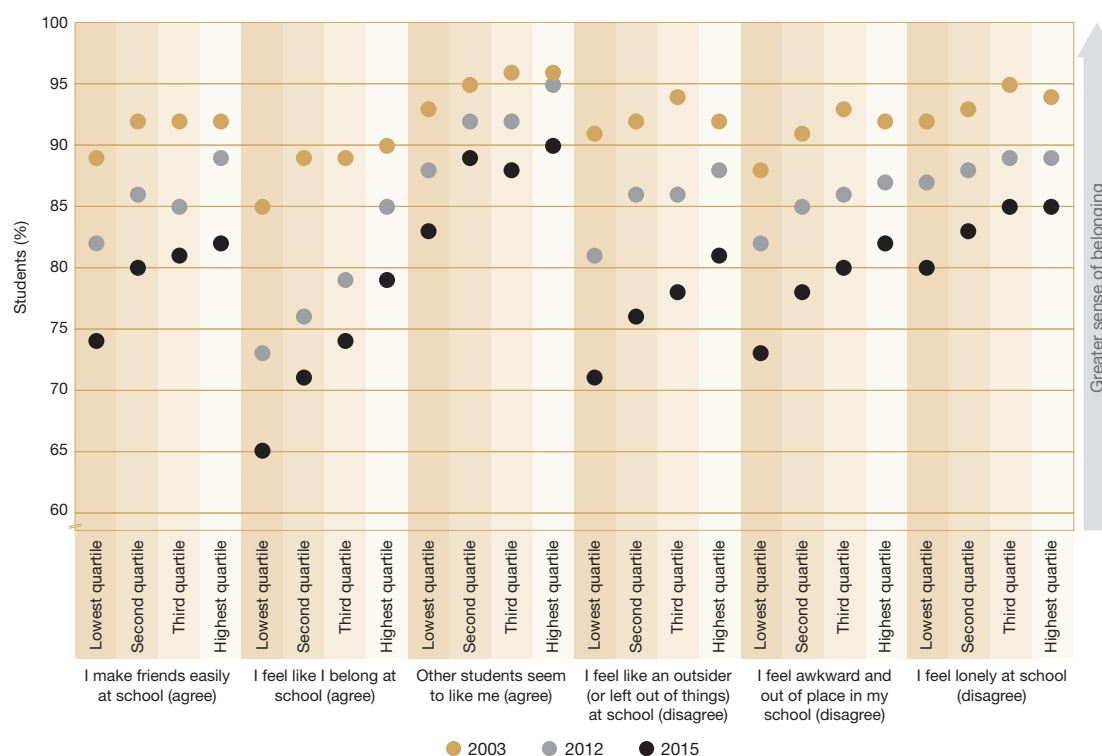


FIGURE C.5 Students' sense of belonging at school in PISA 2003, 2012 and 2015, by socioeconomic background

Figure C.6 shows the percentage of students for the three immigrant background categories who agreed or disagreed with each of the statements about sense of belonging in PISA 2003, 2012 and 2015. The proportion of students who reported more positively to statements about sense of belonging across all immigrant backgrounds declined significantly between PISA 2003 and 2015.

- ▶ For Australian-born students, the differences in this proportion ranged from 8 percentage points (on the item *other students seem to like me*) to 20 percentage points (on the item where students *feel like they belong at school*).
- ▶ For first-generation students, the differences in this proportion ranged from 7 percentage points (on the item *other students seem to like me*) to 15 percentage points (on the item where students *feel like an outsider (or left out of things) at school*).
- ▶ For foreign-born students, the differences in this proportion ranged from 5 percentage points (on the item where *students feel lonely at school*) to 11 percentage points (on the item where students *feel like an outsider (or left out of things) at school*).

