

# PIRLS

## Chapter 1



# Chapter 1

## Trends in Reading Literacy Achievement 1991–2001

*Chapter 1 summarizes changes in average reading literacy achievement of primary/elementary-school children from 1991 to 2001 for each country. Separate results for girls and boys, and changes in gender differences also are provided, as are changes in average achievement in three reading domains – narrative text, expository text, and documents.*

## Trends in Reading Literacy Achievement Between 1991 and 2001

Exhibit 1.1 presents the difference between average reading literacy in 1991 and in 2001 for each of the nine participating countries. Countries are shown in decreasing order of the difference, together with an indication of whether the difference is statistically significant. Also included are the distributions of reading literacy achievement for each country in 1991 and 2001, the average achievement score, the number of years of formal schooling, and the average age. The 1991 and 2001 data were placed on the same scale so that changes in reading performance between 1991 and 2001 could be readily seen.<sup>1</sup>

In Greece, Slovenia, Iceland, and Hungary, there was an increase in average student performance on the reading literacy test from 1991 to 2001.<sup>2</sup> Four countries (Italy, New Zealand, Singapore, and the United States) had no significant change, and only Sweden, one of the highest-performing countries in 1991, had a decrease in performance over the period.

Because the age at which students start school varies from country to country, the number of years of formal schooling is not the same in all countries. Students were in the fourth grade in five countries and in third grade in four countries. The same grade was tested in 1991 and in 2001 in all countries, although there were some changes in average student age. In Greece, the average age of fourth-grade students increased from 9.3 years in 1991 to 10.0 in 2001, and in Hungary the increase was from 9.3 to 9.7.

- 1 PIRLS used item response theory (IRT) methods to summarize the achievement results from both 1991 and 2001 on a common scale with a mean of 500 and a standard deviation of 100. The scale mean of 500 was set to the mean of the average scale scores of the 2001 data for the nine countries. IRT scaling averages students' responses in a way that accounts for differences in the difficulty of the items and allows students' performance at two points in time to be summarized on a common metric. For more detailed information, see the "IRT Scaling and Data Analysis" section of Appendix A.
- 2 Three of these (Greece, Slovenia, and Hungary) had average performance close to the international average for all 27 countries in 1991. See Elley, W.B. (1992). *How in the world do students read?* The Hague: International Association for the Evaluation of Educational Achievement. Please note that for Trends in IEA's Reading Literacy Study, the means for 1991 are different than those reported in Elley (1992) because the 1991 data was rescaled to be put on a common metric with the 2001 data.

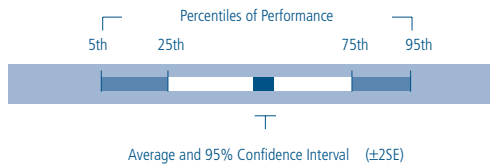
**Exhibit 1.1: Trends in Average Achievement in Reading Literacy**

**ISC** RLS Trend  
1991–2001

Countries	1991 to 2001 Difference	Reading Scale Score	Average Scale Score	Years of Formal Schooling	Average Age
<b>Greece</b>	▲ 41 (7.4)				
2001			507 (5.9)	4	10.0
1991			466 (4.5)	4	9.3
<b>Slovenia</b>	▲ 36 (4.9)				
2001			493 (3.7)	3	9.8
1991			458 (3.2)	3	9.7
<b>Iceland</b>	▲ 27 (3.7)				
2001			513 (3.5)	4	9.8
1991			486 (1.5)	4	9.8
<b>Hungary</b>	▲ 16 (5.6)				
2001			475 (3.9)	3	9.7
1991			459 (4.0)	3	9.3
<b>Italy</b>	12 (6.9)				
2001			513 (4.4)	4	9.9
1991			500 (5.4)	4	9.8
<b>Singapore</b>	8 (8.7)				
2001			489 (7.9)	3	9.1
1991			481 (3.6)	3	9.3
<b>New Zealand</b>	4 (6.8)				
2001			502 (5.3)	5	10.0
1991			498 (4.1)	5	10.0
<b>United States</b>	-10 (7.1)				
2001			511 (6.3)	4	10.0
1991			521 (3.2)	4	10.0
<b>Sweden</b>	▼ -15 (5.7)				
2001			498 (3.9)	3	9.8
1991			513 (4.2)	3	9.8

