

# PIRLS

## Chapter 5



# Chapter 5

## School Curriculum and Organization for Teaching Reading

*As described in the PIRLS 2001 Encyclopedia,<sup>1</sup> there is a great deal of diversity in how countries arrange their educational systems to provide reading instruction in the primary school. Chapter 5 brings together reports from the teachers and parents of fourth-grade students and from school principals to describe, in particular, the school curriculum and organization for teaching reading.*

## Average reading achievement was lowest among students not attending preschool.

Specifically, this chapter summarizes the emphasis of preprimary education and reading readiness, schools' emphasis on reading in the curriculum, the amount of time devoted to language and reading instruction, the organization and sizes of classes for reading instruction, and strategies for working with students having difficulties learning to read.

The information reported in this chapter was collected via questionnaires to the parents, teachers, and school principals of the students participating in PIRLS. Because the sampling was based on participating students, when the information from the parents, teachers, or principals is being reported, the student is always the unit of analysis. That is, the data shown are the percentages of students whose parents, teachers, or school principals reported on various activities or characteristics. Using the student as the unit of analysis makes it possible to focus on students' experiences in learning to read in school, and is consistent with the PIRLS goals of providing information about the educational contexts and performance of students.

For reporting purposes, the information provided by parents, teachers, and school principals is tied directly to the students tested. Sometimes, however, respondents did not complete the questionnaire assigned to them, so most countries had some percentage of students for whom no questionnaire information is available. The exhibits in this chapter have special notations on this point. For a country where responses are available for 70 to 84 percent of students, an "r" is included next to its data. Where responses are available for 50 to 69 percent of students, an "s" is included. Where responses are available for less than 50 percent, an "x" replaces the data.

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### How Well-Prepared Are Students to Learn to Read?

Countries adopt a variety of strategies for helping children make the transition from home to a school environment. Such preprimary education programs, known also as preschool, kindergarten, and early childhood education, can be up to three years, and are intended to prepare children for primary education.

1 For a description of educational systems and reading literacy curricula in the PIRLS countries, see Mullis, I.V.S., Martin, M.O., Kennedy, A.M., & Flaherty, C.L. (Eds.). (2002). *PIRLS 2001 Encyclopedia: A reference guide to reading education in the countries participating in IEA's Progress in International Reading Literacy Study (PIRLS)*. Chestnut Hill, MA: Boston College.

Parents' reports on the number of years their fourth-grade child attended preschool or kindergarten are summarized in Exhibit 5.1. Almost all countries make provision for at least one year of preprimary education – only in Iran and Turkey did the majority of students not attend preschool. Two-fifths of the students, on average, had parents reporting that the student had at least two years of preprimary education. Countries where two-thirds or more of the students were in this category included France, Germany, Hong Kong, Hungary, and Italy. Internationally, average reading achievement was lowest among students not attending preschool (491 score points), and highest among those who attended for more than two years (523 points).

Students in the PIRLS countries mostly began primary education when they were six or seven years old, as shown in Exhibit 5.2, although in England, New Zealand, and Scotland almost all students began when they were five or younger. There is no clear relationship between age of entry to primary schooling and fourth-grade reading achievement. Among the top-performing countries on the PIRLS reading assessment, for example, the students in The Netherlands started primary school when they were six, and those in England when they were five. Among low-performing countries there was also a range of starting ages, with students in Belize mostly starting when they were five or younger, those in Argentina when they were six, and those in Iran when they were six or seven.

Regardless of when they begin primary school, a more important issue from the perspective of the school is whether incoming students are ready to begin learning in a formal setting. PIRLS asked school principals to estimate how many students beginning the first year of school could:

- Recognize most of the alphabet
- Read some words
- Read sentences



**Exhibit 5.1: Number of Years Children Attended Preprimary Education (Preschool, Kindergarten, and Other Similar Programs)**ISC  
4th Grade  
PIRLS 2001

Countries	Did Not Attend		Up to and Including 1 Year		Greater than 1 Year up to and Including 2 Years		More than 2 Years		
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Argentina	s	8 (1.7)	391 (9.5)	45 (2.2)	415 (6.6)	24 (1.8)	429 (8.4)	23 (1.7)	467 (7.9)
Belize	s	46 (2.6)	298 (5.4)	27 (1.9)	348 (7.8)	20 (1.5)	380 (8.8)	7 (0.8)	335 (15.4)
Bulgaria		13 (1.3)	538 (9.0)	14 (1.1)	541 (7.1)	16 (0.8)	557 (4.8)	57 (1.7)	559 (3.4)
Canada (O,Q)	r	6 (0.5)	539 (5.3)	26 (0.9)	542 (2.8)	46 (0.9)	547 (2.8)	21 (0.7)	572 (3.2)
Colombia		20 (1.5)	408 (6.1)	37 (2.2)	417 (5.3)	23 (1.2)	428 (5.4)	20 (1.7)	452 (10.8)
Cyprus	s	4 (0.7)	482 (9.8)	20 (1.5)	471 (4.6)	36 (1.4)	494 (3.5)	40 (1.7)	502 (4.6)
Czech Republic		5 (0.5)	534 (7.6)	11 (0.7)	535 (5.4)	19 (0.9)	540 (3.8)	65 (1.2)	541 (2.5)
England	s	12 (1.2)	566 (9.9)	26 (1.8)	566 (4.7)	45 (1.4)	573 (4.5)	18 (1.2)	579 (6.1)
France		1 (0.3)	~ ~	2 (0.3)	~ ~	9 (0.6)	508 (5.0)	88 (0.7)	530 (2.5)
Germany		4 (0.3)	522 (7.7)	6 (0.4)	510 (6.0)	21 (1.0)	538 (2.9)	68 (1.2)	548 (1.9)
Greece		5 (0.8)	512 (14.1)	25 (1.3)	524 (4.9)	50 (1.9)	522 (4.1)	21 (2.0)	543 (5.5)
Hong Kong, SAR		4 (0.6)	537 (7.2)	4 (0.6)	517 (7.4)	7 (0.6)	524 (4.8)	85 (1.5)	530 (3.0)
Hungary		0 (0.1)	~ ~	4 (0.4)	519 (8.1)	10 (0.7)	526 (4.9)	86 (0.9)	548 (2.4)
Iceland		--	--	--	--	--	--	--	--
Iran, Islamic Rep. of		70 (2.1)	398 (3.6)	21 (1.6)	450 (5.2)	5 (0.4)	452 (8.8)	4 (0.5)	460 (9.9)
Israel		x x	x x	x x	x x	x x	x x	x x	x x
Italy		2 (0.3)	~ ~	4 (0.5)	536 (8.4)	15 (0.8)	525 (4.4)	78 (1.0)	547 (2.3)
Kuwait		--	--	--	--	--	--	--	--
Latvia		23 (1.3)	542 (4.4)	50 (1.5)	543 (2.6)	9 (0.8)	550 (4.4)	18 (1.0)	558 (5.6)
Lithuania		41 (1.8)	534 (3.3)	12 (0.7)	551 (5.1)	11 (0.8)	545 (5.5)	37 (1.5)	552 (3.3)
Macedonia, Rep. of	r	25 (2.1)	433 (8.4)	48 (2.1)	446 (5.7)	12 (0.7)	458 (8.8)	15 (1.6)	485 (8.2)
Moldova, Rep. of		15 (1.5)	489 (8.0)	13 (1.0)	481 (7.9)	15 (0.8)	492 (6.7)	57 (2.0)	497 (4.0)
Morocco		--	--	--	--	--	--	--	--
Netherlands	s	11 (1.1)	551 (5.9)	14 (1.0)	558 (4.2)	63 (1.4)	565 (2.6)	12 (0.9)	573 (4.8)
New Zealand	r	7 (0.7)	503 (8.6)	9 (0.8)	527 (7.1)	42 (1.5)	541 (4.8)	41 (1.3)	541 (4.3)
Norway		14 (1.2)	492 (5.5)	9 (0.7)	493 (7.1)	18 (0.8)	495 (4.5)	59 (1.6)	508 (3.8)
Romania		8 (0.9)	465 (10.6)	10 (0.8)	498 (7.1)	23 (1.4)	513 (6.9)	59 (1.8)	524 (4.8)
Russian Federation		21 (1.3)	524 (6.9)	6 (0.4)	533 (5.8)	10 (0.5)	525 (8.4)	63 (1.5)	530 (3.8)
Scotland	s	10 (1.2)	541 (7.1)	39 (2.0)	545 (5.2)	38 (1.4)	538 (5.8)	14 (0.9)	548 (6.3)
Singapore		1 (0.2)	~ ~	2 (0.2)	~ ~	41 (0.7)	520 (5.7)	55 (0.8)	541 (4.6)
Slovak Republic		7 (0.6)	477 (6.9)	19 (1.1)	510 (4.2)	18 (0.7)	520 (4.2)	56 (1.5)	529 (2.9)
Slovenia		1 (0.2)	~ ~	72 (1.2)	499 (2.3)	24 (1.2)	515 (3.4)	3 (0.3)	504 (9.4)
<sup>a</sup> Sweden		5 (0.6)	549 (5.9)	44 (1.7)	556 (2.4)	13 (0.8)	564 (5.1)	38 (1.6)	575 (2.4)
Turkey		76 (1.8)	442 (3.2)	18 (1.3)	475 (6.1)	4 (0.5)	474 (11.9)	2 (0.4)	~ ~
United States		--	--	--	--	--	--	--	--
International Avg.		16 (0.2)	491 (1.8)	21 (0.2)	504 (1.1)	23 (0.2)	512 (1.1)	40 (0.2)	523 (1.2)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by parents.

<sup>a</sup> For Sweden, includes time spent in non-academic preschool classes.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

Exhibit 5.2: Age Students Began Primary School

ISC  
4th Grade  
PIRLS 2001

Countries	5 Years Old or Younger		6 Years Old		7 Years Old		8 Years Old or Older		
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Argentina	s	20 (1.0)	436 (8.0)	74 (1.0)	430 (5.9)	6 (0.6)	383 (11.2)	1 (0.3)	~ ~
Belize	s	83 (1.3)	328 (5.5)	13 (0.9)	346 (10.7)	3 (0.6)	303 (10.3)	2 (0.3)	~ ~
Bulgaria		0 (0.1)	~ ~	12 (0.7)	547 (6.0)	84 (0.8)	556 (3.7)	4 (0.5)	516 (10.4)
Canada (O,Q)	r	34 (0.8)	542 (2.7)	63 (0.8)	555 (2.4)	3 (0.3)	542 (8.9)	0 (0.1)	~ ~
Colombia		39 (1.4)	427 (4.9)	44 (1.4)	431 (5.3)	14 (0.9)	411 (7.3)	4 (0.6)	402 (10.1)
Cyprus	s	19 (1.2)	480 (4.7)	78 (1.1)	496 (3.6)	2 (0.4)	~ ~	0 (0.2)	~ ~
Czech Republic		1 (0.2)	~ ~	63 (0.8)	542 (2.5)	35 (0.9)	538 (3.3)	1 (0.2)	~ ~
England	s	93 (0.6)	572 (3.6)	6 (0.5)	559 (10.2)	1 (0.3)	~ ~	0 (0.1)	~ ~
France		14 (0.7)	522 (5.3)	82 (0.8)	529 (2.4)	4 (0.4)	501 (9.3)	0 (0.1)	~ ~
Germany		2 (0.2)	~ ~	68 (0.7)	546 (2.2)	30 (0.8)	537 (1.9)	0 (0.1)	~ ~
Greece		4 (0.5)	518 (9.6)	76 (1.3)	532 (3.8)	19 (1.3)	500 (6.2)	1 (0.2)	~ ~
Hong Kong, SAR		7 (0.4)	518 (5.5)	74 (1.4)	530 (3.0)	13 (0.9)	533 (4.3)	5 (0.7)	525 (8.9)
Hungary		0 (0.1)	~ ~	35 (0.8)	548 (2.3)	63 (0.8)	545 (2.6)	2 (0.2)	~ ~
Iceland	r	10 (0.6)	519 (4.0)	89 (0.6)	517 (1.5)	1 (0.2)	~ ~	0 (0.0)	~ ~
Iran, Islamic Rep. of		1 (0.1)	~ ~	40 (2.0)	413 (5.5)	57 (1.8)	416 (4.6)	2 (0.5)	~ ~
Israel		x x	x x	x x	x x	x x	x x	x x	x x
Italy		17 (0.9)	531 (4.3)	80 (0.9)	545 (2.3)	3 (0.3)	528 (9.8)	0 (0.1)	~ ~
Kuwait		--	--	--	--	--	--	--	--
Latvia		0 (0.1)	~ ~	21 (1.3)	546 (4.4)	74 (1.5)	547 (2.7)	5 (0.5)	520 (7.0)
Lithuania		1 (0.2)	~ ~	23 (1.1)	546 (4.3)	73 (1.1)	545 (2.6)	3 (0.4)	497 (12.9)
Macedonia, Rep. of	r	2 (0.3)	~ ~	30 (1.2)	461 (5.4)	66 (1.3)	445 (5.8)	2 (0.5)	~ ~
Moldova, Rep. of		0 (0.1)	~ ~	19 (1.3)	501 (5.2)	76 (1.3)	492 (4.4)	4 (0.4)	470 (7.5)
Morocco		--	--	--	--	--	--	--	--
Netherlands	s	14 (0.9)	567 (4.5)	78 (1.1)	565 (2.5)	8 (0.6)	544 (6.1)	0 (0.1)	~ ~
New Zealand	r	97 (0.4)	537 (3.3)	2 (0.4)	~ ~	1 (0.2)	~ ~	0 (0.1)	~ ~
Norway		20 (0.7)	485 (3.5)	78 (0.8)	507 (3.2)	3 (0.4)	474 (13.3)	0 (0.0)	~ ~
Romania		1 (0.2)	~ ~	12 (0.8)	517 (8.2)	82 (0.9)	514 (4.6)	5 (0.4)	492 (9.7)
Russian Federation		1 (0.2)	~ ~	26 (1.8)	531 (5.4)	68 (1.6)	528 (4.9)	4 (0.4)	517 (9.3)
Scotland	s	98 (0.3)	543 (3.9)	2 (0.3)	~ ~	0 (0.1)	~ ~	0 (0.0)	~ ~
Singapore		2 (0.2)	~ ~	39 (0.7)	538 (5.1)	58 (0.7)	526 (5.1)	1 (0.1)	~ ~
Slovak Republic		2 (0.3)	~ ~	70 (1.0)	521 (2.7)	27 (1.0)	516 (3.7)	0 (0.1)	~ ~
Slovenia		0 (0.1)	~ ~	18 (0.8)	494 (3.7)	80 (0.8)	506 (2.2)	2 (0.3)	~ ~
Sweden		--	--	--	--	--	--	--	--
Turkey		2 (0.2)	~ ~	27 (1.2)	451 (4.7)	64 (1.3)	452 (4.0)	7 (0.6)	430 (6.6)
United States		--	--	--	--	--	--	--	--
International Avg.		19 (0.1)	502 (2.9)	45 (0.2)	509 (1.1)	34 (0.2)	495 (2.1)	2 (0.1)	~ ~

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by parents.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

**Exhibit 5.3: Students in Schools Categorized by Principals' Estimate of the Percentage of Students Beginning School With Early Literacy Skills\***
**ISC** 4th Grade  
PIRLS 2001

