

Exhibit 9.7 and 9.8: Computers for Reading Lessons

Exhibit 9.7 provides information about students' access to computers as part of their reading lessons, and Exhibit 9.8 contains teachers' reports about the prevalence and types of computer-based activities used as part of reading instruction.

There was wide variation across the PIRLS countries in computer availability for use in reading lessons, from availability for most students (92-93%) in New Zealand and Denmark to availability for only a few students (6-8%) in South Africa, Belgium (French), and Morocco. Internationally, the fourth grade students with computers available for reading instruction had higher achievement (516 vs. 508), which also is likely to be related to socioeconomic factors. On average, relatively few students (10%) were in classrooms where every student had a computer, about one-fourth (23%) were in classrooms where students shared computers, and another one-third (36%) used computers available schoolwide.

On average across countries, students were asked to engage in various computer-based activities on at least a weekly basis without any one instructional use predominating: read digital texts (19%), strategies for reading digital texts (13%), critique Internet text (17%), look up information (25%), research a problem (19%), and write something (17%).

Exhibit 9.7: Access to Computers for Reading Lessons

Students Categorized by Teachers' Reports

Country	Computers Available for Students to Use for Reading Lessons			Percent of Students		
	Percent of Students	Average Achievement		Each Student has a Computer	The Class has Computers that Students can Share	The School has Computers that the Class can Sometimes Use
		Yes	Yes			
New Zealand	93 (1.6)	529 (2.5)	498 (15.9)	13 (2.5)	83 (2.5)	66 (2.8)
Denmark	92 (2.2)	548 (2.2)	540 (8.7)	38 (3.7)	8 (2.1)	64 (3.7)
Netherlands	87 (2.6)	545 (1.9)	545 (5.3)	17 (3.4)	79 (3.1)	77 (2.9)
Sweden	83 (3.3)	558 (2.6)	543 (5.3)	22 (4.0)	34 (4.4)	54 (4.3)
Northern Ireland	77 (3.6)	563 (3.0)	566 (4.4)	6 (2.2)	58 (4.9)	70 (3.7)
Georgia	75 (3.1)	487 (2.9)	490 (6.7)	60 (2.9)	18 (2.9)	65 (3.6)
Australia	75 (3.1)	546 (3.0)	542 (4.9)	17 (2.6)	58 (3.6)	64 (3.3)
Finland	72 (2.8)	566 (2.1)	566 (3.5)	9 (1.9)	26 (3.4)	70 (2.8)
United States	70 (3.8)	546 (3.6)	556 (5.7)	25 (4.0)	51 (4.0)	58 (4.4)
Norway (5)	66 (3.9)	558 (2.8)	561 (2.8)	9 (2.6)	33 (4.1)	60 (4.2)
Canada	65 (1.8)	544 (2.5)	542 (2.4)	8 (0.9)	41 (2.0)	59 (2.2)
Germany	65 (3.6)	539 (4.5)	531 (6.4)	3 (1.3)	48 (4.0)	52 (3.8)
Israel	62 (4.2)	547 (4.6)	503 (6.3)	18 (3.3)	26 (3.9)	59 (4.3)