SOURCE: Trends in IEAs Reading Literacy Study 1991–2001

200 300 400 500 600 700 800



- ▲ 2001 country average significantly higher than 1991 average
- ▼ 2001 country average significantly lower than 1991 average

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

## Gender Differences in Trends in Reading Literacy Achievement

Exhibit 1.2 provides information on changes in primary/elementary-school children's average reading literacy between 1991 and 2001, separately for girls and boys. For Greece, Hungary, Slovenia, and Sweden, the results for boys and girls resemble the trends in reading overall, with increased scores for both in Greece and Slovenia, and decreased scores for both in Sweden. Iceland also has increased scores for both girls and boys, but with a greater gain for boys (35 points) than for girls (17 points). Iceland's overall improvement on reading appears to be due primarily to improved reading performance by boys.

Another perspective on trends in gender differences is provided in Exhibit 1.3, which shows average reading achievement for girls and boys and the difference between them in 2001, average reading achievement for girls and boys and the difference between them in 1991, and an indication of whether the change in gender difference from 1991 to 2001 was statistically significant. In 1991, girls outperformed boys in all nine countries. In 2001, however, there was still a difference favoring girls in Greece, Hungary, New Zealand, Singapore, Slovenia, Sweden, and the United States, but no significant difference in Iceland and Italy. In Iceland, the achievement difference between girls and boys decreased between 1991 (28 points) and 2001 (9 points) because of the improved performance by boys described previously. In Singapore, however, improved performance by girls led to an increase in the gender difference between 1991 and 2001 – from 16 to 29 points.

## Trends in Reading Achievement on Different Text Types Between 1991 and 2001

The 1991 reading literacy test measured student reading achievement in three domains: narrative texts, expository texts, and documents. Narrative texts are continuous texts in which the writer's aim is to tell a story – whether fact or fiction. They normally follow a linear time sequence and are usually intended to entertain or involve the reader emotionally. Passages included in the test ranged from short fables to more lengthy stories of up to 1000 words.

Expository texts also are continuous, and are designed to describe, explain, or otherwise convey factual information or opinion to the reader. The test contained, for example, brief family letters and descriptions of animals. Documents consist of structured information displays presented in the form of charts, tables, maps, graphs, lists, or sets of instructions. These materials were organized in the test in such a way that students had to search, locate, and process selected facts rather than read every word of continuous text.<sup>3</sup> Exhibits 1.4 through 1.6 summarize changes in average student performance from 1991 to 2001 on the three text types, respectively.

Similar to their performance on the test as a whole, primary/elementary-school students in Greece, Iceland, Slovenia, and Hungary performed better, on average, on the narrative texts in 2001 than in 1991 (Exhibit 1.4). There was no significant difference in average performance in Italy, Singapore, and New Zealand over that period. Also, in line with performance on the test overall, students in Sweden had lower average performance on narrative texts in 1991 than in 2001. Although in the United States there was not a significant difference in average overall reading performance between 1991 and 2001, students performed less well on the narrative texts in 2001 (a difference of 20 points).

As shown in Exhibit 1.5, students in Greece, Iceland, Slovenia, and Hungary performed better, on average, also on the expository texts in 2001 than in 1991. Students in Sweden performed less well in 2001 than 1991, and there was no significant difference in Italy, New Zealand, Singapore, and the United States.