Countries	More than 75% Begin School with Skills		51-75% Begin School with Skills		25-50% Begin School with Skills		Less than 25% Begin School with Skills	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Argentina	14 (3.2)	422 (22.1)	7 (2.6)	425 (25.9)	22 (3.6)	439 (12.0)	57 (4.5)	410 (7.3)
Belize	7 (3.8)	352 (25.1)	1 (0.0)	~ ~	3 (2.2)	333 (17.6)	90 (4.3)	321 (4.9)
Bulgaria	5 (1.7)	574 (15.0)	12 (2.7)	569 (10.0)	26 (3.3)	569 (5.9)	58 (3.3)	536 (5.8)
Canada (O,Q)	28 (3.4)	547 (4.2)	26 (3.6)	549 (5.3)	25 (3.1)	544 (4.5)	21 (2.2)	532 (3.9)
Colombia	26 (4.8)	443 (12.6)	9 (2.6)	423 (15.2)	15 (3.8)	428 (11.1)	49 (4.2)	410 (7.1)
Cyprus r	0 (0.0)	~ ~	0 (0.0)	~ ~	8 (3.5)	509 (9.3)	92 (3.5)	492 (3.8)
Czech Republic	0 (0.0)	~ ~	1 (0.7)	~ ~	8 (2.3)	546 (9.6)	92 (2.4)	537 (2.3)
England r	61 (5.3)	566 (5.9)	19 (4.5)	543 (9.0)	11 (3.2)	533 (7.8)	9 (3.0)	548 (9.2)
France	21 (3.5)	541 (6.0)	27 (3.8)	520 (3.8)	34 (5.1)	525 (5.0)	17 (3.3)	514 (8.2)
Germany	1 (0.7)	~ ~	0 (0.0)	~ ~	8 (1.8)	544 (7.2)	91 (1.9)	538 (2.0)
Greece	1 (1.0)	~ ~	4 (2.5)	567 (15.1)	20 (3.4)	533 (8.1)	75 (4.3)	518 (3.5)
Hong Kong, SAR	--	--	--	--	--	--	--	--
Hungary	0 (0.0)	~ ~	1 (1.0)	~ ~	5 (1.7)	560 (11.3)	93 (2.1)	543 (2.3)
Iceland r	5 (0.2)	536 (1.9)	22 (0.4)	517 (3.0)	39 (0.4)	511 (2.5)	35 (0.4)	508 (2.6)
Iran, Islamic Rep. of	4 (1.5)	388 (21.9)	0 (0.3)	~ ~	3 (1.6)	464 (21.7)	92 (2.1)	414 (4.6)
Israel	7 (2.2)	471 (27.6)	8 (2.3)	523 (21.5)	14 (2.9)	516 (13.9)	70 (4.0)	508 (4.8)
Italy	2 (1.0)	~ ~	13 (2.3)	541 (6.0)	28 (3.8)	545 (5.0)	56 (4.2)	538 (3.0)
Kuwait	9 (3.1)	445 (12.1)	15 (2.9)	355 (9.1)	10 (2.2)	381 (7.9)	66 (4.3)	407 (6.2)
Latvia	10 (2.2)	567 (5.3)	31 (3.7)	554 (4.7)	32 (4.2)	535 (4.4)	27 (3.9)	535 (3.9)
Lithuania	7 (1.8)	526 (11.1)	11 (2.8)	554 (8.9)	28 (3.8)	548 (5.2)	54 (4.4)	542 (3.8)
Macedonia, Rep. of	5 (2.0)	439 (19.1)	15 (3.4)	476 (12.4)	35 (4.4)	455 (9.5)	45 (4.6)	426 (8.0)
Moldova, Rep. of	19 (3.7)	516 (9.0)	14 (2.8)	487 (8.5)	36 (4.2)	486 (7.5)	32 (4.2)	486 (7.1)
Morocco	22 (4.3)	362 (16.8)	17 (3.9)	335 (24.8)	17 (2.6)	373 (37.6)	44 (4.9)	337 (11.0)
Netherlands	2 (1.2)	~ ~	6 (1.8)	566 (5.9)	17 (3.5)	563 (4.5)	76 (3.9)	551 (3.2)
New Zealand	5 (1.8)	568 (14.8)	8 (2.1)	531 (18.8)	22 (3.3)	543 (9.0)	65 (3.6)	521 (4.3)
Norway	0 (0.0)	~ ~	7 (2.5)	514 (14.3)	38 (4.4)	501 (5.7)	56 (4.8)	497 (4.0)
Romania	6 (2.1)	515 (13.4)	9 (2.3)	533 (14.8)	20 (3.2)	512 (10.0)	65 (3.8)	508 (6.2)
Russian Federation	7 (1.8)	563 (10.8)	20 (2.9)	542 (4.8)	33 (3.6)	532 (5.7)	41 (3.8)	514 (8.5)
Scotland	2 (1.2)	~ ~	6 (2.5)	531 (26.5)	10 (3.1)	550 (7.7)	82 (4.1)	524 (4.1)
Singapore	63 (3.5)	534 (6.7)	28 (3.5)	526 (10.0)	8 (2.0)	480 (15.1)	1 (0.8)	~ ~
Slovak Republic	1 (1.0)	~ ~	0 (0.0)	~ ~	4 (1.8)	545 (8.7)	95 (2.1)	518 (3.0)
Slovenia	61 (4.3)	501 (2.8)	14 (3.2)	509 (6.0)	14 (3.0)	504 (5.8)	11 (2.5)	489 (5.5)
Sweden	12 (3.1)	559 (5.1)	34 (4.8)	565 (3.4)	36 (5.0)	561 (4.1)	18 (3.8)	555 (8.0)
Turkey	2 (1.3)	~ ~	1 (0.7)	~ ~	5 (2.1)	494 (15.1)	92 (2.5)	447 (3.7)
United States	47 (4.4)	556 (6.1)	23 (3.5)	536 (9.1)	14 (3.0)	531 (11.1)	16 (3.1)	530 (9.7)
International Avg.	14 (0.5)	500 (2.4)	12 (0.5)	511 (2.2)	19 (0.6)	506 (2.0)	55 (0.6)	493 (2.4)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

\*Based on principals' responses to questions about how many of the students in their schools can do the following when they begin the first year of formal schooling: recognize most of the letters of the alphabet; write letters of the alphabet; read some words; write some words; and read sentences (see Exhibit 5.4 for details of these items). Average is computed across the 5 items

based on a 4-point scale: Less than 25% = 1, 25-50% = 2, 51-75% = 3, and More than 75% = 4. More than 75% indicates an average response score of greater than 3.25 through 4. 51-75% indicates an average of greater than 2.5 through 3.25. 25-50% indicates an average of 1.75 through 2.5. Less than 25% indicates an average of 1 to less than 1.75.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (–) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.



- Write letters of the alphabet
- Write some words.

To provide an overview, Exhibit 5.3 summarizes principals' responses averaged across the five literacy skills. In most countries, principals reported that less than half (and in many cases less than one-quarter) of the beginning students possessed these skills. Exceptions were England, Singapore, and Slovenia, where more than 60 percent of fourth-grade students were in schools where principals reported that most beginning students (more than 75%) possessed a range of early literacy skills, and the United States, where principals also reported nearly half the students (47%) in such schools. Countries where almost all students were in schools where principals reported low levels of early literacy skills included Belize, Cyprus, the Czech Republic, Germany, Hungary, Iran, the Slovak Republic, and Turkey.

Exhibit 5.4 provides further detail, showing the percentage of fourth-grade students in schools where the principal reported that most beginning students could do specific early literacy skills. Across all countries, 24 percent of students were in schools where most beginning students could recognize most of the alphabet, 19 percent where most could write letters of the alphabet, 17 percent where most could read some words, 14 percent where most could write some words, and 10 percent where most could read sentences. Work with the alphabet seemed to receive particular emphasis in England, Singapore, Slovenia, and the United States, since the majority of students in these countries were in schools where most students could recognize most of the alphabet and write letters of the alphabet.

The parents of the PIRLS fourth-grade students also were asked how well their child could do each of the same five activities when beginning primary school. Exhibit 5.5 presents their responses, averaged across all five activities. The parents' responses are not directly comparable to those of the principals, since parents were responding about individual children and principals about the children in their school as a whole, but nonetheless the results make for an interesting comparison. Although principals in many countries reported relatively low levels of mastery of early literacy activities by beginning students,

**Exhibit 5.4: Students in Schools Where Principals Estimate That Most Students (More than 75%) Begin School with Specific Early Literacy Skill**
**ISC** 4th Grade  
PIRLS 2001

Countries	Percentage of Students Attending Such Schools				
	Recognize Most of the Alphabet	Write Letters of the Alphabet	Read Some Words	Write Some Words	Read Sentences
Argentina	22 (3.6)	12 (3.1)	14 (3.2)	14 (3.3)	10 (2.9)
Belize	r 7 (3.9)	3 (1.7)	5 (3.7)	6 (3.8)	4 (3.6)
Bulgaria	21 (3.1)	11 (2.7)	7 (1.7)	3 (1.3)	1 (0.0)
Canada (O,Q)	51 (3.4)	45 (3.7)	32 (3.1)	27 (3.2)	6 (1.5)
Colombia	30 (4.7)	27 (4.8)	26 (4.8)	23 (4.3)	14 (3.2)
Cyprus	r 1 (1.1)	r 3 (2.6)	r 0 (0.0)	r 2 (1.3)	r 0 (0.0)
Czech Republic	2 (1.1)	2 (1.1)	0 (0.0)	0 (0.0)	0 (0.0)
England	r 58 (5.9)	r 55 (5.5)	r 64 (5.3)	r 44 (4.8)	r 29 (4.7)
France	29 (4.0)	40 (5.2)	25 (3.9)	24 (4.0)	3 (1.6)
Germany	1 (1.0)	4 (1.7)	1 (0.7)	2 (1.3)	0 (0.0)
Greece	10 (2.7)	6 (2.2)	2 (1.1)	2 (1.4)	1 (0.0)
Hong Kong, SAR	--	--	93 (2.2)	92 (2.4)	86 (3.2)
Hungary	1 (0.7)	4 (1.7)	0 (0.0)	0 (0.0)	0 (0.0)
Iceland	r 34 (0.4)	r 20 (0.4)	r 3 (0.1)	r 6 (0.2)	r 0 (0.0)
Iran, Islamic Rep. of	5 (1.5)	5 (1.4)	3 (1.3)	3 (1.2)	2 (0.9)
Israel	16 (3.0)	14 (3.1)	7 (2.1)	5 (2.0)	6 (1.8)
Italy	16 (2.4)	15 (2.8)	2 (1.1)	3 (1.3)	2 (1.1)
Kuwait	13 (3.8)	12 (3.5)	10 (3.3)	10 (3.2)	7 (2.6)
Latvia	38 (4.3)	12 (2.4)	19 (3.5)	6 (2.0)	5 (2.0)
Lithuania	21 (3.2)	9 (2.0)	8 (2.2)	4 (1.7)	2 (1.2)
Macedonia, Rep. of	27 (3.9)	17 (3.3)	7 (2.4)	4 (1.6)	3 (1.6)
Moldova, Rep. of	37 (3.9)	27 (3.7)	17 (3.3)	14 (3.4)	13 (3.2)
Morocco	28 (4.4)	25 (4.4)	21 (4.3)	18 (3.9)	12 (3.2)
Netherlands	13 (3.0)	3 (1.6)	3 (1.7)	1 (1.0)	0 (0.0)
New Zealand	11 (2.1)	10 (2.4)	8 (2.1)	5 (1.7)	3 (1.4)
Norway	5 (2.5)	12 (3.0)	0 (0.0)	3 (1.6)	0 (0.0)
Romania	14 (2.9)	14 (2.9)	5 (2.0)	4 (1.8)	2 (1.3)
Russian Federation	44 (3.4)	4 (1.5)	15 (2.6)	3 (1.2)	4 (1.5)
Scotland	7 (2.3)	5 (2.4)	2 (1.2)	1 (0.0)	1 (1.0)
Singapore	78 (3.2)	69 (3.5)	59 (3.7)	51 (3.7)	39 (3.5)
Slovak Republic	1 (1.0)	1 (0.7)	1 (1.0)	1 (0.7)	1 (0.7)
Slovenia	73 (3.2)	66 (3.9)	62 (4.0)	59 (4.2)	51 (4.4)
Sweden	34 (4.6)	35 (4.9)	12 (3.1)	17 (3.7)	1 (0.9)
Turkey	3 (1.5)	2 (1.2)	2 (1.2)	2 (1.2)	2 (1.3)
United States	61 (4.5)	56 (4.3)	45 (4.2)	40 (4.0)	24 (3.5)
International Avg.	24 (0.6)	19 (0.5)	17 (0.5)	14 (0.4)	10 (0.4)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by schools.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

**Exhibit 5.5: Students Based on Parents' Reports of How Well They Could Do Early Literacy Activities Beginning School\***ISC  
4th Grade  
PIRLS 2001

Countries	Very Well		Moderately Well		Not Very Well		Not at All		
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Argentina	s	18 (0.9)	464 (7.0)	37 (1.5)	440 (6.7)	31 (1.3)	413 (6.9)	13 (1.9)	393 (9.1)
Belize	s	17 (1.1)	392 (8.6)	30 (1.3)	344 (6.8)	34 (1.4)	316 (6.1)	19 (1.6)	276 (6.5)
Bulgaria		29 (1.1)	590 (4.0)	32 (1.0)	559 (3.5)	23 (1.0)	538 (4.3)	16 (1.8)	501 (9.4)
Canada (O,Q)	r	32 (1.0)	579 (2.8)	38 (0.8)	546 (2.5)	24 (0.8)	527 (3.0)	6 (0.4)	519 (6.0)
Colombia	r	23 (1.2)	456 (6.7)	33 (1.3)	434 (5.0)	28 (1.2)	411 (5.2)	16 (1.2)	395 (5.3)
Cyprus	s	21 (0.9)	515 (5.1)	29 (0.9)	490 (4.3)	29 (1.2)	481 (5.3)	21 (1.1)	490 (6.7)
Czech Republic		8 (0.5)	568 (5.6)	19 (0.8)	552 (3.7)	36 (1.0)	536 (2.8)	37 (1.1)	532 (3.0)
England	s	29 (1.3)	602 (5.3)	43 (1.3)	572 (3.9)	22 (1.2)	543 (6.5)	6 (0.7)	523 (8.2)
France		24 (0.9)	548 (3.8)	41 (1.1)	530 (2.5)	28 (1.0)	514 (4.2)	6 (0.5)	498 (6.7)
Germany		11 (0.4)	554 (3.5)	29 (0.8)	543 (2.4)	35 (0.7)	542 (2.2)	24 (0.7)	541 (3.2)
Greece		39 (1.0)	540 (3.4)	31 (1.3)	518 (5.5)	19 (1.2)	518 (4.4)	11 (0.9)	513 (7.4)
Hong Kong, SAR		--	--	--	--	--	--	--	--
Hungary		9 (0.6)	585 (5.1)	17 (0.7)	553 (4.1)	33 (0.9)	541 (2.6)	41 (0.9)	538 (2.6)
Iceland	r	17 (0.7)	565 (3.4)	28 (0.9)	523 (2.5)	37 (0.9)	505 (2.3)	18 (0.6)	487 (2.9)
Iran, Islamic Rep. of		25 (0.9)	451 (4.9)	30 (1.1)	417 (4.9)	20 (0.9)	411 (6.7)	25 (1.7)	381 (6.3)
Israel		x x	x x	x x	x x	x x	x x	x x	x x
Italy		16 (0.9)	568 (4.0)	36 (0.9)	546 (3.1)	32 (0.9)	534 (3.1)	16 (0.6)	535 (3.4)
Kuwait	r	14 (0.5)	430 (5.6)	25 (0.7)	412 (5.0)	32 (0.6)	399 (4.5)	29 (0.6)	381 (5.6)
Latvia		23 (1.1)	580 (3.1)	42 (0.9)	550 (2.8)	28 (1.1)	525 (3.8)	6 (0.7)	503 (6.5)
Lithuania		23 (1.1)	578 (3.5)	39 (1.3)	550 (2.7)	26 (1.0)	523 (3.6)	12 (0.6)	500 (4.8)
Macedonia, Rep. of	r	39 (1.2)	471 (5.9)	34 (1.2)	452 (6.0)	19 (0.9)	426 (7.9)	7 (1.0)	406 (12.5)
Moldova, Rep. of		12 (0.8)	520 (5.3)	28 (1.1)	511 (5.4)	36 (1.3)	483 (4.4)	23 (1.6)	471 (5.6)
Morocco		--	--	--	--	--	--	--	--
Netherlands	s	11 (0.7)	585 (5.3)	29 (1.0)	565 (3.3)	37 (1.0)	559 (3.0)	23 (1.1)	559 (3.3)
New Zealand	r	23 (1.1)	558 (5.4)	40 (1.3)	543 (4.6)	28 (1.1)	526 (5.4)	9 (0.8)	497 (8.2)
Norway		19 (0.7)	551 (4.9)	37 (1.2)	511 (2.9)	31 (1.1)	480 (4.2)	13 (0.7)	459 (6.1)
Romania		18 (1.2)	551 (5.6)	29 (1.3)	529 (4.9)	32 (1.4)	503 (6.7)	21 (1.4)	479 (7.4)
Russian Federation		14 (0.9)	566 (3.6)	30 (1.3)	543 (3.7)	33 (1.1)	517 (4.5)	24 (1.7)	501 (9.1)
Scotland	s	11 (0.7)	565 (7.6)	41 (1.1)	545 (4.9)	35 (1.2)	538 (4.6)	13 (1.0)	527 (8.2)
Singapore		50 (1.6)	569 (4.0)	38 (1.0)	511 (4.4)	11 (0.8)	440 (7.8)	1 (0.2)	~ ~
Slovak Republic		7 (0.5)	546 (5.7)	19 (0.8)	535 (5.0)	38 (0.8)	519 (3.0)	36 (1.0)	511 (3.4)
Slovenia		27 (1.0)	543 (2.9)	37 (1.1)	504 (2.2)	26 (1.0)	477 (3.6)	11 (0.7)	469 (5.3)
Sweden		28 (0.7)	595 (2.8)	35 (0.6)	563 (2.6)	28 (0.8)	545 (2.9)	9 (0.5)	530 (4.6)
Turkey		22 (1.1)	474 (4.9)	29 (1.1)	451 (4.2)	25 (1.1)	444 (4.9)	24 (1.4)	437 (6.0)
United States		--	--	--	--	--	--	--	--
International Avg.		21 (0.2)	537 (0.9)	33 (0.2)	511 (0.7)	29 (0.2)	491 (0.9)	17 (0.2)	478 (1.2)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

\*Based on parents' responses to questions about how well their child could do the following when he/she began primary school: Recognize most of the letters of the alphabet; write letters of the alphabet; read some words; write some words; and read sentences (see Exhibit 5.6 for details of these items). Average is computed across the 5 items based on a 4-point scale: Not at all = 1,

Not very well = 2, Moderately well = 3, and Very well = 4. Very well indicates an average response score of greater than 3.25 through 4. Moderately well indicates an average of greater than 2.5 through 3.25. Not very well indicates an average of 1.75 through 2.5. Not at all indicates an average of 1 to less than 1.75.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (–) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

parents had a more positive view. More than half the students (54%), on average, had parents that reported their child could do the literacy activities moderately or very well at the time they began school, and only 17 percent had parents reporting that they could not do them at all. The highest level was in Singapore, where half the students had parents reporting that they could do the activities very well.