Russian Federation	56 (3.0)	588 (3.3)	572 (4.3)	9 (2.0)	21 (2.8)	50 (3.3)
England	55 (4.0)	554 (3.0)	564 (3.4)	11 (2.2)	36 (3.3)	46 (4.0)
Singapore	55 (2.4)	584 (4.2)	567 (5.5)	31 (2.4)	20 (2.0)	54 (2.4)
Belgium (Flemish)	54 (3.6)	525 (2.9)	525 (2.9)	3 (1.3)	40 (3.7)	45 (3.4)
Austria	53 (4.0)	537 (3.2)	546 (3.5)	1 (0.9)	48 (4.0)	25 (3.7)
Malta	49 (0.1)	452 (2.3)	453 (2.1)	2 (0.0)	46 (0.1)	12 (0.1)
Macao SAR	49 (0.1)	548 (1.5)	543 (1.3)	18 (0.1)	23 (0.1)	39 (0.1)
Kazakhstan	49 (3.5)	537 (3.6)	536 (4.1)	20 (2.6)	36 (3.5)	44 (3.3)
Bulgaria	48 (3.9)	548 (6.6)	554 (5.6)	4 (1.6)	16 (2.5)	47 (3.9)
Qatar	45 (3.2)	452 (4.6)	436 (3.5)	12 (1.0)	23 (2.7)	37 (2.6)
Ireland	39 (3.7)	564 (3.9)	568 (3.4)	2 (1.0)	18 (3.0)	33 (3.7)
Iran, Islamic Rep. of	38 (3.8)	447 (7.2)	417 (5.8)	3 (1.4)	6 (1.9)	28 (3.5)
Latvia	37 (4.1)	557 (3.2)	558 (2.6)	10 (2.5)	13 (2.5)	37 (4.1)
Hungary	37 (4.0)	556 (5.4)	553 (4.1)	4 (1.2)	15 (2.8)	32 (3.7)
Chile	36 (4.6)	494 (5.8)	499 (3.8)	16 (3.2)	17 (3.7)	36 (4.6)
Hong Kong SAR	35 (4.1)	572 (4.6)	566 (3.8)	14 (3.1)	16 (2.8)	31 (4.0)
United Arab Emirates	34 (2.0)	494 (6.1)	431 (4.4)	16 (1.2)	19 (1.6)	29 (1.9)
Chinese Taipei	34 (3.6)	560 (3.7)	559 (2.3)	7 (2.0)	18 (2.8)	31 (3.4)
Lithuania	30 (3.9)	548 (5.3)	548 (3.3)	3 (1.5)	14 (2.7)	27 (3.7)
Spain	30 (2.0)	523 (4.6)	530 (1.9)	6 (1.1)	15 (1.6)	24 (1.9)
Czech Republic	29 (3.1)	540 (5.0)	545 (2.4)	6 (1.5)	12 (2.1)	27 (3.0)
Bahrain	29 (2.6)	461 (5.6)	440 (3.3)	4 (1.0)	7 (1.5)	28 (2.6)
Saudi Arabia	26 (3.1)	423 (9.6)	433 (4.9)	3 (1.3)	8 (1.8)	20 (2.7)
Poland	25 (3.0)	566 (4.4)	565 (2.6)	5 (1.6)	4 (1.4)	24 (2.9)
France	25 (3.4)	515 (4.4)	511 (2.5)	2 (1.3)	15 (3.0)	20 (3.1)
Oman	24 (2.2)	420 (6.6)	417 (3.6)	3 (0.8)	9 (1.7)	19 (2.2)
Kuwait	22 (3.4)	400 (14.9)	392 (5.3)	6 (2.1)	3 (1.1)	18 (2.8)
Italy	21 (3.4)	546 (5.8)	549 (2.8)	3 (1.6)	15 (2.9)	18 (3.2)
Slovak Republic	19 (2.8)	543 (6.8)	533 (3.6)	8 (1.8)	7 (1.9)	17 (2.7)
Azerbaijan	18 (2.7)	485 (9.1)	469 (4.9)	2 (0.8)	9 (2.1)	16 (2.4)
Slovenia	17 (2.8)	541 (4.1)	543 (2.2)	4 (1.2)	10 (2.1)	17 (2.8)
Egypt	15 (3.1)	337 (18.3)	329 (6.3)	1 (0.7)	2 (0.9)	14 (3.0)
Portugal	14 (2.2)	524 (6.1)	529 (2.5)	1 (0.4)	6 (1.7)	12 (2.3)
Trinidad and Tobago	12 (2.6)	501 (10.0)	477 (3.9)	5 (1.9)	0 (0.0)	8 (2.2)
South Africa	r 8 (1.6)	372 (20.0)	316 (5.3)	r 1 (0.5)	r 1 (0.8)	r 6 (1.5)
Belgium (French)	7 (2.1)	506 (7.1)	497 (2.8)	0 (0.0)	2 (0.9)	6 (2.0)
Morocco	6 (1.8)	406 (14.3)	354 (4.2)	0 (0.3)	1 (0.7)	5 (1.7)
International Avg.	43 (0.4)	516 (1.0)	508 (0.7)	10 (0.3)	23 (0.4)	36 (0.4)

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

An "r" indicates data are available for at least 70% but less than 85% of the students.