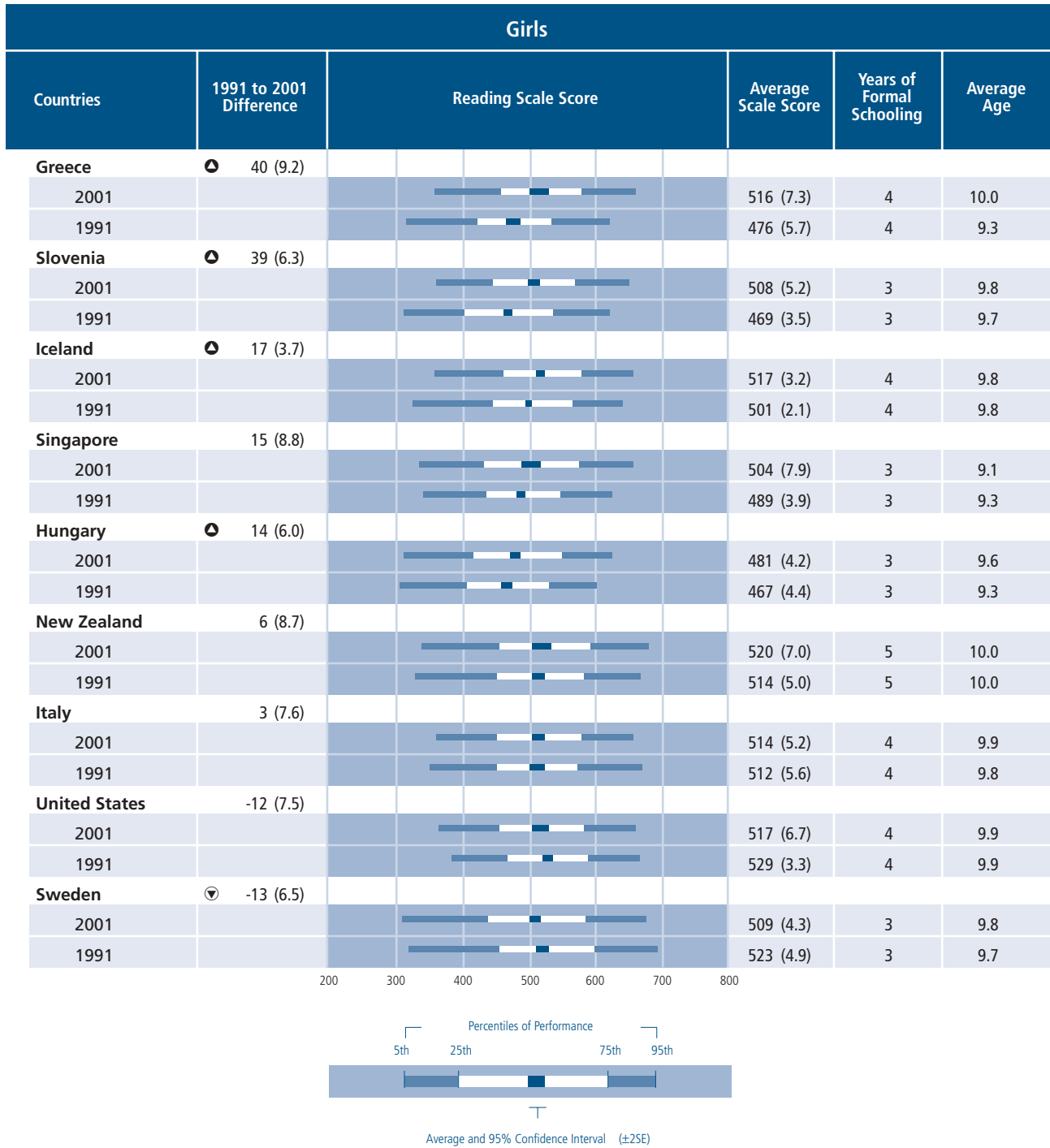
All but two countries, Sweden and the United States, showed an improvement on document text in 2001 compared to 1991. In Sweden and the United States, average student performance in 2001 and 1991 did not differ significantly.

3 Elley, W.B. (1992). *How in the world do students read?* The Hague: International Association for the Evaluation of Educational Achievement.