Parents' reports of their children's early literacy skills fit well with the students' subsequent performance in fourth grade on the PIRLS reading assessment. Across countries, students whose parents reported that they did very well across the five literacy activities had an average score of 537 on the PIRLS test, compared with an average of 511 for those who did moderately well, 491 for those doing not very well, and 478 for those who could not do them at all.

Of the individual literacy activities that, according to parents, their child beginning school could do very well, recognize most of the alphabet was most common (32% of students had parents reporting this), followed by write letters of the alphabet (27%), read some words (18%), write some words (17%), and read sentences (12%) (see Exhibit 5.6).

### **How Much Is Reading Emphasized in the School Curriculum?**

To provide an overview of how emphasis on reading skills and strategies changes through the grades of primary school, PIRLS asked school principals in which grade a range of reading skills and strategies first received major emphasis in their schools. Exhibit 5.7 presents these results in a two-page spread, showing for each skill or strategy the grade by which it was emphasized for at least 50 percent of students in each country. On average, across countries, knowing letters of the alphabet, knowing letter-sound relationships, reading words, reading isolated sentences, and reading connected text first received major emphasis in the first grade. Identifying the main idea of the text and explaining or supporting understanding of the text first become emphasized in the second grade. More complex activities, such as comparing text with personal experience, comparing different texts, making predictions about what will happen next in the text, and making generalizations and inferences based on

**Exhibit 5.6: Students Whose Parents Reported They Could Do Specific Early Literacy Activities Beginning School**
**ISC** 4th Grade  
PIRLS 2001

Countries	Percentage of Students Who Could Do Activity Very Well				
	Recognize Most of the Alphabet	Write Letters of the Alphabet	Read Some Words	Write Some Words	Read Sentences
Argentina	s 24 (1.3)	s 27 (1.3)	s 15 (0.8)	s 22 (1.1)	s 11 (0.7)
Belize	s 29 (1.5)	s 29 (1.4)	s 15 (1.0)	s 18 (1.3)	s 11 (1.1)
Bulgaria	49 (1.4)	38 (1.2)	25 (1.0)	21 (0.9)	14 (0.8)
Canada (O,Q)	r 56 (0.9)	r 40 (1.0)	r 25 (0.8)	r 20 (0.7)	r 13 (0.7)
Colombia	29 (1.2)	r 30 (1.3)	r 18 (1.0)	r 24 (1.0)	r 16 (0.8)
Cyprus	s 24 (1.2)	s 27 (1.0)	s 17 (1.0)	s 19 (0.8)	s 13 (0.9)
Czech Republic	20 (0.9)	12 (0.7)	8 (0.6)	4 (0.4)	5 (0.4)
England	s 43 (1.5)	s 30 (1.3)	s 25 (1.3)	s 18 (1.3)	s 12 (0.9)
France	41 (1.0)	38 (1.0)	21 (0.7)	20 (0.8)	9 (0.5)
Germany	21 (0.6)	19 (0.6)	10 (0.3)	12 (0.4)	4 (0.3)
Greece	50 (1.1)	54 (1.2)	32 (1.0)	34 (1.2)	19 (0.9)
Hong Kong, SAR	--	--	27 (1.0)	27 (0.9)	24 (0.8)
Hungary	16 (0.8)	11 (0.6)	9 (0.5)	9 (0.5)	6 (0.5)
Iceland	r 40 (0.9)	r 26 (0.8)	r 16 (0.8)	r 12 (0.6)	r 9 (0.6)
Iran, Islamic Rep. of	26 (1.2)	32 (1.4)	19 (0.9)	22 (0.9)	18 (0.9)
Israel	x x	x x	x x	x x	x x
Italy	26 (0.9)	31 (0.8)	12 (0.8)	16 (0.8)	6 (0.4)
Kuwait	r 19 (0.5)	r 18 (0.5)	r 12 (0.5)	r 12 (0.5)	r 8 (0.4)
Latvia	39 (1.2)	20 (1.1)	26 (1.2)	15 (0.9)	15 (0.9)
Lithuania	36 (1.3)	25 (1.0)	21 (1.0)	12 (0.8)	13 (0.9)
Macedonia, Rep. of	r 47 (1.2)	r 50 (1.3)	r 27 (1.0)	r 34 (1.0)	r 23 (0.9)
Moldova, Rep. of	21 (1.1)	16 (0.8)	11 (0.9)	12 (0.9)	7 (0.6)
Morocco	--	--	--	--	--
Netherlands	s 16 (0.8)	s 10 (0.8)	s 12 (0.8)	s 8 (0.6)	s 6 (0.5)
New Zealand	r 38 (1.2)	r 26 (1.1)	r 19 (1.0)	r 15 (0.9)	r 9 (0.7)
Norway	31 (0.9)	27 (0.9)	17 (0.7)	16 (0.7)	8 (0.5)
Romania	20 (1.1)	26 (1.3)	13 (0.9)	16 (1.0)	8 (0.7)
Russian Federation	33 (1.6)	11 (0.7)	18 (1.0)	8 (0.5)	12 (0.7)
Scotland	s 25 (1.0)	s 14 (1.0)	s 12 (0.8)	s 8 (0.6)	s 3 (0.5)
Singapore	59 (1.6)	53 (1.5)	35 (1.4)	34 (1.4)	28 (1.4)
Slovak Republic	17 (0.8)	12 (0.7)	8 (0.5)	5 (0.4)	4 (0.4)
Slovenia	45 (1.1)	39 (1.0)	21 (0.9)	18 (0.7)	10 (0.7)
Sweden	40 (0.8)	30 (0.8)	26 (0.7)	21 (0.6)	12 (0.6)
Turkey	25 (1.2)	32 (1.2)	17 (0.8)	22 (1.0)	17 (0.8)
United States	--	--	--	--	--
International Avg.	32 (0.2)	27 (0.2)	18 (0.2)	17 (0.2)	12 (0.1)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by parents.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

**Exhibit 5.7: Schools' Grade-by-Grade Emphases on Reading Comprehension Skills or Strategies**
**ISC** 4th Grade  
PIRLS 2001

Countries	Grade by Which Skill or Strategy Is Emphasized for at Least 50% of the Students*					
	Knowing Alphabet	Knowing Letter-Sound Relationships	Reading Words	Reading Isolated Sentences	Reading Connected Text	Identifying Main Text Idea
Argentina	1	1	1	1	2	2
Belize	r 1	r 1	r 1	r 1	r 2	r 3
Bulgaria	1	1	1	1	1	2
Canada (O,Q)	1	1	1	1	1	2
Colombia	1	1	1	1	2	3
Cyprus	r 1	r 1	r 1	r 1	r 1	r 2
Czech Republic	1	1	1	1	2	2
England	1	1	1	1	1	1
France	1	1	1	1	1	2
Germany	1	1	1	1	1	2
Greece	1	1	1	1	1	3
Hong Kong, SAR	–	–	1	1	2	3
Hungary	1	1	1	1	2	2
Iceland	r 1	r 1	r 1	r 1	r 1	r 2
Iran, Islamic Rep. of	1	1	1	1	2	3
Israel	1	1	1	1	1	2
Italy	1	1	1	1	2	2
Kuwait	1	1	1	r 2	3	4
Latvia	1	1	1	r 1	r 1	r 2
Lithuania	1	1	1	1	r 1	r 2
Macedonia, Rep. of	1	1	1	1	r 1	r 2
Moldova, Rep. of	1	1	1	1	r 2	r 2
Morocco	1	1	1	1	2	4
Netherlands	1	1	1	1	r 1	r 2
New Zealand	1	1	1	1	1	1
Norway	2	2	2	2	2	3
Romania	1	1	1	1	r 1	r 2
Russian Federation	1	1	1	1	1	1
Scotland	1	1	1	1	1	2
Singapore	1	1	1	1	1	2
Slovak Republic	1	1	1	1	2	2
Slovenia	1	1	1	1	1	2
Sweden	1	1	1	1	2	2
Turkey	1	1	1	1	1	2
United States	1	1	1	1	1	2
International Avg.	1	1	1	1	1	2

\*N = Not by Grade 4

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by schools.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (–) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

**Exhibit 5.7: Schools' Grade-by-Grade Emphases on Reading Comprehension Skills or Strategies (Continued)**ISC  
4th Grade  
PIRLS 2001

Countries	Grade by Which Skill or Strategy Is Emphasized for at Least 50% of the Students*					
	Explaining or Supporting Text Understanding	Comparing Text with Personal Experience	Making Predictions About What Will Happen Next in Text	Comparing Different Texts	Making Generalizations and Inferences Based on Text	Describing Text Style and Structure
Argentina	2	3	3	3	4	4
Belize	r 3	r 3	r 3	4	4	r 4
Bulgaria	2	2	3	3	3	4
Canada (O,Q)	2	2	2	3	2	3
Colombia	3	4	4	4	4	4
Cyprus	r 2	r 2	r 2	r 3	r 3	r 3
Czech Republic	2	2	3	3	3	4
England	1	2	1	2	2	2
France	2	3	3	3	4	4
Germany	2	2	3	3	3	4
Greece	2	2	3	3	3	4
Hong Kong, SAR	3	4	4	4	4	N
Hungary	2	2	3	3	3	4
Iceland	r 2	s 3	s 3	r 4	r 4	r N
Iran, Islamic Rep. of	3	4	4	4	4	4
Israel	1	2	2	3	2	3
Italy	2	2	3	3	3	4
Kuwait	4	r 4	r 4	4	4	N
Latvia	r 2	r 2	s 3	r 3	r 3	r 4
Lithuania	r 2	r 2	r 3	r 3	r 3	r 4
Macedonia, Rep. of	r 2	3	3	3	4	4
Moldova, Rep. of	r 2	r 2	r 3	r 2	r 3	3
Morocco	4	4	N	N	N	N
Netherlands	r 2	r 3	r 3	r 3	r 4	r 4
New Zealand	1	1	1	2	2	3
Norway	3	3	3	4	4	N
Romania	r 2	r 3	r 3	r 3	4	4
Russian Federation	1	2	2	2	2	3
Scotland	2	2	1	2	3	3
Singapore	2	2	1	3	3	4
Slovak Republic	2	3	3	3	4	4
Slovenia	2	3	3	3	3	N
Sweden	2	2	3	3	4	4
Turkey	2	3	4	3	4	4
United States	2	1	1	2	2	3
International Avg.	2	2	3	3	3	4

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

the text did not receive major emphasis until the third grade in most countries. Describing text style and structure first got major emphasis in some countries at fourth grade, but for many others it was an activity that occurred more often at higher grade levels.

To further explore schools' emphasis on reading in the curriculum, PIRLS asked teachers how often they had their fourth-grade students do a range of classroom activities to help develop reading comprehension skills or strategies. Exhibit 5.8 presents the percent of students in classes where teachers asked them to do these activities at least weekly. On average, across countries, the most commonly used classroom activities for students were identifying the main idea and explaining or supporting their understanding of what they had read, with 90 percent of students in classes where the teacher asked them to do each of these at least weekly. Next most common was comparing what they had read with their own experiences (73%), and making generalizations and drawing inferences (71%), followed by making predictions about what will happen next (61%), compare what they had read with other things they had read (59%), and describing text style or structure (52%).

Schools may have a range of policies and procedures in place to promote reading instruction throughout the school. According to principals' reports summarized in Exhibit 5.9, schools varied widely in the extent to which they had a policy to coordinate reading instruction across the primary school grades (grades 4 and below). In Argentina, Bulgaria, England, Hungary, Iceland, Macedonia, the Russian Federation, Scotland, and the United States a policy of coordination was quite common, with more than 70 percent of students in schools that coordinate reading instruction, whereas coordination across the grades was much less frequently reported in Germany, Norway, and the Slovak Republic, where less than 30 percent of students attended such schools.

Having its own written statement of the reading curriculum to be taught in the school was not very common except in England, Israel, New Zealand, Scotland, and the United States, where more than 70 percent of students attended schools with such a statement, compared with just 37 percent of students, on average, internationally. A more usual practice was to have informal initiatives such as book clubs, independent reading contests, and



**Exhibit 5.8: Teachers Ask Students to Do Classroom Activities at Least Weekly to Develop Reading Comprehension Skills or Strategies**ISC  
4th Grade  
PIRLS 2001

Countries	Percentage of Students in Classrooms Where Teachers Ask Them To						
	Identify Main Ideas	Explain or Support Their Understanding	Compare Reading with Own Experiences	Compare with Other Things Read	Make Predictions About What Will Happen Next	Make Generalizations and Draw Inferences	Describe Text Style or Structure
Argentina	87 (3.7)	88 (3.3)	71 (5.0)	70 (5.0)	63 (4.4)	58 (5.0)	57 (5.0)
Belize	95 (1.9)	90 (2.9)	80 (3.9)	r 70 (5.2)	86 (3.1)	63 (6.8)	45 (5.5)
Bulgaria	100 (0.0)	99 (0.6)	90 (2.4)	75 (3.5)	71 (3.8)	97 (1.4)	74 (3.6)
Canada (O,Q)	88 (2.1)	87 (2.5)	69 (3.4)	51 (3.6)	80 (2.2)	71 (3.3)	46 (3.3)
Colombia	89 (3.3)	87 (2.9)	67 (4.5)	65 (4.2)	59 (4.9)	55 (4.7)	44 (4.9)
Cyprus	92 (2.5)	93 (2.6)	96 (1.8)	77 (4.5)	79 (4.4)	85 (4.1)	75 (4.2)
Czech Republic	97 (1.6)	94 (1.8)	79 (3.8)	43 (3.9)	39 (4.1)	70 (3.6)	30 (4.4)
England	93 (2.3)	94 (2.2)	66 (4.9)	65 (4.8)	83 (3.4)	85 (3.1)	84 (3.5)
France	80 (2.9)	78 (2.9)	31 (3.0)	23 (3.0)	40 (3.6)	23 (3.3)	34 (3.9)
Germany	93 (1.4)	94 (1.4)	72 (3.1)	53 (2.9)	52 (3.4)	64 (3.1)	26 (2.5)
Greece	92 (2.1)	85 (3.2)	87 (3.0)	68 (4.6)	68 (4.2)	82 (3.9)	67 (4.9)
Hong Kong, SAR	80 (3.3)	72 (4.4)	57 (4.8)	31 (3.9)	43 (4.7)	46 (4.1)	49 (4.5)
Hungary	94 (2.0)	99 (1.0)	86 (2.9)	80 (3.2)	56 (3.6)	92 (1.9)	82 (3.2)
Iceland	--	62 (0.4)	37 (0.4)	9 (0.2)	17 (0.3)	32 (0.4)	1 (0.1)
Iran, Islamic Rep. of	90 (2.1)	81 (3.8)	56 (4.5)	50 (4.6)	49 (4.6)	73 (3.7)	58 (4.3)
Israel	95 (2.1)	96 (1.5)	87 (2.9)	79 (3.6)	81 (3.6)	89 (2.9)	78 (4.2)
Italy	96 (1.5)	96 (1.6)	79 (2.8)	64 (3.5)	58 (3.7)	48 (3.7)	64 (3.7)
Kuwait	88 (2.6)	97 (0.7)	84 (3.3)	71 (3.5)	r 64 (3.9)	67 (4.1)	59 (3.9)
Latvia	99 (0.7)	96 (1.7)	84 (3.6)	64 (4.4)	66 (4.3)	86 (3.3)	36 (4.2)
Lithuania	99 (1.0)	99 (1.0)	90 (2.7)	81 (3.4)	73 (3.9)	96 (1.7)	71 (3.6)
Macedonia, Rep. of	99 (0.8)	96 (2.0)	84 (3.3)	74 (4.3)	65 (4.7)	91 (2.7)	77 (3.9)
Moldova, Rep. of	96 (1.6)	99 (0.9)	91 (2.6)	90 (2.4)	70 (3.7)	98 (1.2)	87 (2.9)
Morocco	92 (2.8)	94 (2.8)	46 (5.7)	41 (5.5)	45 (4.8)	79 (4.2)	r 42 (5.3)
Netherlands	71 (4.0)	76 (3.5)	52 (4.8)	37 (4.4)	46 (4.5)	57 (4.6)	31 (4.5)
New Zealand	90 (2.7)	93 (2.2)	82 (3.6)	62 (4.2)	85 (3.0)	83 (3.4)	53 (4.2)
Norway	48 (4.3)	51 (4.3)	27 (3.7)	15 (2.7)	20 (3.2)	29 (3.8)	5 (1.8)
Romania	99 (0.7)	99 (0.8)	80 (3.4)	78 (3.7)	73 (3.9)	93 (2.2)	75 (3.6)
Russian Federation	100 (0.0)	99 (0.5)	89 (2.4)	76 (2.7)	74 (2.7)	96 (1.5)	58 (3.6)
Scotland	87 (2.9)	92 (2.3)	67 (4.6)	41 (4.7)	76 (4.6)	76 (3.8)	51 (5.6)
Singapore	91 (2.2)	96 (1.3)	79 (2.9)	59 (3.6)	77 (3.2)	76 (3.0)	30 (3.5)
Slovak Republic	96 (1.8)	99 (0.8)	87 (2.7)	62 (3.9)	65 (4.1)	51 (3.9)	39 (3.7)
Slovenia	88 (2.7)	92 (2.5)	82 (3.3)	52 (4.5)	42 (4.6)	62 (4.1)	48 (4.3)
Sweden	59 (3.4)	77 (2.8)	47 (3.6)	35 (3.4)	17 (2.2)	40 (3.3)	4 (1.2)
Turkey	98 (1.2)	99 (0.7)	77 (3.6)	74 (4.2)	71 (3.9)	93 (2.2)	70 (4.1)
United States	94 (2.4)	95 (1.5)	87 (3.0)	74 (4.0)	95 (1.5)	88 (3.4)	56 (4.6)
International Avg.	90 (0.4)	90 (0.4)	73 (0.6)	59 (0.7)	61 (0.6)	71 (0.6)	52 (0.7)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