SOURCE: IEA's Progress in International Reading Literacy Study - PIRLS 2016

Exhibit 9.7: Access to Computers for Reading Lessons (Continued)

Country	Computers Available for Students to Use for Reading Lessons			Percent of Students		
	Percent of Students	Average Achievement		Each Student has a Computer	The Class has Computers that Students can Share	The School has Computers that the Class can Sometimes Use
		Yes	Yes			
Benchmarking Participants						
Denmark (3)	89 (2.8)	502 (2.9)	492 (12.5)	32 (3.8)	9 (2.5)	65 (4.1)
Ontario, Canada	77 (3.5)	546 (3.7)	538 (5.6)	6 (1.6)	53 (4.3)	71 (4.0)
Moscow City, Russian Fed.	76 (3.4)	614 (2.4)	607 (4.6)	14 (3.0)	37 (3.4)	68 (3.8)
Norway (4)	64 (3.6)	521 (2.4)	511 (3.4)	7 (1.6)	39 (3.5)	61 (3.8)
Dubai, UAE	61 (1.3)	537 (2.6)	488 (4.1)	30 (1.4)	37 (2.7)	55 (1.6)
Buenos Aires, Argentina	56 (3.4)	463 (4.8)	500 (5.0)	39 (3.0)	16 (3.0)	51 (3.5)
Quebec, Canada	45 (4.9)	545 (4.2)	548 (3.9)	2 (1.1)	28 (4.3)	41 (4.9)
Madrid, Spain	35 (3.4)	551 (3.6)	548 (2.3)	8 (2.4)	12 (2.7)	34 (3.4)
Andalusia, Spain	31 (3.8)	530 (3.2)	522 (2.8)	3 (1.4)	12 (3.0)	26 (3.3)
Abu Dhabi, UAE	30 (3.1)	466 (10.9)	396 (4.8)	14 (2.1)	17 (3.0)	23 (3.3)
Eng/Afr/Zulu - RSA (5)	r 17 (4.7)	484 (21.0)	402 (7.5)	r 2 (1.8)	r 4 (2.5)	r 13 (4.0)