**Exhibit 1.2: Trends in Average Reading Literacy Achievement by Gender**

ISC RLS Trend  
1991–2001

SOURCE: Trends in IEAs Reading Literacy Study 1991–2001



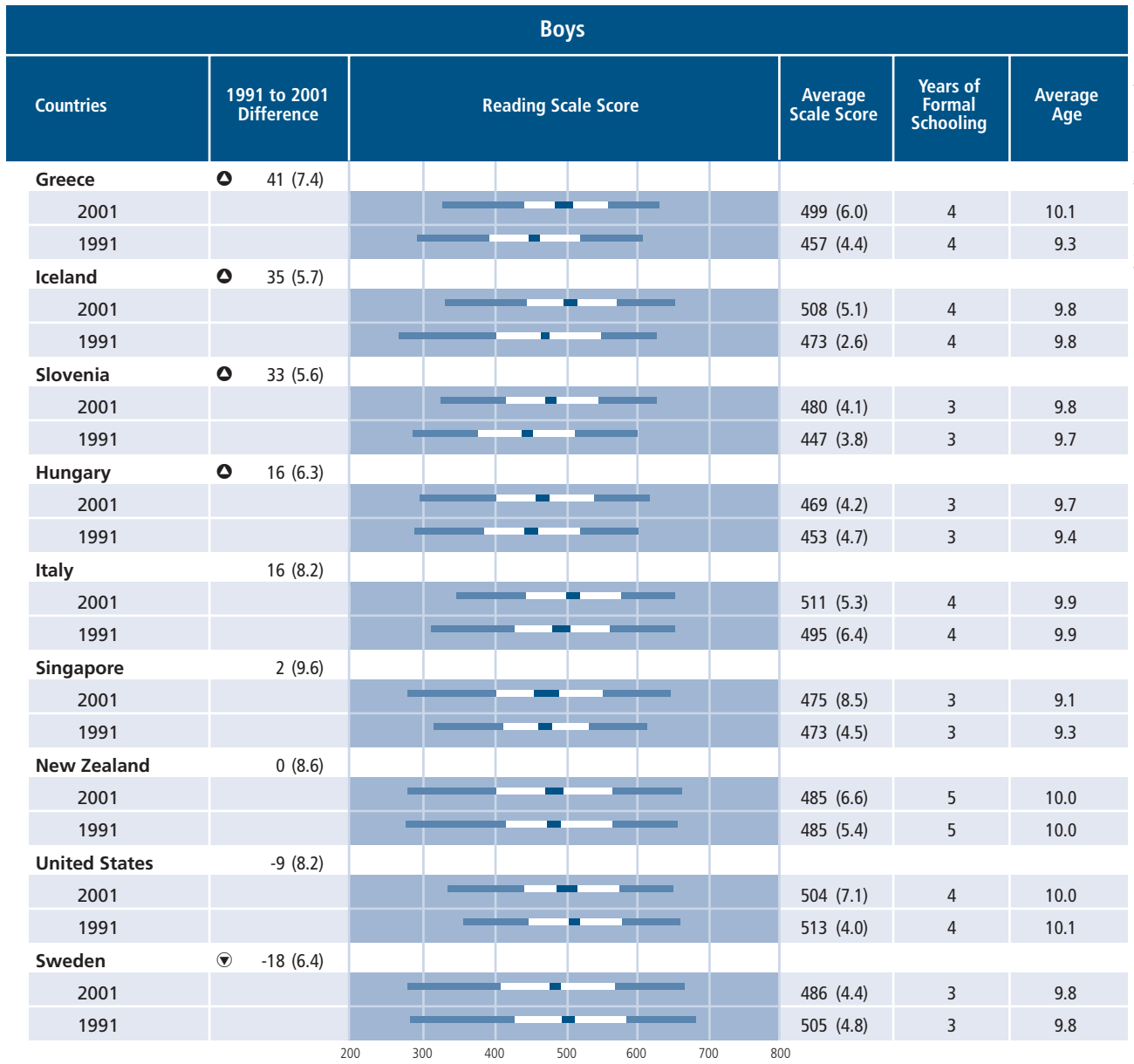
- ▲ 2001 country average significantly higher than 1991 average
- ▼ 2001 country average significantly lower than 1991 average

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

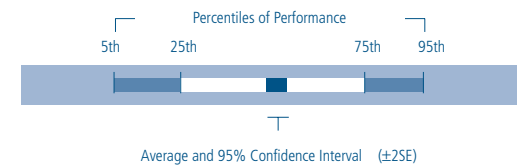


**Exhibit 1.2: Trends in Average Reading Literacy Achievement by Gender (Continued)**

**ISC** RLS Trend  
1991–2001



SOURCE: Trends in IEA's Reading Literacy Study 1991–2001



- ▲ 2001 country average significantly higher than 1991 average
- ▼ 2001 country average significantly lower than 1991 average