## Exhibit 5.9: Emphasis on Reading Curriculum in the Schools

ISC  
4th Grade  
PIRLS 2001

Countries	Percentage of Students Whose Schools Have Various Policies and Procedures						
	Coordination of Reading Instruction Across Grades	Own Written Statement of Reading Curriculum	Informal Initiatives to Encourage Reading	Reading Instruction Improvement for Teachers	Emphasis in Curriculum on Reading	Emphasis in Curriculum on Writing (Not Handwriting)	Emphasis in Curriculum on Speaking/Listening
Argentina	72 (4.6)	56 (4.4)	80 (3.6)	55 (4.8)	95 (1.9)	81 (3.9)	88 (2.3)
Belize	r 46 (7.1)	14 (3.9)	55 (7.3)	47 (8.7)	88 (4.0)	41 (8.0)	52 (6.1)
Bulgaria	76 (3.5)	7 (2.2)	57 (4.2)	35 (3.5)	87 (2.8)	67 (4.0)	46 (3.8)
Canada (O,Q)	48 (3.6)	27 (3.3)	94 (1.6)	78 (2.9)	84 (2.6)	74 (2.8)	44 (3.2)
Colombia	52 (4.6)	24 (3.8)	61 (5.1)	35 (5.1)	79 (3.7)	59 (4.9)	48 (5.1)
Cyprus	62 (5.4)	8 (3.1)	74 (5.0)	58 (4.8)	68 (5.7)	50 (5.3)	57 (6.2)
Czech Republic	36 (4.2)	29 (4.5)	67 (3.7)	29 (4.0)	66 (4.0)	30 (3.8)	50 (4.3)
England	76 (4.4)	73 (4.3)	95 (2.1)	67 (4.5)	86 (3.3)	86 (3.5)	55 (4.3)
France	49 (4.9)	46 (5.3)	79 (4.4)	29 (4.7)	73 (4.8)	36 (4.7)	37 (5.0)
Germany	23 (3.5)	25 (3.8)	86 (3.1)	24 (3.5)	37 (4.1)	26 (3.8)	24 (4.0)
Greece	39 (4.4)	11 (2.3)	61 (4.7)	28 (3.9)	81 (4.1)	58 (5.2)	57 (4.9)
Hong Kong, SAR	61 (4.5)	57 (4.0)	97 (1.4)	34 (4.3)	80 (3.4)	70 (3.6)	42 (4.3)
Hungary	93 (2.2)	53 (4.3)	78 (3.5)	47 (4.2)	78 (3.7)	44 (4.2)	62 (4.2)
Iceland	r 73 (0.4)	r 58 (0.4)	r 97 (0.2)	r 44 (0.4)	r 90 (0.2)	r 41 (0.4)	r 31 (0.4)
Iran, Islamic Rep. of	58 (4.3)	43 (5.3)	60 (4.7)	31 (4.4)	81 (3.6)	62 (4.5)	68 (4.3)
Israel	66 (4.5)	75 (3.6)	85 (3.1)	73 (4.1)	87 (2.9)	71 (4.1)	55 (4.9)
Italy	35 (4.3)	44 (3.4)	73 (3.5)	38 (3.5)	63 (3.9)	42 (3.1)	37 (3.8)
Kuwait	68 (3.8)	18 (3.7)	72 (3.5)	54 (3.6)	76 (3.5)	81 (3.9)	70 (3.3)
Latvia	58 (4.1)	7 (1.9)	76 (3.1)	28 (3.1)	89 (2.6)	76 (3.8)	70 (4.2)
Lithuania	54 (4.3)	47 (4.1)	61 (4.2)	16 (3.2)	51 (3.8)	48 (3.8)	34 (3.8)
Macedonia, Rep. of	73 (4.2)	36 (4.2)	77 (3.5)	44 (4.3)	72 (4.4)	51 (4.8)	50 (4.2)
Moldova, Rep. of	64 (4.4)	15 (3.0)	74 (4.2)	36 (4.2)	85 (3.0)	33 (3.8)	66 (4.3)
Morocco	39 (4.7)	17 (3.7)	41 (5.1)	48 (5.2)	96 (1.8)	77 (3.9)	84 (3.2)
Netherlands	49 (4.8)	38 (4.3)	50 (4.1)	37 (4.8)	75 (4.3)	25 (4.7)	30 (5.2)
New Zealand	68 (3.9)	90 (2.4)	87 (3.1)	84 (3.3)	95 (1.7)	85 (3.4)	77 (3.3)
Norway	29 (3.9)	21 (4.7)	80 (3.6)	46 (4.7)	90 (2.5)	69 (4.1)	65 (4.9)
Romania	68 (4.0)	29 (4.1)	57 (4.2)	49 (3.9)	85 (3.8)	73 (4.7)	75 (3.6)
Russian Federation	91 (1.9)	5 (2.2)	64 (3.3)	37 (3.6)	63 (4.0)	37 (4.5)	40 (4.3)
Scotland	89 (4.0)	93 (2.5)	91 (3.1)	74 (4.1)	81 (3.9)	62 (5.3)	41 (5.3)
Singapore	66 (4.0)	49 (4.0)	99 (0.8)	77 (3.3)	77 (3.1)	50 (3.4)	54 (3.9)
Slovak Republic	27 (3.9)	25 (3.8)	78 (3.6)	55 (4.1)	62 (4.0)	23 (3.8)	40 (4.5)
Slovenia	63 (4.2)	13 (2.8)	100 (0.0)	28 (4.0)	61 (4.5)	31 (4.2)	45 (4.6)
Sweden	51 (4.9)	65 (4.7)	87 (2.9)	64 (4.8)	89 (2.3)	61 (4.5)	60 (4.3)
Turkey	37 (4.1)	9 (2.4)	57 (4.0)	22 (3.1)	67 (3.6)	31 (3.6)	42 (3.9)
United States	83 (3.6)	72 (4.1)	95 (1.7)	90 (2.7)	95 (2.1)	73 (5.3)	39 (4.2)
International Avg.	58 (0.7)	37 (0.6)	76 (0.6)	47 (0.7)	78 (0.6)	55 (0.7)	52 (0.7)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by schools.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

school-wide recreational reading periods to encourage students to read. On average, across the PIRLS countries, 76 percent of students were in schools with such initiatives, as were almost all students (more than 90%) in Canada (O,Q), England, Hong Kong, Iceland, Scotland, Singapore, Slovenia, and the United States. Almost half the students (47%) internationally attended schools that provided school-based programs for teachers geared towards the improvement of reading instruction. This practice was more common in Canada (O,Q), Israel, New Zealand, Scotland, Singapore, and the United States, where more than 70 percent of students were in schools providing such teacher programs.

Exhibit 5.9 also shows principals' reports on placing more emphasis, relative to other areas of the curriculum, on teaching reading, writing, and speaking/listening in the primary school grades (one through four). Of the three, reading was most often emphasized more than other areas of the curriculum according to principals. Almost four-fifths (78%) of students, on average, were in schools where reading received more emphasis than other areas of the curriculum. Fifty-five percent were in schools where writing received more emphasis, and 52 percent where listening/speaking was emphasized more.

According to principals' reports presented in Exhibit 5.10, in most countries the national or regional curriculum was by far the greatest influence on their schools' fourth-grade curriculum. On average, internationally, 80 percent of students attended schools where the principal reported that the national or regional curriculum had a lot of influence, and in several countries the figure was more than 90 percent. National or regional examinations or assessments of student achievement had an important influence on the school curriculum in several countries, including England, Iran, Moldova, Scotland, Singapore, and the United States. Standardized tests other than national or regional examinations or assessments, parents' wishes, and students' wishes were less often reported to have a major influence on the school curriculum.

## Exhibit 5.10: Influence of Various Factors on Schools' Curriculum

ISC  
4th Grade  
PIRLS 2001

Countries	Percentage of Students Whose Schools Reported Factor as Having A Lot of Influence				
	National or Regional Curriculum	National or Regional Student Achievement Examinations/ Assessments	Other Standardized Tests	Parents' Wishes	Students' Wishes
Argentina	80 (4.1)	27 (4.3)	10 (2.5)	34 (4.7)	50 (4.7)
Belize	85 (4.9)	45 (7.7)	r 15 (4.6)	14 (4.5)	11 (3.7)
Bulgaria	89 (2.8)	16 (2.7)	8 (2.0)	14 (2.6)	20 (2.9)
Canada (O,Q)	94 (1.4)	28 (3.1)	12 (2.4)	7 (1.8)	5 (1.3)
Colombia	75 (4.0)	28 (4.0)	7 (3.0)	28 (4.4)	39 (5.2)
Cyprus	94 (2.5)	r 10 (3.3)	r 3 (2.1)	r 7 (3.3)	r 6 (2.2)
Czech Republic	82 (3.4)	2 (1.2)	1 (0.8)	12 (3.1)	6 (2.0)
England	92 (2.3)	59 (4.8)	7 (2.4)	7 (2.4)	4 (2.0)
France	78 (4.0)	19 (4.0)	10 (3.4)	1 (1.0)	11 (3.3)
Germany	93 (2.2)	10 (2.8)	1 (0.7)	2 (1.1)	5 (1.8)
Greece	90 (2.7)	1 (0.1)	1 (0.8)	1 (1.0)	3 (1.0)
Hong Kong, SAR	52 (4.5)	15 (3.0)	12 (2.6)	20 (2.8)	13 (2.9)
Hungary	83 (2.8)	8 (2.2)	1 (0.8)	12 (2.4)	3 (1.5)
Iceland	r 85 (0.3)	r 11 (0.3)	r 2 (0.0)	r 7 (0.3)	r 2 (0.1)
Iran, Islamic Rep. of	54 (4.4)	53 (5.2)	28 (4.4)	29 (4.0)	42 (4.7)
Israel	81 (3.1)	41 (4.2)	25 (4.0)	4 (1.6)	5 (1.9)
Italy	84 (2.7)	7 (2.0)	9 (2.0)	9 (2.3)	18 (3.0)
Kuwait	49 (3.6)	r 21 (2.6)	r 11 (2.5)	r 10 (2.9)	r 10 (2.4)
Latvia	94 (2.0)	40 (4.0)	9 (2.1)	18 (3.3)	19 (3.5)
Lithuania	74 (4.0)	24 (4.0)	10 (2.7)	27 (3.6)	25 (3.5)
Macedonia, Rep. of	88 (2.8)	26 (4.1)	16 (3.4)	16 (2.9)	23 (3.5)
Moldova, Rep. of	65 (4.5)	59 (4.4)	24 (3.9)	14 (2.8)	19 (3.3)
Morocco	52 (5.0)	25 (3.8)	r 15 (3.6)	r 9 (2.9)	r 14 (4.0)
Netherlands	67 (4.5)	25 (3.3)	26 (4.3)	3 (1.6)	5 (1.9)
New Zealand	91 (2.6)	11 (2.9)	15 (3.5)	12 (2.9)	6 (2.1)
Norway	85 (3.5)	7 (2.5)	7 (2.2)	2 (1.3)	1 (0.8)
Romania	88 (3.1)	25 (3.9)	19 (3.8)	22 (3.9)	37 (4.4)
Russian Federation	95 (1.8)	28 (2.8)	13 (2.2)	19 (2.6)	11 (2.0)
Scotland	96 (2.0)	68 (5.0)	7 (2.8)	8 (2.7)	2 (1.2)
Singapore	96 (1.5)	97 (1.1)	21 (3.4)	6 (1.8)	2 (1.1)
Slovak Republic	91 (2.8)	18 (3.3)	9 (2.3)	8 (2.3)	5 (2.0)
Slovenia	75 (2.9)	10 (2.7)	3 (1.5)	29 (3.7)	32 (3.7)
Sweden	78 (4.0)	23 (3.9)	7 (2.1)	12 (3.2)	11 (3.0)
Turkey	73 (3.9)	34 (3.8)	17 (3.4)	23 (4.1)	40 (4.7)
United States	60 (4.5)	63 (4.1)	30 (3.6)	7 (2.4)	2 (1.3)
International Avg.	80 (0.6)	28 (0.6)	12 (0.5)	13 (0.5)	14 (0.5)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by schools.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

Exhibit 5.11: Instructional Time for Reading (Formal and Integrated)\*

ISC  
4th Grade  
PIRLS 2001

Countries	Total Hours of Instructional Time per Year	Percent of Total Instructional Time		Average Hours Instruction per Week	
		Language	Reading	Language	Reading
Netherlands	r 1082 (5.7)	s 30 (1.0)	s 14 (1.0)	r 8 (0.2)	4 (0.2)
Israel	s 1074 (24.9)	x x	x x	r 6 (0.3)	6 (0.4)
Colombia	r 1073 (45.1)	r 29 (2.3)	r 28 (2.7)	9 (0.8)	8 (0.8)
United States	1041 (11.3)	s 32 (1.2)	r 31 (1.6)	r 9 (0.4)	9 (0.4)
Italy	1038 (13.1)	27 (0.6)	17 (1.2)	8 (0.2)	5 (0.3)
Morocco	r 1011 (13.7)	s 21 (1.9)	s 19 (2.4)	r 6 (0.4)	r 5 (0.5)
Scotland	r 962 (4.0)	s 27 (0.9)	r 17 (1.2)	r 7 (0.2)	4 (0.3)
England	r 958 (6.9)	r 29 (0.8)	r 15 (1.1)	7 (0.2)	4 (0.2)
New Zealand	941 (4.7)	r 39 (1.3)	r 24 (1.2)	9 (0.3)	6 (0.3)
Singapore	940 (0.0)	25 (0.6)	19 (1.4)	7 (0.2)	5 (0.4)
Belize	s 939 (24.7)	x x	x x	r 7 (0.5)	r 7 (0.5)
Canada (O,Q)	931 (6.8)	r 36 (1.0)	r 26 (1.2)	9 (0.2)	6 (0.4)
<sup>a</sup> France	910 (0.0)	x x	x x	r 9 (0.2)	4 (0.3)
Sweden	r 860 (14.0)	s 31 (1.4)	r 19 (0.9)	r 7 (0.2)	4 (0.2)
Cyprus	r 851 (10.3)	s 38 (0.9)	s 25 (2.0)	9 (0.2)	6 (0.4)
Kuwait	823 (6.4)	s 29 (0.8)	s 18 (1.1)	s 7 (0.2)	s 4 (0.2)
Germany	r 812 (10.8)	s 34 (1.2)	s 18 (1.0)	r 7 (0.2)	r 4 (0.2)
Czech Republic	r 809 (16.3)	r 35 (1.4)	r 22 (1.4)	7 (0.2)	4 (0.3)
Turkey	805 (17.8)	r 28 (1.0)	26 (1.7)	r 6 (0.2)	6 (0.3)
Greece	r 795 (11.3)	r 37 (1.1)	r 26 (1.9)	9 (0.2)	6 (0.4)
Slovak Republic	r 782 (12.3)	s 38 (1.2)	r 29 (1.4)	r 8 (0.2)	7 (0.3)
Moldova, Rep. of	r 782 (24.5)	r 34 (1.4)	r 23 (1.0)	7 (0.3)	5 (0.2)
Iceland	r 749 (1.0)	s 27 (0.1)	s 17 (0.1)	r 6 (0.0)	r 4 (0.0)
Iran, Islamic Rep. of	r 724 (13.9)	r 24 (0.9)	r 38 (1.3)	5 (0.2)	8 (0.2)
Argentina	r 694 (12.3)	s 37 (2.1)	r 36 (2.9)	r 7 (0.3)	7 (0.6)
Lithuania	r 689 (8.2)	r 36 (1.3)	r 35 (1.8)	7 (0.2)	7 (0.3)
Russian Federation	s 688 (10.5)	s 39 (1.1)	s 29 (1.3)	8 (0.2)	6 (0.2)
Norway	682 (15.7)	r 46 (2.4)	r 32 (2.4)	8 (0.4)	6 (0.4)
Macedonia, Rep. of	675 (8.9)	17 (0.2)	8 (0.2)	3 (0.0)	1 (0.0)
Latvia	r 666 (10.3)	r 36 (1.4)	r 28 (1.8)	7 (0.3)	6 (0.4)
Romania	634 (8.3)	r 35 (1.1)	r 40 (1.6)	6 (0.2)	7 (0.3)
Bulgaria	614 (10.9)	39 (1.6)	31 (1.3)	7 (0.3)	6 (0.2)
Slovenia	602 (10.3)	r 37 (1.6)	r 22 (1.5)	6 (0.3)	4 (0.3)
Hong Kong, SAR	--	--	--	r 5 (0.1)	r 3 (0.2)
Hungary	--	--	--	7 (0.2)	6 (0.2)
International Avg.	837 (2.6)	32 (0.2)	24 (0.3)	7 (0.1)	5 (0.1)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

\*Total hours of instruction per year is based on principals' reports of the number of hours spent on instruction per year multiplied by the number of days per year the school is open for instruction. Average hours of language instruction per week is based on how much time teachers reported spending on language instruction and/or activities with the students in a typical week.

