

Chapter 5 Reading attainment: purposes and processes in PIRLS 2011

Chapter outline

PIRLS assesses pupils' ability in two different areas of reading: the ability to read different types of content and the ability to use different types of skills while reading. In PIRLS these two areas of reading are referred to as 'reading purposes' and 'reading processes'.

This chapter summarises pupils' attainment in both of these areas of reading. It also compares the performance of boys and girls in these areas.

The outcomes for England are compared with those of the 2006 survey.

Comparisons are made with several other participating countries: Australia, Canada, Chinese Taipei, Finland, Hong Kong, the Republic of Ireland, New Zealand, Northern Ireland, the Russian Federation, Sweden, Singapore and the United States.

Key findings

- Pupils in England performed equally well on the two reading purpose scales: reading for literary purposes and reading to acquire and use information.
- Performance on both purpose scales was significantly* higher in England in 2011 than in 2006.
- On the processes of reading comprehension scales, pupils in England scored higher on the interpreting, integrating and evaluating scale, than on the retrieving and straightforward inferencing scale.
- The scale score for England on both reading process scales was significantly higher in 2011 than in 2006.
- In England, girls achieved significantly higher mean scores than boys on both of the reading purpose scales and both of the comprehension process scales.

5.1 England's attainment by reading purposes

Table 5.1 presents the average achievement of England and comparator countries in the two purposes for reading identified in PIRLS: reading for literary experience, and reading to acquire and use information. Performance on the two scales is compared relative to overall reading achievement.

* Findings listed as 'significant' throughout this report are statistically significant.

Interpreting the data: the reading purpose scales

It is important to note that the two numerical scale scores representing the two reading purposes are not directly comparable, since they represent different constructs, and the assessments may be of different levels of demand. However, to allow comparison of the relative performance of each country for each purpose, Item Response Theory scaling was used so that pupil attainment in the two reading purposes could be placed on the same overall reading scale (international mean = 500).

Pupils in England performed equally well on the two reading purpose scales. Although many countries performed relatively higher in one of the reading purposes compared to their overall performance, that was not the case in England. Pupils in Hong Kong, Singapore and Chinese Taipei performed significantly better on informational reading, whereas pupils in Northern Ireland, the United States, the Republic of Ireland, Canada, Sweden and New Zealand scored more highly on literary reading. Other comparator countries (the Russian Federation, Finland and Australia), like England, showed no significant discrepancy in performance between the two reading purposes.

England's scores on both scales were significantly higher than the scores achieved in 2006.

Table 5.1 Achievement in reading purposes (comparator countries)

Country	Overall reading average scale score	Literary		Informational		Difference	
		Average scale score	Difference from overall reading score	Average scale score	Difference from overall reading score	Purpose score lower than overall reading score	Purpose score higher than overall reading score
³ Hong Kong SAR	571 (2.3)	565 (2.5)	-6 (1.1) ▼	578 (2.2)	7 (1.2) ▲		
Russian Federation	568 (2.7)	567 (2.7)	-1 (0.8)	570 (2.7)	1 (1.1)		
Finland	568 (1.9)	568 (2.0)	1 (0.7)	568 (2.0)	0 (0.8)		
² Singapore	567 (3.3)	567 (3.5)	0 (1.4)	569 (3.3)	2 (1.0) ▲		
[†] Northern Ireland	558 (2.4)	564 (2.7)	5 (1.4) ▲	555 (2.6)	-4 (1.7) ▼		
² United States	556 (1.5)	563 (1.8)	6 (1.0) ▲	553 (1.6)	-4 (1.0) ▼		
Chinese Taipei	553 (1.9)	542 (1.9)	-11 (1.0) ▼	565 (1.8)	12 (0.7) ▲		
Ireland, Rep. of	552 (2.3)	557 (2.7)	6 (1.3) ▲	549 (2.3)	-3 (1.1) ▼		
[†] England	552 (2.6)	553 (2.8)	1 (1.7)	549 (2.6)	-2 (1.5)		
² Canada	548 (1.6)	553 (1.7)	5 (0.7) ▲	545 (1.7)	-3 (0.9) ▼		
Sweden	542 (2.1)	547 (2.4)	5 (1.2) ▲	537 (2.4)	-5 (1.4) ▼		
New Zealand	531 (1.9)	533 (2.3)	2 (1.1) ▲	530 (2.0)	-1 (1.2)		
Australia	527 (2.2)	527 (2.2)	0 (1.0)	528 (2.2)	1 (0.7)		

▲ Subscale score significantly higher than overall reading score
 ▼ Subscale score significantly lower than overall reading score

■ Literary reading
 ■ Informational reading

See Appendix C.2 in international report for target population coverage notes 1, 2, and 3.