## Exhibit 1.3: Trends in Gender Differences in Average Reading Achievement

ISC  
RLS Trend  
1991–2001

Countries	2001			1991			Change in Gender Difference
	Girls Average Scale Score	Boys Average Scale Score	Difference (Absolute Value)	Girls Average Scale Score	Boys Average Scale Score	Difference (Absolute Value)	
Greece	516 (7.3) ▲	499 (6.0)	18 (6.3)	476 (5.7) ▲	457 (4.4)	19 (4.8)	○
Hungary	481 (4.2) ▲	469 (4.2)	12 (3.2)	467 (4.4) ▲	453 (4.7)	14 (4.4)	○
Iceland	517 (3.2)	508 (5.1)	9 (4.8)	501 (2.1) ▲	473 (2.6)	28 (3.6)	▼
Italy	514 (5.2)	511 (5.3)	4 (5.5)	512 (5.6) ▲	495 (6.4)	17 (5.7)	○
New Zealand	520 (7.0) ▲	485 (6.6)	35 (8.7)	514 (5.0) ▲	485 (5.4)	29 (6.3)	○
Singapore	504 (7.9) ▲	475 (8.5)	29 (4.8)	489 (3.9) ▲	473 (4.5)	16 (4.3)	▲
Slovenia	508 (5.2) ▲	480 (4.1)	28 (5.7)	469 (3.5) ▲	447 (3.8)	22 (3.7)	○
Sweden	509 (4.3) ▲	486 (4.4)	23 (4.1)	523 (4.9) ▲	505 (4.8)	18 (4.6)	○
United States	517 (6.7) ▲	504 (7.1)	14 (5.4)	529 (3.3) ▲	513 (4.0)	16 (3.4)	○