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2016

Exhibit 9.8: Computer Activities During Reading Lessons

Students Categorized by Teachers' Reports

Country	Percent of Students Whose Teachers Do the Following Computer Activities in Reading Lessons at Least Weekly					
	Ask Students to Read Digital Texts	Teach Students Strategies for Reading Digital Texts	Teach Students to Be Critical When Reading on the Internet	Ask Students to Look Up Information (e.g., facts, definitions, etc.)	Ask Students to Research a Particular Topic or Problem	Ask Students to Write Stories or Other Texts
Australia	57 (3.1)	39 (3.4)	43 (3.2)	59 (3.4)	50 (3.4)	51 (3.4)
Austria	13 (2.5)	9 (2.0)	11 (2.2)	20 (2.8)	12 (2.3)	19 (3.0)
Azerbaijan	8 (1.8)	8 (1.6)	9 (2.1)	12 (2.3)	9 (2.0)	10 (2.1)
Bahrain	17 (2.6)	15 (2.3)	14 (2.2)	16 (2.4)	14 (2.3)	15 (2.2)
Belgium (Flemish)	3 (1.4)	1 (0.7)	10 (2.4)	20 (2.7)	10 (2.2)	5 (1.1)
Belgium (French)	1 (0.7)	1 (0.7)	0 (0.4)	1 (0.7)	0 (0.1)	0 (0.3)
Bulgaria	20 (2.6)	15 (2.8)	20 (2.9)	31 (3.5)	22 (3.4)	4 (1.3)
Canada	30 (1.9)	16 (1.7)	22 (1.8)	36 (1.9)	29 (1.7)	27 (2.2)
Chile	9 (2.5)	6 (2.0)	10 (2.7)	15 (3.5)	9 (2.6)	11 (3.1)
Chinese Taipei	7 (2.0)	5 (1.9)	8 (2.3)	10 (2.5)	7 (2.1)	6 (1.9)
Czech Republic	4 (1.2)	2 (0.8)	6 (1.7)	12 (2.1)	13 (2.3)	5 (1.9)
Denmark	40 (3.6)	13 (2.3)	29 (3.3)	51 (3.8)	43 (3.8)	47 (3.6)
Egypt	8 (2.2)	6 (1.9)	3 (1.5)	8 (2.5)	6 (2.1)	4 (1.6)
England	26 (3.4)	13 (2.6)	25 (3.4)	40 (3.4)	35 (3.5)	16 (2.5)
Finland	21 (2.9)	8 (1.5)	28 (3.3)	32 (3.5)	24 (3.2)	22 (3.0)
France	6 (1.9)	3 (1.2)	4 (1.4)	8 (2.1)	7 (2.0)	5 (1.7)
Georgia	34 (3.3)	31 (3.1)	35 (3.0)	54 (3.7)	16 (2.8)	33 (3.5)
Germany	10 (2.3)	4 (1.5)	9 (2.2)	21 (3.0)	19 (2.9)	10 (2.1)
Hong Kong SAR	20 (3.8)	7 (1.8)	9 (2.7)	12 (3.0)	7 (2.3)	6 (1.9)
Hungary	15 (2.7)	13 (2.7)	21 (3.2)	23 (2.9)	23 (3.4)	12 (2.6)
Iran, Islamic Rep. of	16 (3.1)	14 (3.1)	16 (2.9)	26 (3.0)	27 (3.0)	22 (3.6)
Ireland	14 (2.5)	10 (2.2)	11 (2.7)	21 (3.0)	17 (2.6)	11 (2.3)
Israel	45 (4.4)	44 (4.4)	44 (4.4)	47 (4.3)	25 (3.8)	29 (4.1)
Italy	10 (2.7)	10 (2.7)	14 (3.0)	13 (3.0)	11 (2.6)	10 (2.8)
Kazakhstan	37 (3.3)	31 (3.0)	35 (3.1)	42 (3.6)	36 (3.4)	39 (3.3)
Kuwait	15 (3.2)	12 (2.8)	11 (2.9)	16 (3.2)	16 (3.2)	11 (2.8)
Latvia	6 (1.9)	4 (1.6)	10 (2.2)	20 (3.3)	8 (2.2)	9 (2.2)
Lithuania	10 (2.6)	7 (2.2)	9 (2.4)	20 (3.4)	13 (2.6)	8 (2.2)
Macao SAR	21 (0.1)	14 (0.1)	17 (0.1)	20 (0.1)	11 (0.1)	11 (0.1)
Malta	19 (0.1)	15 (0.1)	15 (0.1)	26 (0.1)	21 (0.1)	30 (0.1)
Morocco	2 (0.9)	1 (0.7)	2 (0.9)	3 (1.0)	3 (1.0)	1 (0.6)
Netherlands	47 (4.5)	31 (4.5)	15 (2.5)	46 (4.4)	32 (3.9)	25 (3.8)
New Zealand	57 (3.0)	30 (2.6)	44 (3.1)	78 (2.8)	70 (2.7)	64 (2.8)
Northern Ireland	33 (4.5)	14 (3.0)	25 (4.1)	54 (5.1)	41 (4.9)	21 (3.6)
Norway (5)	25 (3.0)	8 (1.9)	29 (3.3)	33 (3.5)	22 (3.3)	31 (3.7)
Oman	14 (2.1)	13 (2.1)	14 (2.3)	17 (2.3)	18 (2.2)	18 (2.4)
Poland	5 (1.4)	5 (1.2)	9 (2.2)	10 (2.1)	8 (1.9)	2 (1.0)
Portugal	6 (1.7)	4 (1.3)	5 (1.3)	9 (2.2)	7 (1.8)	6 (1.6)
Qatar	28 (3.0)	22 (3.0)	22 (2.9)	31 (2.9)	26 (2.2)	24 (2.3)
Russian Federation	18 (2.6)	11 (2.3)	23 (2.6)	41 (3.2)	32 (3.3)	12 (2.2)
Saudi Arabia	17 (2.6)	19 (2.7)	17 (2.4)	20 (2.6)	18 (2.6)	15 (2.6)
Singapore	17 (1.8)	13 (1.4)	16 (1.7)	24 (2.2)	16 (1.9)	14 (1.9)
Slovak Republic	6 (1.4)	5 (1.4)	8 (1.8)	9 (1.6)	7 (1.6)	4 (1.3)
Slovenia	7 (1.9)	2 (0.9)	6 (2.2)	10 (2.4)	7 (2.2)	1 (0.8)
South Africa	r 4 (1.3)	r 4 (1.3)	r 2 (0.8)	r 4 (1.4)	r 3 (0.8)	r 3 (0.9)
Spain	13 (1.9)	8 (1.8)	12 (1.6)	15 (2.3)	11 (1.9)	11 (1.8)
Sweden	28 (4.0)	13 (3.3)	31 (3.7)	32 (3.6)	27 (3.8)	46 (4.2)
Trinidad and Tobago	3 (1.4)	3 (1.2)	3 (1.2)	6 (1.8)	6 (1.9)	4 (1.5)
United Arab Emirates	25 (1.9)	21 (1.9)	20 (1.8)	26 (1.9)	22 (1.6)	20 (1.4)
United States	46 (4.3)	30 (3.2)	28 (3.6)	40 (4.0)	26 (3.5)	37 (3.9)
International Avg.	19 (0.4)	13 (0.3)	17 (0.4)	25 (0.4)	19 (0.4)	17 (0.4)