See Appendix C.5 for sampling guidelines and sampling participation notes † and ‡.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

Source: Exhibit 3.1 in PIRLS 2011 report

SOURCE: Adapted from IEA's Progress in International Reading Literacy Study – PIRLS 2011

5.2 England's attainment by comprehension processes

The reading skills identified in the PIRLS framework (referred to as processes) are:

- focus on and retrieve explicitly stated information
- make straightforward inferences
- interpret and integrate ideas and information
- examine and evaluate content, language and textual elements.

The two text-based processes (retrieval and straightforward inferencing) were combined to form a single scale, and the other two processes more concerned with reasoning (interpreting and integrating, and examining and evaluating) were combined to form another scale. Each of the two scales includes about half of the assessment items.

Interpreting the data: the reading comprehension process scales

As with the reading purpose scales, it is important to note that the two numerical scale scores representing the different reading processes are not directly comparable, since they represent different constructs, and the assessments may be of different levels of demand. However, to allow comparison of the relative performance of each country for the major reading comprehension processes, Item Response Theory scaling was used to place achievement in the text-based processes and the reasoning processes on the same overall reading scale (international mean = 500).

When the two scales are compared, pupils in England scored nine scale points higher on the interpreting, integrating and evaluating scale than on the retrieval and straightforward inferencing scale. This difference was statistically significant and mirrors the finding in 2006.

The two highest achieving countries (Hong Kong and the Russian Federation), as well as a number of English-speaking countries (Northern Ireland, United States, Canada and New Zealand), also scored significantly more highly on the interpreting, integrating and evaluating scale.

Nine out of the 13 comparator countries included in Table 5.2 performed significantly better on the interpreting, integrating and evaluating scale. The remaining four countries (Finland, the Republic of Ireland, Sweden and Australia) performed equally well on both processes.

As with the reading purposes scales, England's scores on both reading process scales were significantly higher than the scores achieved in 2006.

Table 5.2 Achievement in comprehension processes (comparator countries)

Country	Overall reading average scale score	Retrieving and straightforward		Interpreting, integrating, and evaluating		Difference	
		Average scale score	Difference from overall reading score	Average scale score	Difference from overall reading score	Process score lower than overall reading score	Process score higher than overall reading score
³ Hong Kong SAR	571 (2.3)	562 (2.0)	-8 (1.0) ▼	578 (2.4)	7 (1.0) ▲		
Russian Federation	568 (2.7)	565 (2.7)	-3 (1.2) ▼	571 (2.6)	2 (0.9) ▲		
Finland	568 (1.9)	569 (2.0)	1 (0.9)	567 (1.8)	-1 (0.7)		
² Singapore	567 (3.3)	565 (3.4)	-2 (1.3)	570 (3.4)	3 (1.2) ▲		
† Northern Ireland	558 (2.4)	555 (2.5)	-3 (1.0) ▼	562 (2.5)	4 (1.0) ▲		
² United States	556 (1.5)	549 (1.5)	-7 (0.7) ▼	563 (1.6)	6 (0.6) ▲		
Chinese Taipei	553 (1.9)	551 (1.8)	-1 (0.8)	555 (1.9)	2 (0.7) ▲		
Ireland, Rep. of	552 (2.3)	552 (2.8)	0 (1.8)	553 (2.2)	2 (0.9) ▲		
† England	552 (2.6)	546 (2.6)	-6 (1.3) ▼	555 (2.7)	4 (1.1) ▲		
² Canada	548 (1.6)	543 (1.5)	-5 (0.6) ▼	554 (1.5)	5 (0.4) ▲		
Sweden	542 (2.1)	543 (2.1)	1 (1.0)	540 (2.1)	-1 (0.9)		
New Zealand	531 (1.9)	527 (2.0)	-4 (0.9) ▼	535 (1.9)	4 (1.4) ▲		
Australia	527 (2.2)	527 (2.6)	-1 (1.3)	529 (2.2)	2 (1.0)		

- ▲ Subscale score significantly higher than overall reading score
- ▼ Subscale score significantly lower than overall reading score

See Appendix C.2 in international report for target population coverage notes 1, 2, and 3.
See Appendix C.5 for sampling guidelines and sampling participation note †.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.



