

Exhibit 4.1: Home Resources for Learning

Reported by Parents, except Number of Books and Home Study Supports Reported by Students

Students were scored according to their own and their parents' responses concerning the availability of five resources on the *Home Resources for Learning* scale. Students with **Many Resources** had a score of at least 11.9, which is the point on the scale corresponding to students reporting they had more than 100 books in the home and both of the home study supports, and parents reporting that they had more than 25 children's books in the home, that at least one parent had finished university, and that at least one parent had a professional occupation, on average. Students with **Few Resources** had a score no higher than 7.4, which is the scale point corresponding to students reporting that they had 25 or fewer books in the home and neither of the home study supports, and parents reporting that they had 10 or fewer children's books in the home, that neither parent had gone beyond upper-secondary education, and that neither parent was a small business owner or had a clerical or professional occupation, on average. All other students were assigned to the **Some Resources** category.

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

Country	Many Resources		Some Resources		Few Resources		Average Scale Score	Difference in Average Scale Score from 2011
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement		
Korea, Rep. of	50 (1.8)	635 (2.5)	49 (1.8)	584 (2.0)	1 (0.2)	~ ~	11.8 (0.07)	◇ ◇
New Zealand	s 41 (1.4)	547 (2.9)	58 (1.4)	490 (3.1)	1 (0.2)	~ ~	11.4 (0.05)	◇ ◇
Sweden	r 38 (1.6)	554 (2.6)	60 (1.6)	508 (2.8)	1 (0.3)	~ ~	11.3 (0.07)	r -0.1 (0.09)
Denmark	38 (0.9)	570 (3.3)	61 (0.9)	526 (3.3)	1 (0.2)	~ ~	11.3 (0.04)	◇ ◇
Northern Ireland	s 35 (1.4)	632 (3.2)	64 (1.4)	564 (3.9)	1 (0.3)	~ ~	11.1 (0.06)	s 0.2 (0.09)
Finland	34 (1.4)	563 (2.0)	66 (1.4)	525 (2.1)	0 (0.1)	~ ~	11.2 (0.05)	0.0 (0.06)
Ireland	33 (1.5)	587 (2.4)	65 (1.4)	534 (2.2)	2 (0.3)	~ ~	11.0 (0.06)	0.2 (0.09)
Canada	r 32 (1.2)	547 (2.4)	68 (1.2)	505 (2.1)	0 (0.1)	~ ~	11.2 (0.05)	◇ ◇
Singapore	27 (0.9)	669 (4.1)	71 (0.9)	605 (3.9)	2 (0.2)	~ ~	10.8 (0.04)	0.2 (0.05) ●
Belgium (Flemish)	26 (1.1)	581 (2.8)	72 (1.1)	539 (1.9)	3 (0.4)	493 (4.9)	10.8 (0.05)	◇ ◇
Hungary	24 (1.4)	590 (2.7)	69 (1.2)	522 (2.5)	7 (0.8)	413 (7.5)	10.4 (0.08)	0.3 (0.12)
Hong Kong SAR	24 (1.5)	655 (4.7)	69 (1.4)	607 (2.8)	7 (1.0)	581 (5.5)	10.3 (0.08)	0.5 (0.11) ●
France	23 (1.4)	542 (2.9)	75 (1.3)	479 (2.7)	2 (0.2)	~ ~	10.6 (0.06)	◇ ◇
Poland	22 (0.9)	578 (3.1)	75 (0.9)	526 (2.1)	3 (0.3)	456 (8.3)	10.4 (0.04)	◇ ◇
Slovenia	s 21 (1.3)	569 (3.4)	78 (1.3)	519 (2.6)	1 (0.2)	~ ~	10.7 (0.05)	s 0.2 (0.06) ●