Average hours of reading instruction per week is based on how much time teachers reported spending on reading instruction in a typical week, formally scheduled and integrated (see Exhibits 5.12 and 5.13 for details of this item). The average weekly reading instructional time reported by teachers is averaged across students.

a Data provided by French Ministry of Education.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

### How Much Instructional Time Is Devoted to Reading?

Total time for instruction in school as reported by school principals (Exhibit 5.11) ranged from 602 hours on average in Slovenia to 1082 hours in The Netherlands, with an international average of 837. Fourth-grade teachers reported that, on average, about one-third of this total was devoted to language instruction and about one-quarter to instruction in reading, both formal reading instruction and informal reading activities across the curriculum. Several of the countries with fewer instructional hours per year in total, including Iran, Argentina, Lithuania, Norway, Romania, and Bulgaria, had teachers that reported spending greater than average percentages of time on reading (more than 30%).

Teachers reported spending as much as 9 hours per week, on average, on language instruction in Colombia, the United States, New Zealand, Canada (O,Q), France, Cyprus, and Greece, and as little as three hours in Macedonia; the average across all countries was seven hours. With regard to instruction in reading, teachers reported spending five hours each week, on average, internationally, although the amount ranged from just one hour in Macedonia to as many as nine hours in the United States. Of all the PIRLS countries, principals and teachers in the United States reported the greatest amount of time devoted to reading instruction. Total time for instruction in the United States was above the international average (1041 hours per year vs. 837 internationally), and the percentage of this time devoted to reading also was above average (31% vs. 24% internationally). The number of hours spent on reading instruction each week also was above the international average in the United States (nine hours vs. five hours internationally), and in fact was the highest of any country.

Exhibit 5.12 provides more detail on the number of hours reading is taught weekly, whether as a formally scheduled activity or as an activity integrated across other areas of the curriculum. On average, across countries, 28 percent of fourth-grade students were in schools where teachers reported spending more than six hours each week on reading instruction, 35 percent in schools devoting from three to six hours weekly, and 37 percent up to three hours. In

**Exhibit 5.12: Number of Hours Reading is Taught Weekly (Formal and Integrated)**
**ISC** 4th Grade  
PIRLS 2001

Countries	More than 6		More than 3 up to and including 6		Up to and including 3	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Argentina	45 (4.7)	402 (10.0)	25 (4.0)	432 (11.7)	30 (4.3)	437 (10.1)
Belize r	36 (4.3)	317 (10.8)	47 (4.4)	327 (7.2)	17 (4.0)	295 (13.7)
Bulgaria	31 (3.4)	541 (8.4)	56 (3.9)	552 (5.1)	14 (2.8)	558 (9.4)
Canada (O,Q)	35 (3.5)	547 (3.7)	44 (3.4)	545 (3.7)	21 (3.1)	542 (4.3)
Colombia	40 (4.9)	421 (6.7)	33 (4.8)	413 (8.7)	27 (3.6)	442 (10.0)
Cyprus	36 (5.2)	499 (4.6)	23 (4.7)	497 (6.1)	42 (5.7)	489 (5.4)
Czech Republic	18 (3.5)	536 (5.6)	35 (4.1)	542 (4.0)	46 (4.7)	533 (3.5)
England	13 (3.2)	532 (11.5)	34 (4.4)	557 (7.1)	53 (4.2)	561 (4.6)
France	11 (2.7)	529 (8.9)	40 (4.7)	528 (3.8)	49 (5.2)	522 (3.8)
Germany r	12 (2.4)	530 (8.7)	28 (3.2)	537 (3.5)	60 (3.3)	542 (2.9)
Greece	36 (4.3)	522 (6.0)	26 (4.3)	537 (7.2)	37 (4.9)	524 (5.7)
Hong Kong, SAR r	3 (1.7)	513 (28.4)	21 (3.9)	536 (7.6)	76 (4.1)	528 (4.3)
Hungary	30 (3.5)	547 (5.3)	52 (3.8)	542 (3.3)	18 (3.4)	549 (7.8)
Iceland r	9 (0.2)	508 (3.2)	42 (0.4)	511 (1.8)	48 (0.4)	518 (1.9)
Iran, Islamic Rep. of	70 (4.4)	415 (5.0)	30 (4.4)	409 (9.8)	0 (0.0)	~ ~
Israel r	29 (4.2)	522 (8.1)	35 (4.4)	510 (8.0)	36 (4.4)	487 (8.4)
Italy	19 (3.1)	533 (6.4)	36 (3.7)	541 (3.9)	45 (3.8)	544 (3.9)
Kuwait s	18 (3.0)	397 (13.7)	36 (4.3)	399 (9.3)	46 (4.9)	400 (7.7)
Latvia	29 (4.1)	548 (4.2)	50 (5.0)	539 (3.4)	21 (3.9)	553 (6.4)
Lithuania	46 (4.4)	542 (4.0)	33 (4.2)	543 (5.9)	21 (3.7)	549 (5.1)
Macedonia, Rep. of	0 (0.0)	~ ~	0 (0.0)	~ ~	100 (0.0)	443 (4.4)
Moldova, Rep. of	26 (3.7)	489 (6.9)	42 (4.5)	486 (6.6)	31 (3.8)	495 (9.2)
Morocco r	26 (4.8)	344 (17.1)	22 (4.2)	350 (18.0)	52 (5.4)	341 (12.0)
Netherlands	5 (1.9)	535 (11.7)	47 (4.8)	556 (3.8)	49 (4.8)	553 (3.9)
New Zealand	27 (4.1)	526 (8.2)	55 (4.5)	534 (4.8)	18 (3.5)	518 (11.1)
Norway	33 (4.8)	496 (5.4)	35 (4.5)	500 (4.7)	32 (4.5)	499 (5.8)
Romania	63 (4.1)	523 (6.3)	26 (3.7)	492 (8.0)	11 (2.8)	503 (14.8)
Russian Federation	29 (3.3)	526 (6.4)	59 (3.4)	530 (5.0)	12 (2.4)	518 (11.1)
Scotland	13 (3.3)	518 (12.2)	41 (4.9)	522 (6.3)	46 (4.8)	536 (5.4)
Singapore	25 (3.3)	521 (9.2)	17 (2.3)	513 (12.1)	58 (3.7)	538 (7.4)
Slovak Republic	35 (3.7)	519 (5.0)	51 (4.2)	520 (4.6)	13 (2.9)	512 (8.4)
Slovenia	13 (3.1)	503 (6.3)	26 (3.8)	499 (5.3)	61 (4.4)	501 (2.6)
Sweden	16 (2.6)	565 (6.1)	32 (2.9)	557 (3.7)	51 (3.4)	564 (2.7)
Turkey	30 (4.1)	448 (7.0)	31 (4.3)	450 (6.8)	39 (4.6)	448 (7.6)
United States	65 (4.9)	540 (4.2)	28 (4.3)	543 (8.5)	7 (2.2)	537 (19.0)
International Avg.	28 (0.6)	499 (1.6)	35 (0.7)	501 (1.2)	37 (0.7)	502 (1.4)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

## Exhibit 5.13: Teachers Spend Time for Formal Reading Instruction

ISC  
4th Grade  
PIRLS 2001

Countries	Yes		No		Average Hours of Formal Instruction per Week
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Argentina	86 (3.5)	419 (6.1)	14 (3.5)	421 (23.2)	3.4 (0.34)
Belize	86 (4.2)	326 (6.8)	14 (4.2)	317 (10.9)	4.4 (0.88)
Bulgaria	93 (2.2)	551 (4.0)	7 (2.2)	554 (16.9)	2.9 (0.07)
Canada (O,Q)	85 (2.6)	547 (2.3)	15 (2.6)	532 (7.5)	2.7 (0.13)
Colombia	96 (2.1)	420 (4.7)	4 (2.1)	458 (5.1)	4.9 (0.48)
Cyprus	77 (4.6)	493 (3.4)	23 (4.6)	498 (6.4)	3.5 (0.48)
Czech Republic	98 (1.3)	537 (2.4)	2 (1.3)	~ ~	1.7 (0.06)
England	88 (3.1)	552 (3.9)	12 (3.1)	569 (8.6)	1.8 (0.10)
France	93 (2.0)	526 (2.3)	7 (2.0)	521 (13.6)	1.7 (0.11)
Germany	73 (3.0)	540 (2.5)	27 (3.0)	541 (3.7)	1.2 (0.07)
Greece	88 (2.9)	526 (3.8)	12 (2.9)	535 (10.6)	2.9 (0.21)
Hong Kong, SAR	59 (4.8)	526 (4.0)	41 (4.8)	532 (5.1)	1.4 (0.15)
Hungary	99 (0.6)	544 (2.2)	1 (0.0)	~ ~	2.6 (0.13)
Iceland	86 (0.3)	514 (1.3)	14 (0.3)	507 (4.1)	2.1 (0.01)
Iran, Islamic Rep. of	100 (0.0)	415 (4.4)	0 (0.0)	~ ~	2.6 (0.09)
Israel	82 (3.6)	508 (4.7)	18 (3.6)	493 (10.3)	3.0 (0.24)
Italy	93 (2.0)	539 (2.5)	7 (2.0)	555 (10.1)	2.8 (0.20)
Kuwait	72 (3.7)	406 (7.1)	28 (3.7)	392 (8.0)	x x
Latvia	79 (3.6)	544 (2.6)	21 (3.6)	551 (5.6)	2.2 (0.13)
Lithuania	72 (4.2)	543 (3.2)	28 (4.2)	547 (6.0)	2.5 (0.15)
Macedonia, Rep. of	87 (3.1)	438 (5.3)	13 (3.1)	469 (13.7)	1.5 (0.03)
Moldova, Rep. of	86 (2.9)	493 (5.1)	14 (2.9)	466 (8.8)	5.0 (0.63)
Morocco	90 (2.9)	344 (9.6)	10 (2.9)	355 (25.7)	2.7 (0.31)
Netherlands	96 (2.0)	554 (2.8)	4 (2.0)	559 (7.0)	1.4 (0.07)
New Zealand	98 (1.0)	529 (3.7)	2 (1.0)	~ ~	2.8 (0.13)
Norway	82 (3.5)	500 (3.1)	18 (3.5)	499 (7.6)	2.3 (0.18)
Romania	95 (1.8)	511 (4.6)	5 (1.8)	529 (24.5)	3.3 (0.21)
Russian Federation	67 (3.9)	527 (6.0)	33 (3.9)	530 (5.0)	3.3 (0.11)
Scotland	88 (2.9)	527 (4.1)	12 (2.9)	536 (10.3)	2.3 (0.16)
Singapore	79 (3.2)	532 (6.2)	21 (3.2)	508 (12.0)	2.1 (0.15)
Slovak Republic	86 (2.7)	517 (3.1)	14 (2.7)	529 (4.3)	3.4 (0.09)
Slovenia	51 (4.0)	498 (3.3)	49 (4.0)	505 (2.8)	1.8 (0.16)
Sweden	83 (2.8)	560 (2.5)	17 (2.8)	565 (4.2)	1.8 (0.10)
Turkey	73 (3.8)	449 (4.6)	27 (3.8)	451 (7.4)	3.3 (0.20)
United States	99 (0.6)	542 (3.8)	1 (0.6)	~ ~	4.5 (0.23)
International Avg.	85 (0.5)	500 (0.7)	15 (0.5)	501 (2.1)	2.7 (0.05)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.



addition to Iran, where 70 percent of students were in schools spending more than six hours weekly, other countries devoting a lot of time to reading instruction each week included Romania and the United States.

Because reading in fourth grade may be taught both as a formal teaching activity and more informally as students read for other subjects, PIRLS asked teachers if any of the time they spent on reading instruction was explicitly for formal reading instruction designed to develop or enhance reading comprehension skills. Exhibit 5.13 shows that such formal reading instruction was very much a part of reading in fourth grade in all countries. On average, 85 percent of students were in schools with such formal reading instruction, and in many countries almost all students were in such schools. The number of hours spent on formal reading instruction ranged from 1.2 hours per week in Germany to 5.0 hours in Moldova.

According to teachers' reports (Exhibit 5.14), reading instruction was a daily or almost daily activity in most countries, with 54 percent of students internationally in schools where instruction takes place daily, and 35 percent in schools where it happens on three or four days each week. In Hong Kong, Iceland, Macedonia, Singapore, and Slovenia, 20 percent or more of students were in schools where reading instruction took place on fewer than three days each week.

### **How Are Classes Organized for Reading Instruction?**

In implementing the school reading instructional program for students at different reading levels, the most common approach was to have all students follow the same instructional program but at different speeds. As shown in Exhibit 5.15, 60 percent of students, on average, internationally, were in schools that follow this practice, and in Bulgaria, Colombia, Cyprus, the Czech Republic, France, Germany, Hungary, Italy, Latvia, Lithuania, Moldova, the Russian Federation, and Slovenia, more than 70 percent of fourth-grade students were in such schools. A less common approach was to have students at different reading levels follow different reading instructional programs. However, although just 29 percent of students, on average, across countries, were in schools following this approach, it was the approach used in schools with the majority of

**Exhibit 5.14: Frequency of Reading Instruction During the Week**


Countries	Every Day		3-4 Days a Week		Fewer than 3 Days a Week	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Argentina	28 (4.1)	415 (11.4)	53 (4.8)	416 (9.2)	19 (3.6)	432 (13.6)
Belize	71 (5.2)	324 (5.6)	24 (4.5)	325 (17.1)	5 (2.1)	314 (19.7)
Bulgaria	31 (4.4)	551 (8.2)	60 (4.5)	554 (5.0)	9 (2.3)	543 (10.4)
Canada (O,Q)	67 (3.5)	548 (2.7)	24 (3.3)	540 (4.3)	8 (1.8)	530 (7.8)
Colombia	58 (4.3)	426 (5.0)	28 (3.9)	408 (10.0)	13 (3.1)	442 (18.8)
Cyprus	79 (4.6)	494 (3.5)	17 (4.2)	489 (6.8)	4 (1.9)	500 (14.6)
Czech Republic	44 (4.0)	536 (4.0)	42 (4.3)	535 (3.5)	13 (3.1)	547 (5.9)
England	74 (3.6)	551 (4.2)	23 (3.6)	564 (8.8)	3 (1.7)	570 (8.8)
France	66 (3.9)	524 (2.8)	28 (3.7)	527 (5.2)	7 (1.9)	531 (7.3)
Germany	51 (3.0)	537 (2.5)	32 (2.8)	545 (3.4)	16 (2.3)	539 (3.8)
Greece	81 (3.5)	522 (3.6)	13 (3.5)	535 (12.6)	7 (2.9)	550 (20.4)
Hong Kong, SAR	17 (3.4)	525 (7.4)	38 (4.6)	534 (5.2)	46 (4.4)	525 (4.4)
Hungary	40 (4.2)	543 (3.6)	60 (4.2)	545 (3.0)	0 (0.0)	~ ~
Iceland	37 (0.4)	511 (1.7)	41 (0.4)	513 (2.4)	22 (0.3)	516 (2.6)
Iran, Islamic Rep. of	32 (4.0)	412 (10.4)	52 (4.3)	421 (6.7)	17 (3.4)	404 (8.8)
Israel	55 (4.3)	505 (7.1)	35 (4.2)	512 (7.4)	11 (2.7)	515 (10.9)
Italy	36 (3.6)	535 (4.7)	49 (3.9)	544 (3.6)	15 (2.6)	549 (5.9)
Kuwait	82 (3.0)	399 (5.7)	12 (2.5)	398 (8.3)	6 (1.6)	412 (7.5)
Latvia	66 (4.3)	540 (3.1)	32 (4.3)	555 (4.2)	2 (1.1)	~ ~
Lithuania	67 (4.2)	543 (3.6)	29 (4.0)	542 (5.4)	4 (1.6)	561 (2.6)
Macedonia, Rep. of	41 (3.8)	459 (9.2)	39 (4.4)	431 (8.3)	20 (3.7)	429 (14.6)
Moldova, Rep. of	32 (3.8)	503 (7.1)	63 (3.9)	489 (5.3)	5 (1.8)	455 (12.4)
Morocco	35 (5.3)	340 (11.4)	59 (5.5)	344 (11.7)	7 (2.4)	351 (31.6)
Netherlands	55 (4.3)	557 (3.2)	39 (4.2)	549 (4.9)	6 (1.8)	550 (7.3)
New Zealand	68 (3.7)	522 (4.2)	30 (3.8)	543 (8.2)	2 (1.0)	~ ~
Norway	58 (4.5)	503 (4.6)	32 (3.9)	493 (4.4)	10 (3.1)	496 (8.5)
Romania	71 (4.1)	521 (5.4)	24 (3.7)	495 (12.2)	4 (2.0)	482 (26.1)
Russian Federation	87 (2.6)	529 (4.7)	12 (2.5)	522 (11.0)	1 (0.6)	~ ~
Scotland	45 (4.9)	526 (5.4)	45 (4.9)	528 (5.7)	11 (2.9)	547 (13.0)
Singapore	45 (4.0)	522 (8.2)	34 (4.0)	530 (9.6)	22 (3.3)	532 (11.9)
Slovak Republic	48 (3.9)	514 (4.5)	52 (3.9)	521 (3.7)	0 (0.0)	~ ~
Slovenia	36 (4.1)	499 (3.6)	34 (4.0)	498 (3.5)	30 (4.2)	509 (4.1)
Sweden	57 (3.6)	562 (3.3)	30 (3.4)	556 (3.5)	13 (2.2)	568 (3.4)
Turkey	54 (5.0)	454 (5.2)	37 (4.5)	439 (6.7)	10 (2.7)	459 (9.9)
United States	93 (2.1)	541 (4.2)	6 (2.0)	555 (7.5)	1 (0.5)	~ ~
International Avg.	54 (0.7)	500 (1.0)	35 (0.7)	500 (1.3)	10 (0.4)	495 (2.2)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

