

## Exhibit 5.4: Home Educational Resources

Students' Reports

### About the Scale

Students were scored according to their reports regarding the availability of three resources on the *Home Educational Resources* scale. Cut scores divide the scale into three categories. Students with **Many Resources** had a score at or above the cut score corresponding to reporting they had more than 100 books and both home study supports in their home and that at least one parent finished university, on average. Students with **Few Resources** had a score at or below the cut score corresponding to reporting they had 25 or fewer books and neither of the home study supports in the home and that neither parent had gone beyond upper secondary education, on average. All other students had **Some Resources**.

#### Number of books in the home:

- 1) 0-10
- 2) 11-25
- 3) 26-100
- 4) 101-200
- 5) More than 200

#### Number of home study supports:

- 1) None
- 2) Internet connection or own room
- 3) Both internet connection and own room

#### Highest level of education of either parent:

- 1) Finished some primary or lower secondary or did not go to school
- 2) Finished lower secondary
- 3) Finished upper secondary
- 4) Finished post-secondary education
- 5) Finished university or higher



SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2019  
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IEA

**TIMSS & PIRLS**  
 International Study Center  
 Lynch School of Education  
 BOSTON COLLEGE

**Exhibit 5.5: Home Educational Resources**

Students' Reports

Country	Many Resources		Some Resources		Few Resources		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Korea, Rep. of	40 (1.4)	643 (3.5)	58 (1.3)	586 (2.9)	2 (0.2)	~ ~	11.6 (0.04)
Norway (9)	31 (0.9)	538 (3.1)	68 (1.0)	491 (2.6)	2 (0.3)	~ ~	11.4 (0.04)
Australia	25 (1.1)	564 (5.0)	71 (1.0)	507 (3.3)	4 (0.3)	424 (6.1)	11.1 (0.04)
Hungary	25 (1.3)	585 (4.6)	70 (1.4)	500 (3.1)	5 (0.7)	411 (8.4)	10.9 (0.04)
Finland	23 (1.0)	545 (2.9)	75 (1.0)	500 (2.5)	2 (0.3)	~ ~	11.2 (0.04)
Sweden	23 (1.1)	554 (3.3)	73 (1.1)	491 (2.3)	4 (0.4)	442 (6.8)	11.0 (0.05)
Cyprus	22 (0.9)	549 (3.1)	74 (0.9)	492 (1.7)	4 (0.4)	425 (8.2)	10.9 (0.03)
Ireland	20 (1.0)	572 (3.6)	74 (1.0)	517 (2.3)	6 (0.5)	451 (9.0)	10.8 (0.04)
United States	20 (0.9)	583 (4.5)	72 (0.9)	506 (4.4)	8 (0.5)	451 (6.9)	10.7 (0.04)
Georgia	20 (1.2)	495 (6.1)	74 (1.3)	455 (4.3)	6 (1.1)	430 (15.4)	10.8 (0.06)
Japan	18 (0.8)	637 (4.9)	79 (0.7)	587 (2.3)	3 (0.4)	526 (10.2)	10.9 (0.03)
New Zealand	17 (0.9)	540 (4.0)	77 (0.8)	475 (3.4)	6 (0.4)	414 (7.2)	10.8 (0.04)
England	17 (1.3)	575 (8.6)	78 (1.2)	508 (5.1)	5 (0.5)	453 (11.3)	10.7 (0.05)
Chinese Taipei	16 (0.7)	671 (4.7)	70 (0.8)	612 (2.7)	13 (0.6)	543 (4.1)	10.4 (0.03)