Cyprus	20 (1.0)	567 (4.6)	79 (1.0)	520 (2.4)	1 (0.2)	~ ~	10.6 (0.04)	◇ ◇
Spain	r 20 (0.9)	545 (3.1)	76 (0.8)	505 (2.0)	4 (0.5)	437 (8.4)	10.4 (0.05)	r 0.1 (0.08)
Czech Republic	18 (0.9)	579 (2.9)	80 (0.9)	520 (2.1)	2 (0.4)	~ ~	10.5 (0.04)	0.0 (0.06)
Germany	s 18 (1.1)	576 (3.4)	80 (1.1)	528 (2.1)	2 (0.4)	~ ~	10.5 (0.06)	s -0.2 (0.09)
Chinese Taipei	17 (0.8)	641 (2.4)	76 (0.8)	592 (2.0)	6 (0.5)	547 (5.4)	10.1 (0.05)	-0.1 (0.08)
Portugal	16 (0.9)	591 (3.3)	77 (1.0)	537 (2.2)	7 (0.6)	496 (6.0)	9.9 (0.05)	0.1 (0.08)
Russian Federation	16 (1.0)	599 (5.0)	83 (1.0)	559 (3.2)	2 (0.3)	~ ~	10.4 (0.05)	0.0 (0.07)
Slovak Republic	15 (0.8)	555 (3.0)	77 (1.1)	498 (2.3)	8 (0.9)	404 (10.6)	10.0 (0.05)	0.1 (0.08)
Georgia	14 (1.0)	509 (6.6)	82 (1.0)	461 (3.6)	4 (0.6)	404 (10.3)	10.1 (0.06)	0.2 (0.09) ●
Lithuania	13 (0.9)	586 (5.4)	84 (0.9)	535 (2.5)	3 (0.5)	454 (9.3)	10.2 (0.05)	0.3 (0.07) ●
Bulgaria	12 (1.1)	578 (4.8)	68 (1.9)	529 (3.8)	20 (2.1)	488 (13.3)	9.4 (0.12)	◇ ◇
Japan	12 (0.9)	643 (3.5)	86 (0.9)	588 (1.6)	2 (0.2)	~ ~	10.2 (0.04)	◇ ◇
Qatar	r 11 (1.1)	522 (10.9)	86 (1.2)	442 (3.1)	3 (0.4)	382 (9.1)	10.2 (0.05)	r 0.0 (0.07)
United Arab Emirates	11 (0.4)	538 (4.4)	86 (0.4)	452 (2.3)	4 (0.2)	369 (6.0)	10.1 (0.02)	0.2 (0.04) ●
Croatia	9 (0.7)	547 (3.6)	88 (0.8)	501 (1.6)	3 (0.4)	430 (8.8)	10.0 (0.04)	0.2 (0.06) ●
Serbia	8 (0.8)	587 (5.1)	87 (1.0)	519 (2.7)	5 (0.8)	428 (17.5)	9.7 (0.06)	◇ ◇
Italy	8 (0.7)	552 (4.4)	85 (0.8)	510 (2.6)	7 (0.6)	465 (6.0)	9.6 (0.05)	-0.1 (0.07)
Bahrain	7 (0.3)	517 (5.2)	88 (0.4)	454 (1.6)	5 (0.2)	412 (7.4)	9.8 (0.01)	◇ ◇
Kazakhstan	7 (1.0)	578 (12.0)	88 (1.0)	543 (4.5)	6 (0.7)	521 (7.7)	9.8 (0.07)	◇ ◇
Chile	r 5 (0.5)	535 (6.8)	87 (0.9)	465 (2.4)	8 (0.9)	431 (5.6)	9.3 (0.06)	◇ ◇
Turkey	5 (0.7)	590 (5.9)	63 (1.2)	506 (2.6)	33 (1.3)	432 (5.0)	8.4 (0.07)	◇ ◇
Iran, Islamic Rep. of	4 (0.6)	533 (9.0)	62 (1.7)	453 (3.0)	33 (1.6)	386 (5.1)	8.3 (0.08)	0.2 (0.12)
Oman	3 (0.3)	485 (6.9)	78 (0.7)	436 (2.6)	19 (0.8)	398 (4.4)	8.9 (0.04)	0.2 (0.06) ●
Kuwait	r 3 (0.5)	425 (16.3)	94 (0.5)	359 (4.8)	3 (0.3)	317 (9.1)	9.6 (0.04)	◇ ◇
South Africa (5)	r 2 (0.4)	~ ~	65 (1.2)	391 (4.1)	34 (1.2)	348 (3.2)	8.1 (0.05)	◇ ◇
Jordan	2 (0.3)	~ ~	82 (1.1)	405 (2.9)	16 (1.1)	340 (7.2)	8.8 (0.05)	◇ ◇
Saudi Arabia	1 (0.3)	~ ~	84 (1.0)	391 (3.8)	14 (1.0)	371 (8.0)	9.0 (0.05)	0.0 (0.09)
Morocco	1 (0.1)	~ ~	38 (1.4)	400 (4.4)	62 (1.4)	373 (4.8)	6.8 (0.07)	s -0.4 (0.12) ▼
Indonesia	0 (0.1)	~ ~	50 (1.4)	418 (4.1)	49 (1.4)	381 (4.3)	7.6 (0.06)	◇ ◇
Australia	x x	x x	x x	x x	x x	x x	x x	x x
Netherlands	x x	x x	x x	x x	x x	x x	x x	x x
Norway (5)	x x	x x	x x	x x	x x	x x	x x	x x
England	- -	- -	- -	- -	- -	- -	- -	- -
United States	- -	- -	- -	- -	- -	- -	- -	- -
International Avg.	17 (0.2)	569 (0.9)	74 (0.2)	501 (0.4)	9 (0.1)	427 (1.5)		