**Exhibit 5.15: Schools' Reading Instructional Programs**ISC  
4th Grade  
PIRLS 2001

Countries	Percentage of Students Whose Schools Reported Various Instructional Programs		
	Same Instructional Program at Different Speeds	Same Instructional Program at Same Speed	Different Instructional Programs at Different Levels
Argentina	67 (4.6)	5 (2.1)	28 (4.4)
Belize	47 (5.2)	17 (5.9)	36 (5.8)
Bulgaria	74 (3.3)	24 (3.2)	2 (1.0)
Canada (O,Q)	33 (3.1)	9 (1.5)	58 (3.0)
Colombia	72 (4.8)	11 (3.0)	18 (3.9)
Cyprus	80 (4.4)	11 (3.1)	9 (3.2)
Czech Republic	90 (2.8)	9 (2.7)	1 (0.0)
England	37 (4.4)	0 (0.0)	63 (4.4)
France	80 (3.8)	6 (2.4)	14 (2.9)
Germany	73 (3.8)	3 (1.2)	24 (3.6)
Greece	69 (4.6)	22 (3.7)	9 (3.2)
Hong Kong, SAR	45 (4.5)	38 (4.1)	16 (3.3)
Hungary	84 (3.0)	9 (2.4)	7 (1.8)
Iceland	30 (0.3)	0 (0.0)	70 (0.3)
Iran, Islamic Rep. of	32 (4.6)	24 (3.3)	45 (4.7)
Israel	43 (4.4)	5 (1.7)	52 (4.6)
Italy	73 (3.3)	6 (1.9)	21 (3.3)
Kuwait	37 (4.9)	11 (2.6)	51 (4.6)
Latvia	77 (3.4)	18 (3.4)	4 (1.8)
Lithuania	78 (3.1)	6 (1.7)	16 (2.9)
Macedonia, Rep. of	64 (4.3)	26 (3.9)	10 (2.9)
Moldova, Rep. of	78 (3.6)	8 (2.4)	13 (3.1)
Morocco	43 (4.8)	15 (3.7)	42 (4.5)
Netherlands	59 (4.9)	9 (2.0)	32 (4.7)
New Zealand	18 (3.6)	0 (0.0)	82 (3.6)
Norway	53 (5.2)	7 (2.0)	41 (5.0)
Romania	63 (4.4)	9 (2.5)	28 (4.1)
Russian Federation	72 (3.7)	24 (3.2)	4 (1.5)
Scotland	58 (4.8)	1 (1.0)	41 (4.9)
Singapore	64 (4.0)	6 (1.9)	30 (3.6)
Slovak Republic	58 (4.8)	22 (4.0)	19 (3.3)
Slovenia	76 (3.5)	2 (1.4)	22 (3.2)
Sweden	41 (4.5)	1 (1.3)	58 (4.3)
Turkey	69 (3.8)	19 (3.4)	12 (2.9)
United States	56 (4.3)	14 (3.4)	31 (4.2)
International Avg.	60 (0.7)	11 (0.5)	29 (0.6)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by schools.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

**Exhibit 5.16: Teachers' Reports of Their Students' Reading Level**
**ISC** 4th Grade  
PIRLS 2001

Countries	Above Average		Average		Below Average		Level Varies Greatly	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Argentina	4 (1.5)	473 (21.5)	47 (5.3)	430 (7.4)	14 (3.4)	386 (19.7)	34 (4.9)	410 (11.9)
Belize	4 (1.1)	366 (15.4)	47 (5.4)	328 (11.3)	23 (3.8)	293 (15.6)	26 (3.8)	330 (8.8)
Bulgaria	45 (3.4)	573 (4.6)	41 (3.8)	535 (5.5)	5 (1.9)	496 (32.6)	9 (2.2)	539 (17.1)
Canada (O,Q)	3 (1.0)	580 (6.4)	59 (3.3)	550 (3.1)	16 (2.5)	524 (5.8)	22 (2.8)	541 (4.4)
Colombia	5 (1.8)	431 (13.8)	46 (4.9)	423 (8.1)	12 (2.9)	406 (15.7)	37 (4.8)	426 (6.3)
Cyprus	47 (4.7)	506 (4.1)	41 (5.1)	482 (4.0)	1 (0.6)	~ ~	12 (2.8)	490 (7.0)
Czech Republic	6 (2.1)	553 (9.9)	73 (3.7)	538 (2.6)	0 (0.0)	~ ~	20 (3.3)	527 (5.8)
England	19 (4.0)	595 (6.5)	52 (4.8)	553 (3.3)	11 (3.0)	503 (12.2)	19 (3.8)	545 (6.9)
France	14 (2.3)	554 (5.5)	65 (3.6)	527 (2.5)	4 (1.2)	485 (9.8)	17 (3.0)	505 (6.7)
Germany	14 (2.4)	561 (3.8)	51 (3.3)	543 (2.6)	7 (1.7)	504 (10.2)	29 (2.6)	533 (3.7)
Greece	49 (4.4)	539 (5.9)	27 (3.5)	513 (6.1)	2 (1.0)	~ ~	22 (3.5)	509 (6.7)
Hong Kong, SAR	8 (2.4)	557 (7.4)	62 (4.4)	537 (3.4)	15 (3.0)	499 (9.5)	15 (2.9)	508 (7.1)
Hungary	2 (1.1)	~ ~	72 (3.5)	548 (2.8)	2 (1.0)	~ ~	24 (3.2)	532 (5.0)
Iceland	26 (0.3)	523 (2.3)	45 (0.4)	512 (1.9)	1 (0.1)	~ ~	28 (0.4)	507 (2.3)
Iran, Islamic Rep. of	39 (4.4)	427 (6.4)	47 (4.2)	409 (6.3)	6 (3.1)	350 (16.5)	8 (2.2)	414 (13.0)
Israel	18 (3.3)	504 (13.6)	54 (4.8)	522 (6.0)	6 (1.8)	437 (22.0)	22 (4.1)	504 (11.5)
Italy	8 (2.1)	539 (8.0)	82 (2.8)	543 (2.6)	2 (1.1)	~ ~	8 (1.9)	519 (14.9)
Kuwait	21 (3.1)	406 (9.0)	57 (3.7)	407 (5.7)	6 (1.8)	398 (19.5)	15 (2.4)	367 (10.7)
Latvia	34 (4.8)	557 (4.3)	39 (4.4)	540 (3.8)	0 (0.0)	~ ~	26 (4.3)	537 (5.4)
Lithuania	23 (3.6)	560 (5.1)	39 (4.1)	536 (4.0)	2 (1.1)	~ ~	36 (4.3)	542 (4.3)
Macedonia, Rep. of	17 (3.2)	444 (13.0)	81 (3.2)	446 (5.5)	1 (0.8)	~ ~	1 (0.8)	~ ~
Moldova, Rep. of	12 (2.9)	501 (8.9)	76 (3.8)	495 (5.5)	8 (2.3)	470 (13.7)	4 (1.9)	486 (23.1)
Morocco	20 (3.4)	359 (18.4)	51 (5.2)	351 (13.0)	13 (3.5)	294 (17.1)	16 (4.1)	348 (20.2)
Netherlands	16 (3.2)	568 (4.4)	61 (4.3)	556 (2.8)	6 (2.2)	520 (14.8)	17 (3.3)	546 (6.1)
New Zealand	30 (4.0)	562 (6.7)	46 (4.5)	514 (4.9)	5 (1.5)	489 (11.1)	19 (3.6)	517 (9.1)
Norway	9 (1.7)	520 (11.8)	72 (3.9)	498 (3.8)	1 (0.6)	~ ~	19 (3.5)	494 (4.5)
Romania	36 (4.9)	533 (8.5)	58 (4.9)	502 (5.2)	0 (0.0)	~ ~	6 (2.2)	480 (23.0)
Russian Federation	16 (2.2)	540 (6.6)	52 (3.4)	529 (5.9)	2 (0.9)	~ ~	30 (3.3)	522 (7.5)
Scotland	10 (2.7)	573 (8.1)	65 (4.7)	526 (4.4)	4 (1.8)	481 (20.0)	22 (4.1)	524 (10.0)
Singapore	20 (3.3)	609 (5.4)	61 (4.0)	528 (3.9)	12 (2.3)	424 (20.1)	7 (1.9)	476 (11.3)
Slovak Republic	12 (2.7)	542 (8.0)	71 (4.0)	519 (3.4)	1 (0.7)	~ ~	17 (3.1)	500 (10.5)
Slovenia	4 (1.7)	511 (6.1)	70 (3.4)	504 (2.7)	1 (0.5)	~ ~	25 (3.6)	492 (3.9)
Sweden	11 (1.9)	585 (4.8)	59 (3.8)	562 (2.9)	6 (1.4)	536 (9.7)	24 (3.2)	555 (3.8)
Turkey	40 (4.6)	471 (6.5)	43 (4.0)	439 (5.1)	5 (2.0)	402 (20.0)	12 (2.8)	431 (11.1)
United States	6 (1.6)	594 (11.6)	64 (4.6)	556 (4.2)	17 (3.5)	490 (7.9)	13 (3.1)	524 (9.8)
International Avg.	18 (0.5)	521 (1.6)	56 (0.7)	500 (0.9)	6 (0.3)	447 (4.5)	19 (0.5)	491 (2.0)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

students in Canada (O,Q), England, Iceland, Israel, Kuwait, New Zealand, and Sweden. All students following the reading instructional program at the same speed was relatively rare, with just 11 percent of students internationally in schools where this was reported to be the practice.

Teachers' reports about the reading level of the fourth-grade students in the PIRLS class indicate that most students (56%) were in classes that the teacher considered to be of average ability (Exhibit 5.16). Countries with relatively higher percentages in average classes included the Czech Republic, Hungary, Italy, Macedonia, Moldova, Norway, the Slovak Republic, and Slovenia, where 70 percent or more of students were in such classes. Although only 18 percent of students internationally were in above average classes in their teachers' estimation, in countries such as Bulgaria, Cyprus, Greece, and Turkey, there were 40 percent or more of students in above average classes. Students' average reading performance on the PIRLS assessment were generally in line with teachers' reports, with students in above-average classes performing above those in average classes, and those in average classes scoring above those in below-average classes. Students in classes where the teacher reported that the reading level varies greatly had average reading performance just below the international average.

As shown in Exhibit 5.17, on average, internationally, about half the students (56%) were in classrooms where all students were reading the same materials but at their own speeds and another one-third (32%) were reading different materials according to their reading levels. Hong Kong is the only country where a substantial percentage of the students – 38 percent – used the same materials at the same speed regardless of their reading levels.

When teaching language to their fourth-grade students, the preferred approach of the PIRLS teachers was to combine the teaching of language as a separate subject with doing reading instruction or language activities as part of teaching other curricular areas. Exhibit 5.18 shows that, on average, 58 percent of students were in schools combining the separate and integrated approaches, compared with 21 percent in schools doing language instruction as part of instruction in other curricular areas, and 20 percent where language was taught as a separate subject.

**Exhibit 5.17: Use of Instructional Materials for Students at Different Reading Levels**
**ISC** 4th Grade  
PIRLS 2001

Countries	Percentage of Students Whose Teachers Reported Using			
	Same Materials with Students Because They Are All at the Same Reading Level	Same Materials with Students at Different Reading Levels, Where Students Work at Different Speeds	Same Materials with Students at Different Reading Levels, Where Students Work at Same Speed	Different Materials with Students at Different Reading Levels
Argentina	5 (1.8)	74 (4.4)	5 (2.2)	16 (3.7)
Belize	4 (2.4)	64 (4.4)	10 (3.0)	22 (3.0)
Bulgaria	8 (2.2)	59 (3.6)	3 (1.3)	31 (3.6)
Canada (O,Q)	6 (1.2)	56 (3.4)	9 (1.9)	30 (3.4)
Colombia	10 (3.7)	66 (4.3)	4 (1.6)	19 (3.1)
Cyprus	4 (1.9)	84 (4.1)	1 (1.0)	11 (3.5)
Czech Republic	2 (1.3)	86 (3.1)	3 (1.4)	9 (2.6)
England	0 (0.0)	30 (4.2)	1 (0.9)	69 (4.4)
France	5 (1.7)	74 (3.7)	6 (1.9)	15 (3.1)
Germany	3 (1.1)	77 (2.3)	5 (1.3)	15 (2.1)
Greece	2 (1.2)	85 (2.7)	3 (1.3)	10 (2.3)
Hong Kong, SAR	18 (3.2)	35 (4.1)	38 (4.5)	9 (2.8)
Hungary	1 (0.9)	91 (2.4)	1 (0.9)	7 (2.0)
Iceland	3 (0.1)	31 (0.3)	4 (0.1)	62 (0.3)
Iran, Islamic Rep. of	8 (2.3)	33 (4.1)	9 (3.2)	49 (4.4)
Israel	7 (2.3)	53 (4.4)	3 (1.5)	36 (4.5)
Italy	8 (2.0)	54 (3.8)	7 (1.9)	31 (4.1)
Kuwait	2 (0.8)	36 (4.3)	5 (1.9)	57 (4.2)
Latvia	3 (1.3)	72 (4.2)	5 (1.8)	20 (3.9)
Lithuania	2 (1.4)	76 (3.5)	3 (1.4)	19 (3.0)
Macedonia, Rep. of	10 (2.6)	55 (4.3)	13 (3.4)	22 (3.8)
Moldova, Rep. of	1 (0.9)	51 (4.4)	4 (2.7)	43 (4.5)
Morocco	8 (2.5)	38 (5.3)	12 (3.6)	41 (5.3)
Netherlands	2 (1.3)	52 (4.0)	6 (2.0)	40 (4.3)
New Zealand	1 (0.5)	5 (1.6)	0 (0.0)	95 (1.6)
Norway	1 (0.0)	50 (4.8)	1 (0.8)	48 (4.8)
Romania	10 (2.6)	52 (4.9)	6 (2.6)	32 (3.8)
Russian Federation	4 (1.2)	84 (2.7)	5 (1.6)	7 (1.8)
Scotland	3 (1.6)	8 (2.6)	0 (0.0)	89 (2.5)
Singapore	18 (3.1)	61 (3.8)	12 (2.8)	9 (2.3)
Slovak Republic	6 (1.6)	73 (3.5)	3 (1.3)	19 (3.3)
Slovenia	11 (2.7)	65 (4.1)	2 (1.0)	22 (3.6)
Sweden	2 (0.9)	32 (2.3)	1 (0.6)	65 (2.4)
Turkey	10 (2.4)	51 (4.3)	5 (1.6)	34 (4.0)
United States	7 (2.4)	57 (3.8)	6 (2.2)	30 (3.8)
International Avg.	6 (0.3)	56 (0.6)	6 (0.3)	32 (0.6)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