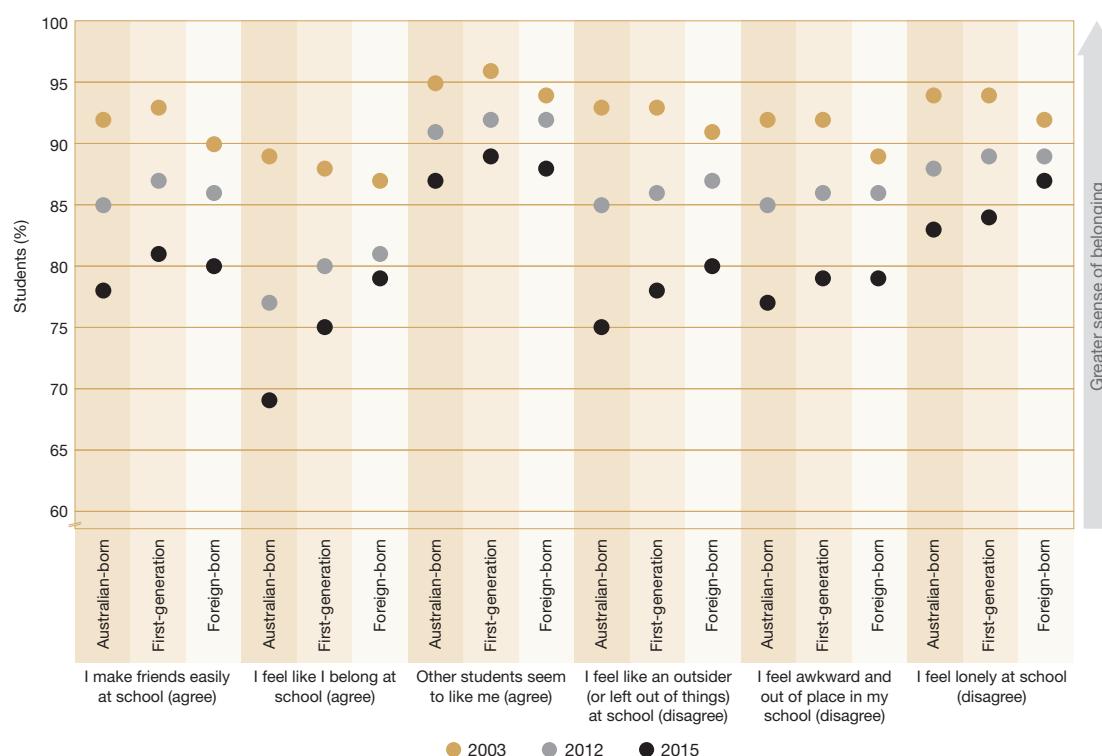


FIGURE C.6 Students' sense of belonging at school in PISA 2003, 2012 and 2015, by immigrant background

References

- Australian Curriculum, Assessment and Reporting Authority (ACARA). (2015). *Measurement framework for schooling in Australia*. Sydney: Education Council and ACARA.
- Jones, R. (2004). *Geolocation questions and coding index*. Canberra: Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA).
- Juvonen, J. (2006). Sense of belonging, social bonds, and school functioning. *Handbook of Educational Psychology*, 2, 655–674.
- Ma, X. (2010) Sense of Belonging to School: Can Schools Make a Difference?, *The Journal of Educational Research*, 96(6), 340-349.
- Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA). (2008). *Melbourne declaration on educational goals for young Australians*. Carlton: Curriculum Corporation. Retrieved from http://www.mceecdya.edu.au/verve/_resources/National_Declaration_on_the_Educational_Goals_for_Young_Australians.pdf.
- Organisation for Economic Co-operation and Development (OECD). (2017). *PISA 2015 results (Volume III): Students' well-Being*. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). (2004). *Learning for tomorrow's world – Final results from PISA 2003*. Paris: Author.
- Strudwicke, L. (2000). Sense of Belonging and Self-Esteem : *What are the Implications for Educational Outcomes of Secondary School Students? : A Literature Review*. Retrieved from http://ro.ecu.edu.au/theses_hons/867.
- Thomson, S., De Bortoli, L. & Underwood, C. (2017). *PISA 2015: Reporting Australia's results*. Camberwell, VIC: ACER.
- Willms, J. D. (2003). *Student engagement at school: A sense of belonging and participation. Results from PISA 2000*. Paris: OECD.



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