This TIMSS questionnaire scale was established in 2011 based on the combined response distribution of all countries that participated in TIMSS 2011. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

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

A diamond (◇) indicates the country did not participate in the 2011 assessment.

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

An "r" indicates data are available for at least 70% but less than 85% of the students. An "s" indicates data are available for at least 50% but less than 70% of the students. An "x" indicates data are available for less than 50% of students.

Significantly higher than 2011 ●
Significantly lower than 2011 ▼

Exhibit 4.1: Home Resources for Learning (Continued)

Country	Many Resources		Some Resources		Few Resources		Average Scale Score	Difference in Average Scale Score from 2011	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement			
Benchmarking Participants									
Ontario, Canada	r	34 (1.5)	547 (2.6)	66 (1.5)	504 (2.4)	0 (0.1)	~ ~	11.2 (0.06)	◇ ◇
Quebec, Canada	r	29 (2.4)	568 (4.8)	71 (2.3)	529 (3.7)	0 (0.1)	~ ~	11.0 (0.09)	r -0.1 (0.10)
Dubai, UAE		19 (0.6)	570 (2.9)	79 (0.6)	504 (1.9)	1 (0.2)	~ ~	10.6 (0.02)	0.0 (0.03)
Abu Dhabi, UAE	r	9 (1.1)	514 (14.4)	86 (1.2)	424 (4.3)	5 (0.5)	339 (11.3)	10.0 (0.06)	r 0.2 (0.09)
Buenos Aires, Argentina		x x	x x	x x	x x	x x	x x	x x	x x
Norway (4)		x x	x x	x x	x x	x x	x x	x x	x x
Florida, US		--	--	--	--	--	--	--	--