**Exhibit 5.18: Teachers Teach Reading Across Curriculum Areas or Separately**
**ISC** 4th Grade  
PIRLS 2001

Countries	As Part of Instruction in Different Curriculum Areas		As a Separate Subject		Equally as Part of Instruction in Different Curriculum Areas and as a Separate Subject	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Argentina	19 (4.2)	416 (17.2)	7 (2.6)	422 (13.2)	74 (4.5)	419 (6.8)
Belize	26 (5.4)	321 (10.9)	20 (5.5)	325 (17.3)	54 (7.2)	324 (8.8)
Bulgaria	5 (2.0)	531 (10.8)	9 (2.4)	561 (11.7)	86 (2.8)	552 (3.9)
Canada (O,Q)	11 (2.0)	538 (4.8)	21 (3.1)	549 (5.1)	68 (3.4)	545 (2.9)
Colombia	37 (4.9)	412 (7.2)	8 (2.5)	447 (36.2)	55 (5.0)	426 (5.5)
Cyprus	7 (2.6)	498 (9.5)	36 (4.5)	488 (4.6)	58 (4.7)	497 (4.1)
Czech Republic	6 (2.2)	543 (11.1)	35 (4.2)	537 (4.5)	58 (4.5)	536 (2.9)
England	10 (2.9)	547 (11.1)	43 (4.8)	558 (4.7)	48 (4.8)	553 (6.4)
France	5 (1.7)	553 (8.5)	6 (1.9)	526 (15.0)	89 (2.6)	524 (2.5)
Germany	30 (3.1)	545 (3.2)	6 (1.4)	535 (10.8)	64 (2.9)	538 (2.6)
Greece	14 (3.4)	524 (10.9)	32 (3.7)	516 (5.6)	54 (4.4)	531 (6.2)
Hong Kong, SAR	17 (2.7)	529 (5.5)	51 (4.6)	525 (4.4)	32 (4.0)	533 (6.2)
Hungary	55 (3.9)	545 (2.9)	18 (3.0)	539 (6.8)	27 (3.3)	547 (6.2)
Iceland	12 (0.2)	497 (3.5)	17 (0.2)	510 (2.7)	70 (0.3)	516 (1.3)
Iran, Islamic Rep. of	19 (2.8)	414 (10.2)	33 (3.8)	420 (9.3)	48 (3.7)	410 (6.5)
Israel	42 (4.3)	525 (7.3)	12 (2.9)	450 (15.4)	47 (4.6)	505 (7.0)
Italy	5 (1.6)	509 (14.0)	29 (3.1)	545 (4.7)	67 (3.3)	541 (3.0)
Kuwait	57 (3.7)	403 (6.7)	2 (1.0)	~ ~	41 (3.7)	397 (7.1)
Latvia	14 (3.5)	544 (6.4)	25 (3.2)	540 (4.9)	60 (4.5)	547 (3.4)
Lithuania	18 (3.2)	555 (7.7)	8 (2.3)	549 (9.1)	75 (3.6)	540 (3.0)
Macedonia, Rep. of	16 (3.6)	464 (14.6)	22 (2.8)	405 (13.2)	62 (4.3)	450 (7.2)
Moldova, Rep. of	25 (3.9)	476 (6.7)	4 (1.4)	497 (22.0)	71 (3.8)	496 (5.4)
Morocco	38 (5.1)	340 (14.5)	19 (3.9)	345 (15.8)	44 (4.9)	349 (12.5)
Netherlands	16 (3.3)	563 (6.0)	32 (4.5)	551 (5.1)	52 (4.9)	554 (2.7)
New Zealand	8 (2.2)	521 (12.9)	41 (4.8)	527 (7.3)	51 (4.7)	530 (5.4)
Norway	32 (4.0)	493 (5.8)	9 (2.5)	489 (5.7)	59 (4.2)	504 (3.3)
Romania	24 (3.9)	520 (9.1)	10 (2.1)	525 (10.2)	65 (4.2)	508 (6.3)
Russian Federation	38 (3.4)	528 (6.6)	6 (1.8)	490 (24.9)	57 (3.6)	532 (4.6)
Scotland	0 (0.0)	~ ~	65 (5.1)	529 (4.7)	35 (5.1)	528 (6.5)
Singapore	30 (3.1)	528 (9.3)	12 (2.6)	525 (12.0)	58 (3.0)	529 (7.6)
Slovak Republic	26 (3.8)	521 (4.2)	24 (3.5)	524 (6.2)	50 (4.0)	514 (4.5)
Slovenia	20 (3.3)	506 (4.8)	10 (2.2)	495 (7.3)	71 (3.2)	501 (2.4)
Sweden	29 (3.1)	559 (4.1)	6 (1.7)	570 (7.6)	65 (3.5)	562 (2.7)
Turkey	22 (3.4)	445 (6.4)	6 (2.0)	433 (13.7)	72 (3.7)	451 (4.3)
United States	6 (2.0)	506 (14.9)	31 (3.8)	539 (6.0)	63 (4.4)	547 (5.2)
International Avg.	21 (0.6)	498 (1.6)	20 (0.6)	500 (2.1)	58 (0.7)	501 (0.9)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

**Exhibit 5.19: Organization of Students for Reading Instruction**

**ISC** 4th Grade  
PIRLS 2001

Countries	Percentage of Students Whose Teachers Reported Always or Almost Always					
	Teaching Reading as Whole-Class Activity	Creating Same-Ability Groups	Creating Mixed-Ability Groups	Creating Groups Based on Other Criteria	Using Individualized Instruction	Using a Variety of Organizational Approaches*
Argentina	58 (4.5)	7 (2.4)	27 (4.2)	r 8 (2.9)	18 (3.4)	23 (4.3)
Belize	r 33 (6.3)	r 12 (4.2)	r 20 (5.5)	r 6 (2.7)	r 6 (2.2)	r 49 (7.2)
Bulgaria	77 (3.4)	1 (0.8)	1 (0.8)	3 (1.5)	24 (3.2)	19 (3.1)
Canada (O,Q)	27 (2.8)	7 (1.9)	3 (1.0)	1 (1.0)	7 (2.2)	64 (3.3)
Colombia	40 (4.5)	3 (1.6)	13 (3.2)	5 (1.8)	21 (4.0)	45 (4.9)
Cyprus	32 (4.2)	r 1 (0.0)	28 (4.8)	r 3 (2.1)	12 (2.4)	47 (5.7)
Czech Republic	38 (4.0)	2 (1.4)	x x	1 (0.9)	8 (2.7)	40 (4.4)
England	25 (3.9)	27 (4.3)	3 (1.6)	r 3 (1.6)	3 (1.6)	60 (4.7)
France	26 (3.3)	5 (1.4)	3 (1.4)	1 (0.7)	3 (1.6)	68 (4.0)
Germany	30 (3.2)	1 (0.6)	1 (0.4)	r 1 (0.7)	7 (1.6)	66 (3.4)
Greece	71 (4.8)	0 (0.0)	6 (1.7)	0 (0.0)	10 (3.4)	19 (3.7)
Hong Kong, SAR	73 (3.3)	1 (0.0)	11 (2.6)	9 (2.2)	6 (2.0)	22 (3.3)
Hungary	11 (2.3)	6 (1.7)	r 1 (0.0)	r 0 (0.0)	r 2 (1.2)	r 85 (3.1)
Iceland	30 (0.3)	r 7 (0.2)	r 5 (0.2)	r 2 (0.0)	20 (0.4)	r 54 (0.4)
Iran, Islamic Rep. of	54 (4.0)	9 (2.3)	19 (3.4)	12 (2.1)	16 (3.2)	29 (3.3)
Israel	25 (3.7)	8 (2.6)	10 (3.0)	r 3 (1.6)	r 3 (1.3)	r 61 (4.5)
Italy	57 (3.4)	2 (1.3)	6 (1.8)	2 (1.0)	8 (2.3)	40 (3.5)
Kuwait	r 43 (4.0)	r 8 (1.8)	r 14 (2.8)	r 7 (1.8)	46 (3.6)	r 24 (3.3)
Latvia	58 (4.1)	2 (1.4)	4 (1.6)	0 (0.0)	6 (1.9)	39 (4.1)
Lithuania	28 (3.9)	4 (1.7)	6 (2.2)	1 (1.0)	7 (1.9)	62 (4.3)
Macedonia, Rep. of	42 (4.6)	6 (2.1)	12 (2.9)	r 6 (2.2)	22 (3.6)	44 (4.6)
Moldova, Rep. of	54 (4.0)	5 (1.7)	7 (2.2)	2 (1.1)	13 (2.9)	37 (4.1)
Morocco	62 (4.7)	r 10 (3.1)	r 18 (4.3)	r 3 (2.0)	r 43 (5.5)	r 20 (4.3)
Netherlands	15 (3.0)	r 7 (2.6)	r 8 (2.9)	r 5 (1.9)	r 5 (2.0)	r 71 (3.9)
New Zealand	2 (1.1)	53 (4.4)	2 (1.1)	0 (0.0)	2 (1.1)	46 (4.5)
Norway	15 (3.0)	3 (1.4)	3 (1.7)	3 (1.6)	11 (2.5)	73 (4.0)
Romania	80 (3.0)	4 (1.9)	4 (1.7)	1 (0.8)	29 (3.8)	16 (2.9)
Russian Federation	71 (3.5)	4 (1.6)	13 (2.4)	2 (1.0)	23 (2.9)	21 (2.9)
Scotland	1 (1.1)	66 (5.0)	1 (0.9)	0 (0.0)	6 (2.5)	32 (5.0)
Singapore	33 (3.8)	3 (1.0)	11 (2.8)	4 (1.6)	3 (1.1)	53 (4.1)
Slovak Republic	40 (4.1)	1 (0.7)	6 (2.2)	1 (0.7)	6 (1.8)	49 (4.3)
Slovenia	8 (2.3)	0 (0.0)	4 (1.6)	1 (0.8)	6 (2.2)	84 (3.3)
Sweden	15 (2.5)	6 (1.6)	6 (1.9)	4 (1.1)	7 (2.2)	71 (3.1)
Turkey	26 (3.7)	15 (3.7)	10 (2.5)	4 (1.7)	25 (4.1)	42 (4.1)
United States	43 (4.0)	17 (3.9)	8 (1.8)	2 (0.9)	6 (2.3)	44 (4.7)
International Avg.	38 (0.6)	9 (0.4)	9 (0.4)	3 (0.2)	13 (0.5)	46 (0.7)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

\*Based on the proportion of teachers who did not respond "Always or Almost Always" to any of the approaches.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.



Exhibit 5.19 presents teachers' reports of how they grouped their fourth-grade students for reading instruction or reading activities. Teaching reading as a whole-class activity was the most popular approach, with 38 percent of students, on average, in classes where the teacher always or almost always chose this method. The whole-class approach was particularly common in Bulgaria, Greece, Hong Kong, Romania, and the Russian Federation, where more than 70 percent of students were taught by teachers preferring this strategy. Creating groups on the basis of the same ability, mixed ability, or indeed any other basis were less frequent occurrences, although in New Zealand and Scotland the majority of students were taught by teachers that always created same-ability groups for reading instruction. Although teaching the whole class was the most usual single organizational approach to teaching reading, in many countries teachers reported that they used different grouping strategies at different times. For example, in 13 countries (Canada (O,Q), England, France, Germany, Hungary, Iceland, Israel, Lithuania, The Netherlands, Norway, Singapore, Slovenia, and Sweden) the majority of students were taught by teachers using a variety of grouping arrangements.

### **How Big Are Classes for Reading and Language Instruction?**

The number of students in the class can have a significant impact on how teachers arrange students for reading instruction and on the teaching strategies they adopt. Exhibit 5.20 presents teachers' reports on the size of their fourth-grade class for reading and language instruction.<sup>2</sup> Across all PIRLS countries the average class size was 26 students, with the majority of students (54%) in classes with between 21 and 30 students. However, there was considerable variation around this average. In Greece, Iceland, Italy, and Norway, 50 percent or more of students were in classes with no more than 20 students, while in Colombia, Hong Kong, Israel, Morocco, Singapore, and Turkey, the majority of student were in classes containing 31 or more students. The relationship between class size and reading achievement is difficult to interpret and is complicated by the fact that small classes are sometimes used both for remedial students and for students receiving advanced instruction.

2 Class size was taken to be the total number of students in the class. For multi-grade classes (classes with students from more than one grade level) this included students from other grades. There was little difference in most countries between the size of entire classes and classes counting only fourth-graders. Compared to 26 for the average class size for entire classes (see Exhibit 5.20), the average number of fourth-grade students in classrooms across countries was 24.

**Exhibit 5.20: Class Size for Reading and Language Instruction\***

**ISC** 4th Grade  
PIRLS 2001

Countries	Overall Average Class Size	1-20 Students		21-30 Students		31 or More Students	
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Argentina	27 (0.5)	17 (3.2)	423 (10.1)	56 (4.4)	418 (8.7)	27 (3.7)	419 (11.5)
Belize	28 (0.7)	15 (2.4)	326 (16.9)	41 (5.2)	333 (10.6)	44 (5.2)	314 (8.1)
Bulgaria	22 (0.3)	37 (3.3)	528 (6.7)	61 (3.4)	565 (4.6)	1 (1.2)	~ ~
Canada (O,Q)	26 (0.2)	4 (1.1)	529 (10.4)	90 (2.0)	544 (2.5)	6 (1.7)	559 (8.1)
Colombia	30 (0.7)	23 (3.6)	413 (12.9)	17 (3.4)	399 (9.4)	60 (4.0)	433 (6.3)
Cyprus	25 (0.4)	15 (2.0)	477 (6.1)	76 (4.0)	495 (3.3)	9 (3.5)	510 (13.1)
Czech Republic	23 (0.4)	27 (2.9)	531 (5.9)	68 (3.6)	539 (2.4)	6 (2.1)	539 (17.8)
England	29 (0.4)	9 (2.3)	560 (12.8)	48 (4.4)	542 (4.9)	43 (4.6)	567 (5.1)
France	24 (0.3)	17 (2.5)	521 (7.2)	82 (2.7)	526 (2.8)	1 (0.9)	~ ~
Germany	23 (0.2)	31 (3.0)	537 (4.3)	66 (3.1)	541 (2.3)	3 (0.9)	549 (9.7)
Greece	20 (0.3)	54 (3.8)	515 (5.6)	45 (4.1)	536 (4.7)	1 (0.0)	~ ~
Hong Kong, SAR	35 (0.4)	0 (0.0)	~ ~	13 (4.0)	509 (14.7)	87 (4.0)	532 (3.2)
Hungary	24 (0.4)	26 (3.2)	529 (4.0)	64 (4.0)	549 (3.1)	10 (2.9)	557 (6.8)
Iceland	20 (0.0)	50 (0.4)	515 (1.8)	50 (0.4)	511 (1.7)	0 (0.0)	~ ~
Iran, Islamic Rep. of	28 (0.5)	23 (3.4)	380 (7.5)	39 (4.8)	411 (8.5)	38 (3.7)	438 (7.4)
Israel	30 (0.5)	4 (1.4)	513 (32.0)	42 (4.5)	511 (6.2)	54 (4.2)	507 (6.2)
Italy	21 (0.3)	50 (3.6)	544 (3.5)	50 (3.6)	537 (3.2)	0 (0.4)	~ ~
Kuwait	30 (0.2)	1 (0.5)	~ ~	58 (3.5)	402 (6.2)	41 (3.5)	399 (7.2)
Latvia	23 (0.4)	31 (3.2)	523 (3.6)	58 (3.9)	551 (3.0)	11 (2.5)	574 (6.0)
Lithuania	22 (0.3)	35 (3.0)	528 (4.8)	64 (3.2)	550 (3.2)	1 (1.0)	~ ~
Macedonia, Rep. of	26 (0.5)	16 (2.7)	398 (16.2)	59 (4.1)	447 (6.0)	26 (3.7)	459 (9.6)
Moldova, Rep. of	25 (0.5)	22 (4.0)	488 (8.8)	60 (4.9)	491 (5.5)	18 (3.3)	503 (12.5)
Morocco	31 (0.9)	16 (3.1)	334 (26.4)	31 (5.3)	377 (13.3)	53 (5.5)	328 (9.7)
Netherlands	26 (0.5)	14 (2.6)	528 (7.6)	66 (4.0)	556 (2.8)	21 (4.1)	563 (4.0)
New Zealand	28 (0.3)	9 (2.3)	510 (10.5)	69 (4.0)	523 (4.2)	22 (3.5)	554 (10.5)
Norway	20 (0.5)	50 (4.2)	497 (4.3)	49 (4.3)	501 (4.4)	1 (0.8)	~ ~
Romania	22 (0.4)	34 (2.8)	504 (9.1)	55 (3.7)	511 (6.1)	11 (2.8)	539 (10.0)
Russian Federation	22 (0.5)	38 (3.6)	521 (5.3)	55 (3.7)	530 (7.1)	7 (1.9)	549 (5.3)
Scotland	26 (0.4)	11 (2.8)	534 (11.5)	71 (4.3)	526 (4.8)	18 (3.6)	534 (7.4)
Singapore	37 (0.3)	1 (0.6)	~ ~	6 (1.5)	434 (33.3)	93 (1.6)	533 (4.9)
Slovak Republic	24 (0.4)	31 (3.2)	504 (6.0)	57 (4.1)	522 (3.2)	12 (2.9)	534 (6.7)
Slovenia	21 (0.3)	42 (3.8)	494 (3.3)	58 (3.8)	507 (2.5)	0 (0.0)	~ ~
Sweden	24 (0.6)	25 (2.8)	554 (4.6)	67 (3.2)	564 (2.7)	8 (2.4)	563 (6.5)
Turkey	35 (0.8)	6 (2.0)	460 (16.4)	34 (4.3)	439 (6.3)	60 (4.0)	455 (5.2)
United States	24 (0.5)	24 (4.1)	542 (6.9)	68 (3.9)	545 (4.9)	9 (2.4)	526 (12.3)
International Avg.	26 (0.1)	23 (0.5)	492 (3.2)	54 (0.7)	499 (1.4)	23 (0.5)	501 (1.6)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

\*Results are for entire classes, which included some multi-grade classrooms. To take the possibility of multigrade classrooms into consideration, PIRLS also asked teachers to report the number of 4th grade students. There was little

difference in most countries between the size of entire classes and just the 4th graders. Compared to 26 for entire classes (see above), the average number of 4th graders in classrooms across countries was 24.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