SOURCE: Adapted from IEA's Progress in International Reading Literacy Study – PIRLS 2011

Source: Exhibit 3.3 in PIRLS 2011 report

5.3 England's purpose and process differences by gender

Table 5.3 shows that, in England, girls scored significantly higher than boys on both reading for literary purposes and reading to acquire and use information. Girls scored 28 scale points higher than boys on the literary scale and 21 points higher on the informational scale.

Girls also had significantly better performance than boys on both reading process scales. Girls scored 22 scale points higher on the retrieval and straightforward inferencing scale and 24 points higher on the interpreting, integrating and evaluating scale.

In all the comparator countries girls performed better than boys on all scales, for reading purposes and reading comprehension processes. On all four scales the difference between boys and girls in England was greater than the international average. These differences repeat the patterns found in 2006.

Table 5.3 Achievement in reading purposes and comprehension processes by gender (comparator countries)

Country	Reading purposes				Comprehension processes			
	Literary		Informational		Retrieving and straightforward inferencing		Interpreting, integrating and evaluating	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Australia	539 (3.0) ▲	516 (3.2)	534 (2.9) ▲	522 (2.7)	536 (3.1) ▲	517 (3.1)	538 (2.8) ▲	521 (2.7)
² Canada	562 (2.0) ▲	544 (2.2)	549 (1.9) ▲	542 (2.0)	549 (1.8) ▲	538 (1.9)	560 (1.8) ▲	548 (2.0)
Chinese Taipei	550 (2.2) ▲	535 (2.3)	572 (2.1) ▲	560 (2.0)	560 (2.2) ▲	544 (2.3)	561 (2.2) ▲	549 (2.3)
[†] England	567 (2.9) ▲	539 (3.4)	560 (3.0) ▲	539 (3.2)	557 (3.0) ▲	535 (3.2)	568 (3.1) ▲	544 (3.2)
Finland	582 (2.4) ▲	556 (2.4)	575 (2.6) ▲	561 (2.6)	579 (2.7) ▲	560 (2.3)	578 (2.4) ▲	557 (2.0)
³ Hong Kong SAR	577 (2.8) ▲	555 (2.7)	582 (2.5) ▲	574 (2.3)	569 (2.4) ▲	556 (2.5)	588 (2.6) ▲	570 (2.7)
Ireland, Rep. of	569 (3.1) ▲	546 (3.4)	553 (3.1) ▲	545 (3.0)	558 (3.7) ▲	546 (3.1)	562 (2.9) ▲	545 (2.9)
New Zealand	546 (2.7) ▲	521 (3.3)	537 (2.4) ▲	522 (2.8)	536 (2.4) ▲	519 (2.8)	545 (2.5) ▲	526 (2.5)
[†] Northern Ireland	575 (3.2) ▲	552 (3.5)	561 (3.1) ▲	549 (3.4)	563 (2.8) ▲	548 (3.4)	571 (2.8) ▲	553 (3.3)
Russian Federation	578 (2.8) ▲	557 (3.1)	577 (2.9) ▲	563 (2.9)	574 (3.2) ▲	557 (3.0)	581 (2.7) ▲	561 (3.0)
² Singapore	578 (3.9) ▲	556 (3.8)	576 (3.5) ▲	563 (3.6)	573 (3.5) ▲	557 (3.7)	579 (3.6) ▲	562 (3.7)
Sweden	557 (3.1) ▲	538 (2.6)	543 (2.7) ▲	531 (3.1)	549 (2.6) ▲	537 (2.6)	549 (2.5) ▲	532 (2.6)
² United States	570 (2.3) ▲	555 (1.9)	556 (1.9) ▲	549 (1.9)	554 (1.8) ▲	544 (1.7)	568 (2.0) ▲	557 (1.9)
International Avg.	522 (0.5) ▲	502 (0.5)	519 (0.5) ▲	507 (0.5)	521 (0.5) ▲	505 (0.5)	519 (0.5) ▲	502 (0.5)

▲ Average significantly higher than other gender

See Appendix C.2 in international report for target population coverage notes 1, 2, and 3.

See Appendix C.5 for sampling guidelines and sampling participation notes †.

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Source: Exhibit 3.7 in PIRLS 2011 report

SOURCE: Adapted from IEA's Progress in International Reading Literacy Study – PIRLS