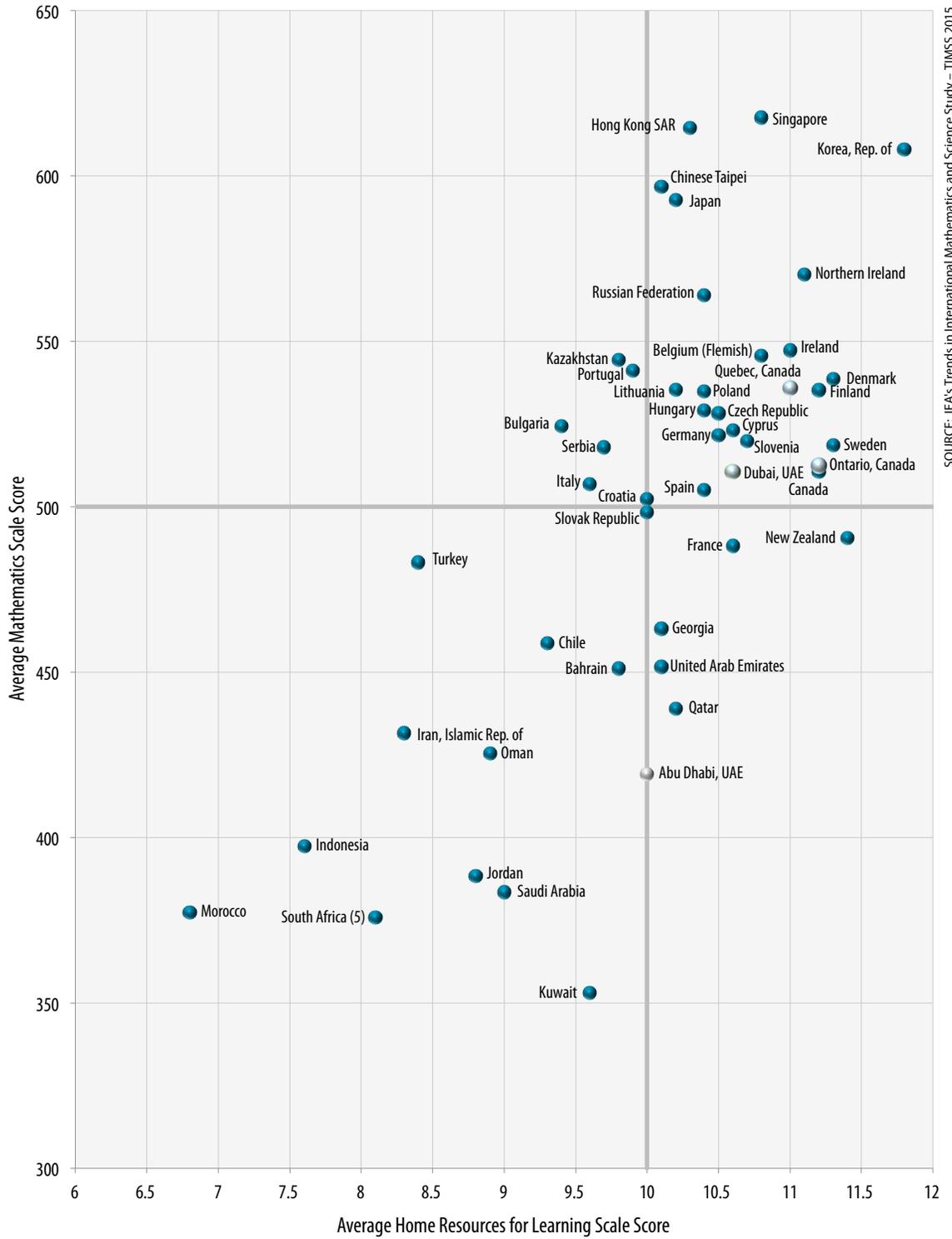
<p>Number of books in the home (students):</p> <p>1) 0-10</p> <p>2) 11-25</p> <p>3) 26-100</p> <p>4) 101-200</p> <p>5) More than 200</p>	<p>Number of children's books in the home (parents):</p> <p>1) 0-10</p> <p>2) 11-25</p> <p>3) 26-50</p> <p>4) 51-100</p> <p>5) More than 100</p>
<p>Number of home study supports (students):</p> <p>1) None</p> <p>2) Internet connection or own room</p> <p>3) Both</p>	<p>Highest level of education of either parent (parents):</p> <p>1) Finished some primary or lower secondary or did not go to school</p> <p>2) Finished lower secondary</p> <p>3) Finished upper secondary</p> <p>4) Finished post-secondary education</p> <p>5) Finished university or higher</p>
<p>Highest level of occupation of either parent (parents):</p> <p>1) Has never worked outside home for pay, general laborer, or semi-professional (skilled agricultural or fishery worker, craft or trade worker, plant or machine operator)</p> <p>2) Clerical (clerk or service or sales worker)</p> <p>3) Small business owner</p> <p>4) Professional (corporate manager or senior official, professional, or technician or associate professional)</p>	

Significantly higher than 2011 ▲
 Significantly lower than 2011 ▼

SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015

Exhibit 4.1: Home Resources for Learning (Continued)

Average Mathematics Achievement by Home Resources for Learning



SOURCE: IEA's Trends in International Mathematics and Science Study – TIMSS 2015