**Exhibit 5.21: Average Number of Students in Class Needing Special Instruction****ISC** 4th Grade  
PIRLS 2001

Countries	Experience Difficulties Understanding Spoken Language	Need Remedial Instruction in Reading	Receive Remedial Instruction When Needed	Receive Enrichment Reading Instruction
Argentina	6 (0.6)	r 8 (0.6)	s 6 (0.6)	s 5 (0.7)
Belize	r 6 (0.6)	r 11 (0.6)	s 5 (0.7)	r 7 (0.9)
Bulgaria	2 (0.4)	4 (0.5)	3 (0.2)	3 (0.4)
Canada (O,Q)	1 (0.2)	5 (0.2)	3 (0.2)	1 (0.1)
Colombia	s 5 (0.5)	8 (0.6)	s 5 (0.5)	x x
Cyprus	3 (0.4)	4 (0.2)	2 (0.2)	1 (0.4)
Czech Republic	1 (0.1)	3 (0.2)	2 (0.2)	2 (0.4)
England	1 (0.2)	5 (0.3)	4 (0.3)	r 1 (0.3)
France	1 (0.1)	3 (0.2)	1 (0.1)	2 (0.2)
Germany	1 (0.2)	4 (0.2)	2 (0.2)	1 (0.2)
Greece	3 (0.2)	3 (0.2)	1 (0.1)	0 (0.2)
Hong Kong, SAR	1 (0.2)	4 (0.5)	1 (0.3)	1 (0.2)
Hungary	1 (0.2)	4 (0.2)	3 (0.2)	2 (0.3)
Iceland	1 (0.0)	3 (0.0)	3 (0.0)	0 (0.0)
Iran, Islamic Rep. of	5 (0.3)	5 (0.3)	3 (0.2)	9 (0.7)
Israel	s 4 (0.4)	r 5 (0.2)	r 3 (0.2)	x x
Italy	2 (0.2)	2 (0.2)	2 (0.2)	2 (0.3)
Kuwait	r 5 (0.4)	--	--	--
Latvia	s 2 (0.4)	4 (0.2)	s 3 (0.3)	s 4 (0.8)
Lithuania	r 2 (0.2)	r 3 (0.3)	r 2 (0.2)	s 3 (0.6)
Macedonia, Rep. of	r 2 (0.3)	5 (0.5)	r 4 (0.3)	r 9 (0.6)
Moldova, Rep. of	r 3 (0.4)	r 5 (0.3)	r 3 (0.3)	r 7 (0.3)
Morocco	r 9 (0.9)	s 10 (1.0)	s 6 (1.1)	r 8 (0.8)
Netherlands	1 (0.1)	3 (0.2)	3 (0.2)	4 (0.7)
New Zealand	1 (0.1)	3 (0.2)	2 (0.2)	2 (0.3)
Norway	1 (0.2)	3 (0.2)	2 (0.1)	1 (0.2)
Romania	1 (0.3)	3 (0.2)	2 (0.2)	5 (0.4)
Russian Federation	1 (0.2)	4 (0.3)	3 (0.3)	1 (0.3)
Scotland	0 (0.1)	3 (0.2)	3 (0.2)	0 (0.1)
Singapore	3 (0.4)	5 (0.5)	3 (0.4)	2 (0.4)
Slovak Republic	1 (0.2)	10 (0.4)	8 (0.4)	7 (0.5)
Slovenia	2 (0.2)	3 (0.2)	3 (0.2)	4 (0.4)
Sweden	1 (0.1)	4 (0.2)	3 (0.2)	3 (0.4)
Turkey	2 (0.4)	r 4 (0.4)	r 2 (0.2)	s 8 (1.2)
United States	1 (0.1)	6 (0.4)	4 (0.4)	2 (0.3)
International Avg.	2 (0.1)	5 (0.1)	3 (0.1)	3 (0.1)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

### How Do Schools Help Students with Reading Difficulties?

To gain an appreciation of the challenges faced by teachers in teaching reading to their fourth-grade students, PIRLS asked teachers about students in their class with difficulties with spoken language or with reading. Exhibit 5.21 presents teachers' reports of the number of students in their class who experienced difficulty understanding spoken language, how many needed remedial instruction in reading and how many received it, and how many received enrichment reading instruction because they were advanced readers. Although in most countries teachers reported very few students with difficulty understanding the language of instruction as spoken language, there were a number of countries, including Argentina, Belize, Colombia, Iran, Kuwait, and Morocco, with five or more such students, on average, in their fourth-grade reading class.

Students needing remedial instruction in reading posed a more pervasive problem, with teachers reporting that, on average, five students in their fourth-grade class were in need of remedial teaching but that only three students were receiving it. The countries with most students needing remedial reading instruction were essentially those having most students with spoken language difficulties, (i.e., Argentina, Belize, Colombia, and Morocco, although the Slovak Republic also should be included). In general, about as many students were receiving reading instruction for enrichment because they were advanced readers (three students per class, on average) as were receiving remedial instruction because they had difficulty keeping up with the rest of the class. Countries where enrichment instruction for advanced students was most popular included Belize, Iran, Macedonia, Moldova, Morocco, the Slovak Republic, and Turkey, where, on average, seven or more students in each class were reported to be receiving such instruction.

To find out how they deal with reading difficulties among their fourth-grade students, PIRLS asked teachers about access to remedial or reading specialists or other professionals. Exhibit 5.22 shows that 11 percent of students were in classes where the teacher reported having a remedial or reading specialist always available to deal with students having difficulty with reading, and 26 percent in classes where such specialists were sometimes available. Almost

Exhibit 5.22: Availability of Specialists

ISC  
4th Grade  
PIRLS 2001

Countries	Percentage of Students in Classrooms Where						
	Remedial or Reading Specialist Available			Other Specialist(s) Available			No Access to Any Specialist
	Always	Sometimes	Never	Always	Sometimes	Never	
Argentina	1 (0.8)	3 (1.2)	96 (1.5)	4 (1.8)	22 (4.3)	74 (4.6)	73 (4.7)
Belize	r 8 (4.2)	r 12 (3.7)	r 80 (5.3)	r 0 (0.0)	r 6 (2.5)	r 94 (2.5)	r 78 (5.2)
Bulgaria	5 (1.8)	11 (2.4)	84 (3.0)	10 (2.5)	28 (3.0)	63 (3.1)	54 (3.6)
Canada (O,Q)	15 (2.5)	39 (3.5)	46 (3.4)	13 (2.1)	63 (3.1)	24 (3.0)	13 (2.2)
Colombia	2 (1.0)	10 (3.4)	88 (3.5)	2 (1.4)	14 (3.6)	84 (3.8)	77 (4.6)
Cyprus	3 (1.5)	31 (4.7)	66 (5.0)	7 (2.2)	44 (5.0)	49 (5.1)	37 (4.6)
Czech Republic	21 (3.8)	27 (3.7)	52 (4.2)	25 (4.0)	43 (4.5)	32 (3.9)	21 (3.3)
England	13 (3.1)	64 (4.7)	23 (4.0)	4 (1.8)	57 (4.9)	39 (4.8)	16 (3.3)
France	4 (1.4)	23 (2.9)	73 (3.4)	5 (1.8)	36 (4.3)	59 (4.6)	48 (4.4)
Germany	7 (1.7)	26 (2.6)	67 (2.6)	2 (0.5)	11 (1.8)	88 (1.8)	62 (2.6)
Greece	--	--	--	--	--	--	--
Hong Kong, SAR	6 (2.2)	5 (2.0)	89 (2.6)	0 (0.0)	3 (1.3)	97 (1.4)	88 (2.7)
Hungary	6 (2.2)	12 (3.1)	82 (3.4)	12 (2.5)	28 (3.8)	60 (3.7)	56 (3.9)
Iceland	27 (0.3)	62 (0.4)	11 (0.3)	4 (0.1)	39 (0.3)	56 (0.3)	10 (0.3)
Iran, Islamic Rep. of	4 (1.3)	14 (3.2)	82 (3.4)	1 (0.6)	2 (0.8)	97 (1.0)	82 (3.5)
Israel	35 (4.4)	42 (4.7)	23 (3.0)	8 (2.5)	28 (4.0)	64 (4.2)	22 (2.9)
Italy	1 (0.0)	5 (1.8)	94 (1.9)	4 (1.6)	9 (2.3)	87 (2.8)	85 (2.9)
Kuwait	--	--	--	--	--	--	--
Latvia	10 (2.7)	20 (3.1)	71 (4.0)	33 (4.2)	38 (4.7)	29 (4.0)	21 (3.6)
Lithuania	--	--	--	59 (3.8)	24 (4.0)	17 (2.7)	--
Macedonia, Rep. of	r 10 (2.9)	r 9 (3.0)	r 82 (3.7)	23 (3.8)	35 (4.3)	42 (4.4)	r 41 (4.6)
Moldova, Rep. of	5 (1.7)	13 (3.6)	81 (4.0)	8 (2.3)	12 (3.4)	80 (3.9)	67 (4.3)
Morocco	6 (2.3)	6 (2.8)	89 (3.5)	0 (0.5)	3 (1.5)	97 (1.6)	89 (3.6)
Netherlands	41 (4.6)	49 (4.4)	10 (2.6)	8 (2.5)	41 (4.1)	51 (4.1)	7 (2.3)
New Zealand	21 (3.8)	40 (4.5)	39 (4.5)	18 (3.8)	61 (4.4)	21 (3.9)	19 (3.7)
Norway	7 (2.2)	49 (4.3)	44 (4.3)	3 (1.4)	61 (4.0)	36 (3.7)	21 (3.8)
Romania	5 (1.9)	8 (2.5)	86 (3.2)	2 (1.0)	14 (2.5)	84 (2.7)	78 (3.4)
Russian Federation	6 (1.6)	18 (2.9)	76 (3.5)	13 (2.2)	33 (3.2)	54 (3.6)	49 (3.8)
Scotland	18 (4.1)	54 (5.0)	28 (4.4)	6 (2.4)	74 (4.1)	19 (3.6)	6 (1.8)
Singapore	7 (2.2)	15 (2.9)	78 (3.6)	4 (1.7)	24 (3.6)	72 (3.9)	66 (3.8)
Slovak Republic	6 (2.0)	9 (2.4)	85 (3.1)	14 (3.0)	35 (4.0)	50 (4.3)	46 (4.0)
Slovenia	20 (3.4)	43 (4.1)	37 (4.1)	24 (3.5)	53 (3.9)	23 (3.3)	12 (3.0)
Sweden	18 (2.4)	64 (3.4)	18 (2.9)	4 (0.8)	28 (3.1)	69 (3.3)	15 (2.5)
Turkey	2 (1.2)	1 (0.0)	96 (1.2)	0 (0.0)	1 (0.6)	99 (0.6)	97 (0.9)
United States	26 (4.3)	39 (3.4)	35 (4.5)	21 (3.5)	65 (5.4)	14 (3.6)	7 (2.4)
International Avg.	11 (0.5)	26 (0.6)	63 (0.6)	10 (0.4)	31 (0.6)	58 (0.6)	46 (0.6)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.

two-thirds (63%) were in classes where the teacher reported never having access to a remedial or reading specialist. Countries with most access to remedial or reading specialists (i.e., where 20 percent or more of the students were in classes where such specialists were always available) included the Czech Republic, Iceland, Israel, The Netherlands, New Zealand, Slovenia, and the United States. In general, countries with access to reading specialists had access to other professionals (learning specialists, speech therapists, etc.) also.

Almost all students in Iceland, The Netherlands, Scotland, and the United States were in classes where the teacher could call on some kind of professional assistance to help students having reading difficulties, whereas more than 70 percent of students in Argentina, Belize, Colombia, Hong Kong, Iran, Italy, Morocco, Romania, and Turkey were in classes with no access to professional assistance at all.

Exhibit 5.23 presents teachers' reports on what they usually do if a student begins to fall behind in reading. In almost every country, the teachers' most common response was to spend more time working on reading individually with that student. On average, 88 percent of students were taught by teachers reporting that this was their practice. Another common response was to have other students work on reading with the student having difficulty. This approach was most often reported in Belize, Colombia, Iran, Italy, Moldova, Morocco, Singapore, and the United States, where more than 80 percent of students had teachers adopting this approach, compared to 62 percent on average. Other, less common, strategies included waiting to see if performance improves with maturation (most common in Hong Kong and Latvia), having the student work with a reading specialist (a frequent approach in Iceland and Sweden), and having students work with a teacher aide (a common practice in England, Israel, and Norway). In many of the PIRLS countries, particularly England, Iran, Israel, The Netherlands, New Zealand, and the United States, teachers reported that they used a combination (three or more) of the aforementioned strategies.

**Exhibit 5.23: Teachers' Approaches to Dealing with Students Falling Behind in Reading**
**ISC** 4th Grade  
PIRLS 2001

Countries	Percentage of Students Whose Teachers Reported "Yes"					
	Wait to See If Performance Improves with Maturation	Work with Students Individually	Have Other Students Work with Students	Have Students Work with Teacher Aide	Have Students Work with Remedial or Reading Specialist	Use Three or More of the Previous Methods
Argentina	59 (4.8)	90 (3.2)	63 (4.4)	10 (2.6)	6 (2.3)	37 (4.4)
Belize	r 30 (5.7)	86 (3.7)	86 (4.0)	r 19 (3.4)	r 18 (4.6)	r 42 (5.7)
Bulgaria	41 (3.8)	98 (1.2)	59 (3.6)	11 (2.8)	9 (2.3)	27 (3.6)
Canada (O,Q)	36 (3.2)	83 (2.1)	72 (3.1)	20 (2.6)	49 (3.6)	59 (2.9)
Colombia	48 (4.6)	91 (2.7)	87 (3.2)	13 (3.1)	14 (2.9)	45 (4.5)
Cyprus	41 (4.8)	88 (3.0)	60 (4.6)	4 (2.2)	28 (4.8)	38 (5.2)
Czech Republic	51 (4.0)	94 (2.1)	34 (4.1)	5 (2.1)	32 (4.2)	33 (3.5)
England	28 (4.5)	87 (3.3)	55 (4.4)	71 (4.4)	59 (4.7)	72 (4.3)
France	43 (3.9)	80 (2.8)	53 (4.2)	20 (3.0)	21 (3.5)	36 (3.8)
Germany	20 (2.5)	82 (2.8)	65 (3.8)	6 (1.6)	21 (2.3)	24 (3.2)
Greece	50 (4.0)	94 (2.0)	48 (4.2)	4 (1.7)	--	--
Hong Kong, SAR	91 (2.2)	58 (4.4)	60 (4.5)	14 (3.2)	16 (3.3)	42 (4.9)
Hungary	18 (3.1)	99 (0.9)	33 (4.1)	1 (0.6)	20 (3.2)	15 (2.7)
Iceland	33 (0.4)	81 (0.3)	17 (0.3)	37 (0.4)	82 (0.3)	53 (0.4)
Iran, Islamic Rep. of	72 (4.2)	89 (2.9)	93 (1.8)	36 (3.3)	31 (3.7)	74 (3.5)
Israel	18 (3.1)	88 (3.1)	79 (3.6)	65 (4.3)	68 (3.5)	77 (3.7)
Italy	47 (4.2)	93 (1.9)	83 (2.9)	23 (3.4)	10 (2.2)	46 (3.7)
Kuwait	47 (3.5)	83 (3.0)	34 (3.8)	47 (4.0)	33 (3.8)	42 (3.5)
Latvia	90 (2.3)	90 (3.0)	56 (4.2)	5 (2.1)	15 (3.1)	54 (3.9)
Lithuania	42 (4.3)	92 (2.4)	55 (4.8)	20 (3.5)	38 (4.0)	49 (3.9)
Macedonia, Rep. of	50 (4.2)	98 (1.1)	61 (3.8)	9 (2.6)	8 (2.3)	34 (3.5)
Moldova, Rep. of	33 (4.5)	95 (1.9)	88 (2.5)	9 (3.3)	12 (2.9)	38 (4.8)
Morocco	59 (5.0)	62 (4.8)	88 (3.5)	4 (1.9)	6 (2.5)	30 (4.8)
Netherlands	22 (3.9)	95 (2.0)	71 (3.8)	7 (2.1)	76 (3.5)	67 (3.3)
New Zealand	18 (3.3)	92 (2.0)	78 (3.8)	48 (4.5)	36 (4.0)	60 (4.2)
Norway	52 (4.3)	89 (2.1)	10 (2.4)	64 (4.0)	47 (4.3)	52 (4.0)
Romania	21 (3.7)	97 (1.3)	65 (3.7)	9 (2.9)	12 (3.2)	23 (4.0)
Russian Federation	47 (3.9)	95 (1.5)	74 (3.3)	27 (4.0)	18 (3.2)	54 (4.0)
Scotland	26 (4.4)	95 (1.9)	40 (5.0)	44 (4.5)	54 (4.9)	58 (5.1)
Singapore	52 (3.7)	70 (3.7)	81 (3.3)	9 (2.4)	11 (2.8)	33 (3.6)
Slovak Republic	43 (3.6)	98 (1.1)	68 (3.7)	1 (0.6)	9 (2.5)	32 (3.7)
Slovenia	9 (2.6)	100 (0.0)	69 (4.0)	17 (3.1)	55 (4.0)	48 (4.0)
Sweden	38 (3.2)	83 (2.4)	24 (2.9)	31 (3.2)	77 (3.3)	54 (3.4)
Turkey	54 (4.5)	95 (1.9)	76 (3.5)	9 (2.6)	9 (2.6)	47 (4.7)
United States	34 (4.8)	86 (3.1)	84 (3.1)	31 (4.5)	51 (4.8)	65 (3.8)
International Avg.	42 (0.7)	88 (0.4)	62 (0.6)	21 (0.5)	31 (0.6)	46 (0.7)

SOURCE: IEA Progress in International Reading Literacy Study (PIRLS) 2001.

Background data provided by teachers.

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

An "r" indicates data are available for 70-84% of the students. An "s" indicates data are available for 50-69% of the students. An "x" indicates data are available for less than 50% of the students.

A dash (-) indicates data are not available. A tilde (~) indicates insufficient data to report achievement.