▲ Significantly higher than other gender

Increased ▲

Decreased ▼

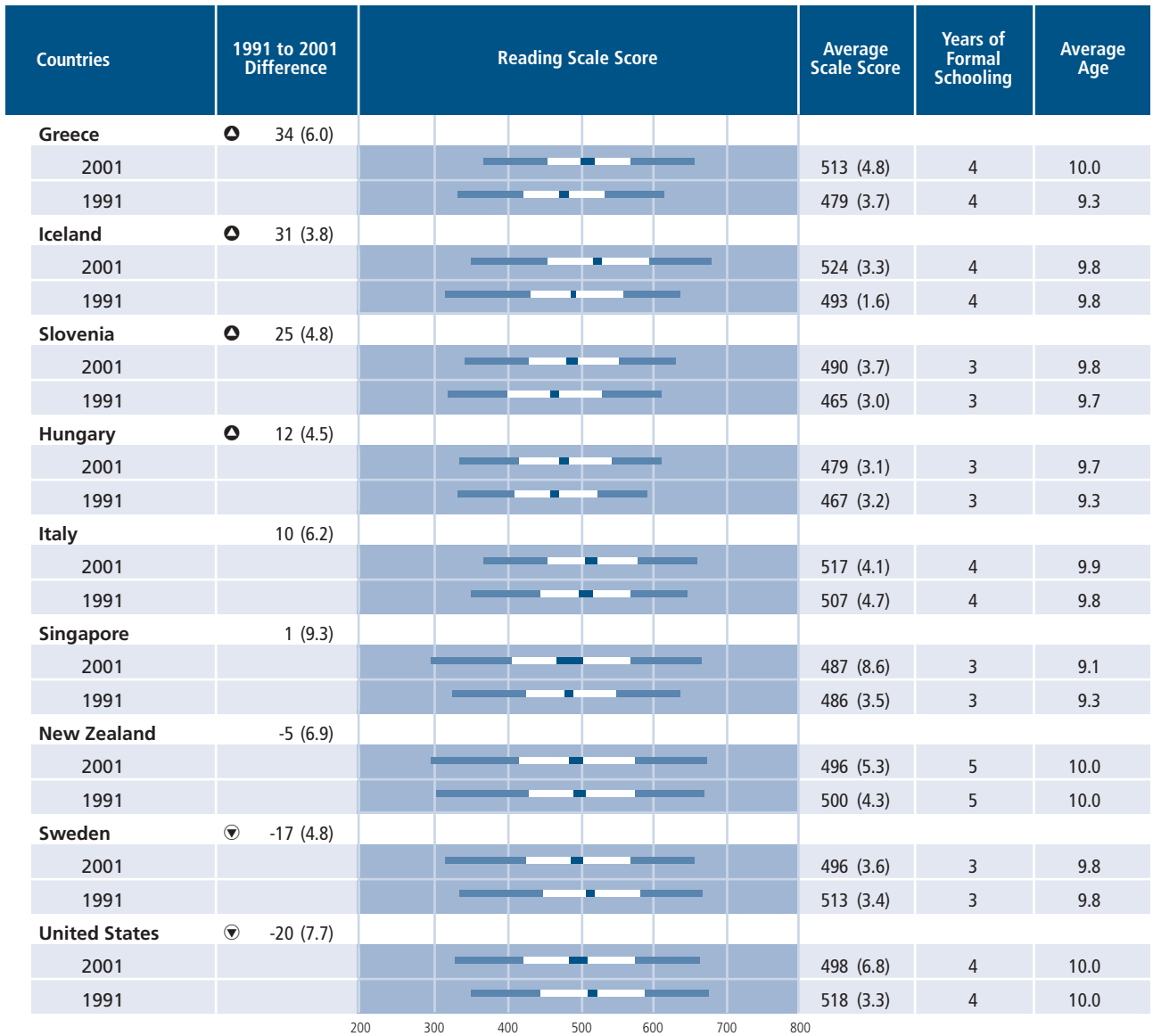
No Change ○

SOURCE: Trends in IEAs Reading Literacy Study 1991–2001

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

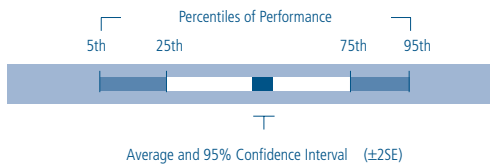
**Exhibit 1.4: Trends in Average Achievement in Narrative Reading Literacy**