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Benchmarking Participants						
Buenos Aires, Argentina	27 (3.5)	23 (3.4)	30 (3.6)	37 (3.3)	36 (3.3)	29 (3.4)
Ontario, Canada	39 (4.0)	23 (3.5)	30 (3.9)	51 (4.4)	43 (3.3)	33 (4.0)
Quebec, Canada	10 (2.4)	2 (1.1)	7 (2.5)	11 (2.6)	9 (2.7)	7 (2.1)
Denmark (3)	35 (3.7)	12 (2.4)	16 (2.8)	28 (3.9)	21 (3.7)	42 (3.6)
Norway (4)	27 (3.2)	16 (2.4)	27 (3.4)	33 (3.7)	20 (3.3)	29 (3.4)
Moscow City, Russian Fed.	24 (3.7)	15 (2.9)	33 (3.8)	57 (4.1)	39 (3.8)	17 (2.9)
Eng/Afr/Zulu - RSA (5)	r 4 (2.0)	r 1 (0.5)	r 2 (0.9)	r 3 (1.1)	r 2 (0.5)	r 2 (1.1)
Andalusia, Spain	14 (3.1)	9 (2.6)	14 (3.0)	17 (3.2)	12 (2.9)	13 (2.9)
Madrid, Spain	12 (2.6)	8 (2.1)	11 (2.5)	13 (2.5)	9 (2.1)	13 (2.4)
Abu Dhabi, UAE	19 (3.3)	18 (3.2)	15 (2.6)	18 (3.0)	15 (2.8)	15 (3.1)
Dubai, UAE	46 (1.7)	35 (2.6)	36 (2.2)	49 (2.1)	49 (2.2)	40 (1.9)

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