ISC RLS Trend 1991–2001



SOURCE: Trends in IEAs Reading Literacy Study 1991–2001

200 300 400 500 600 700 800

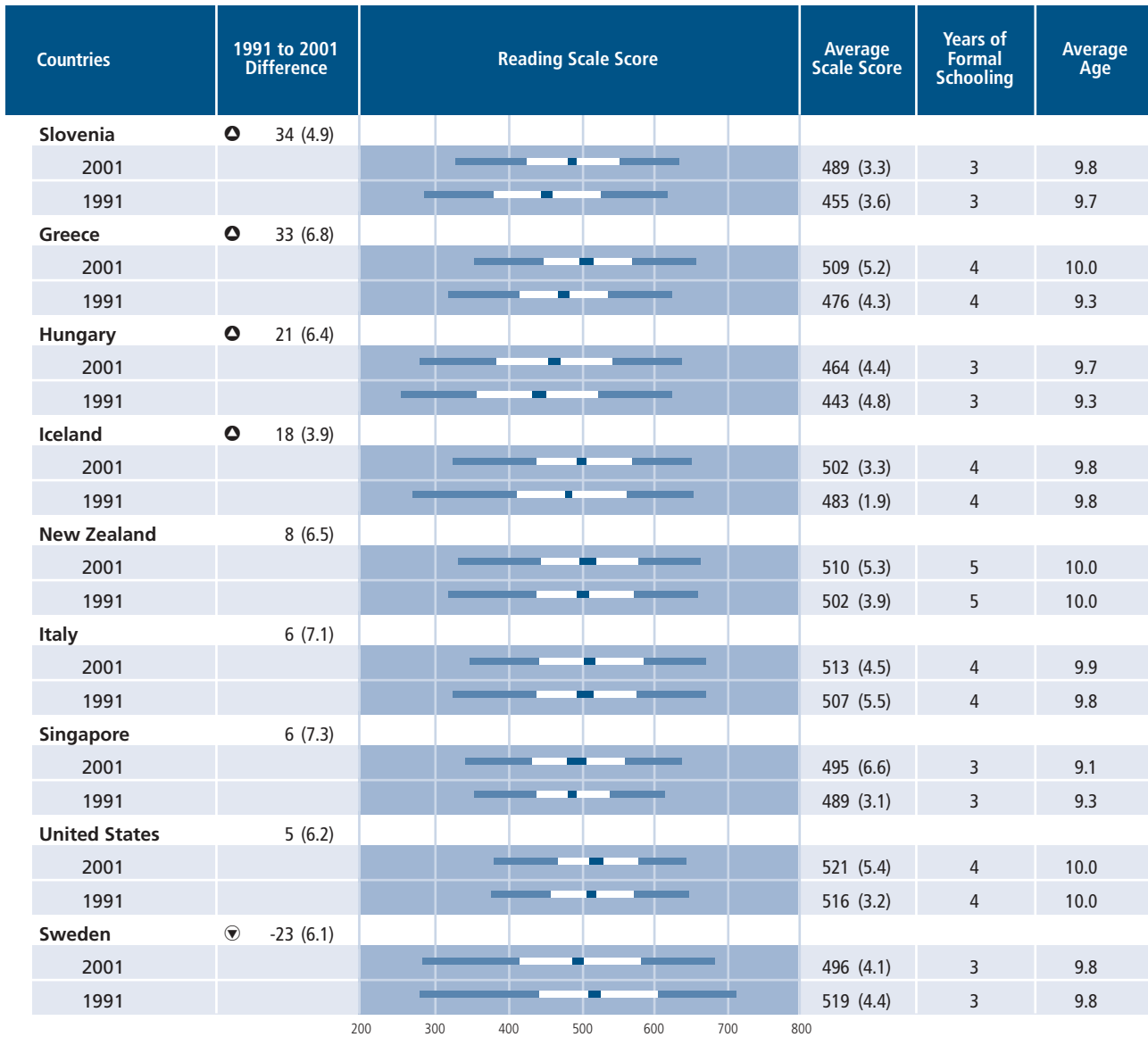


- ▲ 2001 country average significantly higher than 1991 average
- ▼ 2001 country average significantly lower than 1991 average

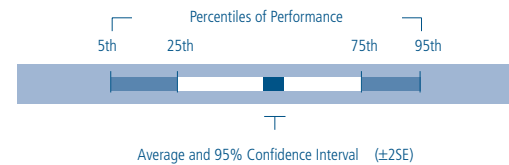
( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

**Exhibit 1.5: Trends in Average Achievement in Expository Reading Literacy**

ISC RLS Trend 1991–2001



SOURCE: Trends in IEAs Reading Literacy Study 1991–2001



- ▲ 2001 country average significantly higher than 1991 average
- ▼ 2001 country average significantly lower than 1991 average

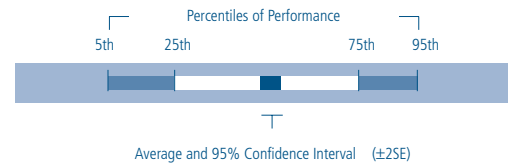
( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

**Exhibit 1.6: Trends in Average Achievement in Document Reading Literacy**

ISC RLS Trend  
1991–2001

Countries	1991 to 2001 Difference	Reading Scale Score	Average Scale Score	Years of Formal Schooling	Average Age
<b>Greece</b>	▲ 48 (7.1)				
2001			490 (5.2)	4	10.0
1991			443 (4.9)	4	9.3
<b>Slovenia</b>	▲ 47 (4.9)				
2001			502 (3.8)	3	9.8
1991			456 (3.0)	3	9.7
<b>Iceland</b>	▲ 28 (4.0)				
2001			506 (3.4)	4	9.8
1991			479 (1.7)	4	9.8
<b>Hungary</b>	▲ 18 (5.6)				
2001			486 (3.7)	3	9.7
1991			468 (4.3)	3	9.3
<b>Singapore</b>	▲ 18 (7.5)				
2001			484 (6.8)	3	9.1
1991			465 (3.1)	3	9.3
<b>Italy</b>	▲ 17 (6.9)				
2001			499 (4.5)	4	9.9
1991			482 (5.4)	4	9.8
<b>New Zealand</b>	▲ 16 (6.3)				
2001			506 (5.2)	5	10.0
1991			491 (4.0)	5	10.0
<b>Sweden</b>	● 2 (6.4)				
2001			506 (4.4)	3	9.8
1991			504 (4.5)	3	9.8
<b>United States</b>	● -7 (6.6)				
2001			520 (6.1)	4	10.0
1991			527 (3.2)	4	10.0

SOURCE: Trends in IEAs Reading Literacy Study 1991–2001



- ▲ 2001 country average significantly higher than 1991 average
- 2001 country average significantly lower than 1991 average

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.