Lithuania	16 (0.9)	580 (5.1)	81 (0.9)	513 (3.0)	3 (0.4)	437 (8.2)	10.8 (0.03)
Israel	16 (1.2)	583 (6.7)	82 (1.2)	523 (4.7)	2 (0.3)	~ ~	11.1 (0.05)
Italy	15 (0.9)	536 (4.4)	72 (1.0)	498 (2.5)	13 (1.0)	452 (5.3)	10.3 (0.05)
France	15 (0.9)	534 (4.2)	78 (0.8)	478 (2.3)	7 (0.5)	432 (4.7)	10.6 (0.04)
Singapore	14 (0.5)	661 (3.8)	78 (0.6)	616 (3.9)	8 (0.6)	536 (8.4)	10.6 (0.03)
Portugal	14 (1.2)	553 (4.1)	70 (1.2)	499 (3.2)	16 (1.0)	460 (4.3)	10.2 (0.06)
Romania	14 (0.9)	559 (5.6)	76 (1.1)	477 (3.9)	10 (1.0)	401 (7.1)	10.3 (0.06)
Hong Kong SAR	13 (0.7)	625 (7.8)	74 (0.9)	577 (4.1)	13 (0.7)	540 (7.0)	10.3 (0.04)
Russian Federation	13 (0.9)	583 (6.9)	81 (0.9)	540 (4.6)	6 (0.7)	503 (8.1)	10.6 (0.05)
United Arab Emirates	12 (0.3)	529 (3.3)	79 (0.3)	473 (1.9)	10 (0.3)	426 (4.2)	10.4 (0.02)
Qatar	11 (0.7)	495 (8.5)	79 (0.8)	445 (4.1)	10 (0.7)	380 (5.5)	10.3 (0.05)
Bahrain	9 (0.4)	507 (5.1)	79 (0.7)	481 (2.0)	12 (0.5)	461 (4.3)	10.2 (0.02)
Turkey	9 (0.7)	605 (5.7)	59 (1.5)	510 (4.4)	32 (1.7)	439 (5.3)	9.5 (0.07)
Iran, Islamic Rep. of	8 (0.7)	530 (8.1)	61 (1.2)	457 (3.8)	31 (1.3)	403 (3.4)	9.5 (0.05)
Kazakhstan	7 (0.6)	519 (7.1)	83 (1.0)	490 (3.2)	10 (0.8)	451 (6.5)	10.2 (0.04)
Oman	7 (0.4)	466 (6.5)	71 (0.8)	420 (2.8)	22 (0.8)	372 (4.2)	9.7 (0.03)
Kuwait	6 (0.4)	432 (10.5)	80 (0.7)	406 (4.9)	14 (0.7)	380 (6.6)	9.9 (0.03)
Lebanon	6 (0.5)	473 (6.0)	73 (1.3)	436 (3.2)	22 (1.3)	396 (3.9)	9.7 (0.05)
Chile	5 (0.4)	519 (6.6)	79 (0.9)	444 (2.8)	16 (0.9)	399 (4.8)	9.9 (0.04)
Saudi Arabia	4 (0.4)	432 (7.2)	69 (1.0)	402 (2.3)	27 (1.1)	369 (3.9)	9.5 (0.05)
Malaysia	4 (0.3)	550 (4.9)	75 (0.8)	468 (2.9)	21 (0.8)	415 (4.9)	9.6 (0.04)
Jordan	4 (0.4)	455 (8.9)	74 (1.1)	428 (3.7)	22 (1.2)	394 (7.1)	9.6 (0.05)
Egypt	4 (0.4)	437 (10.2)	71 (1.1)	424 (4.8)	25 (1.3)	388 (7.0)	9.4 (0.06)
South Africa (9)	2 (0.2)	~ ~	63 (0.7)	396 (2.4)	35 (0.7)	373 (2.5)	9.1 (0.03)
Morocco	2 (0.3)	~ ~	43 (1.0)	400 (3.0)	55 (1.0)	376 (2.3)	8.3 (0.05)
<b>International Average</b>	<b>14 (0.1)</b>	<b>546 (1.0)</b>	<b>73 (0.2)</b>	<b>488 (0.5)</b>	<b>13 (0.1)</b>	<b>433 (1.2)</b>	
<b>Benchmarking Participants</b>							
Moscow City, Russian Fed.	29 (1.4)	602 (6.0)	69 (1.3)	566 (3.7)	2 (0.3)	~ ~	11.3 (0.04)
Ontario, Canada	25 (1.3)	567 (5.6)	73 (1.3)	520 (4.0)	1 (0.3)	~ ~	11.2 (0.04)
Quebec, Canada	18 (1.1)	581 (4.8)	80 (1.1)	537 (3.8)	2 (0.3)	~ ~	10.9 (0.05)
Dubai, UAE	17 (0.5)	578 (4.2)	77 (0.6)	532 (2.0)	6 (0.3)	478 (4.6)	10.8 (0.02)
Abu Dhabi, UAE	10 (0.4)	497 (5.2)	79 (0.5)	438 (3.0)	12 (0.5)	388 (7.3)	10.2 (0.03)
Western Cape, RSA (9)	6 (0.8)	571 (9.0)	60 (0.9)	448 (4.7)	34 (1.1)	407 (3.5)	9.3 (0.06)
Gauteng, RSA (9)	4 (0.5)	497 (10.3)	72 (0.9)	424 (3.2)	24 (0.9)	399 (3.1)	9.5 (0.05)

This TIMSS context 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 tilde (~) indicates insufficient data to report achievement.

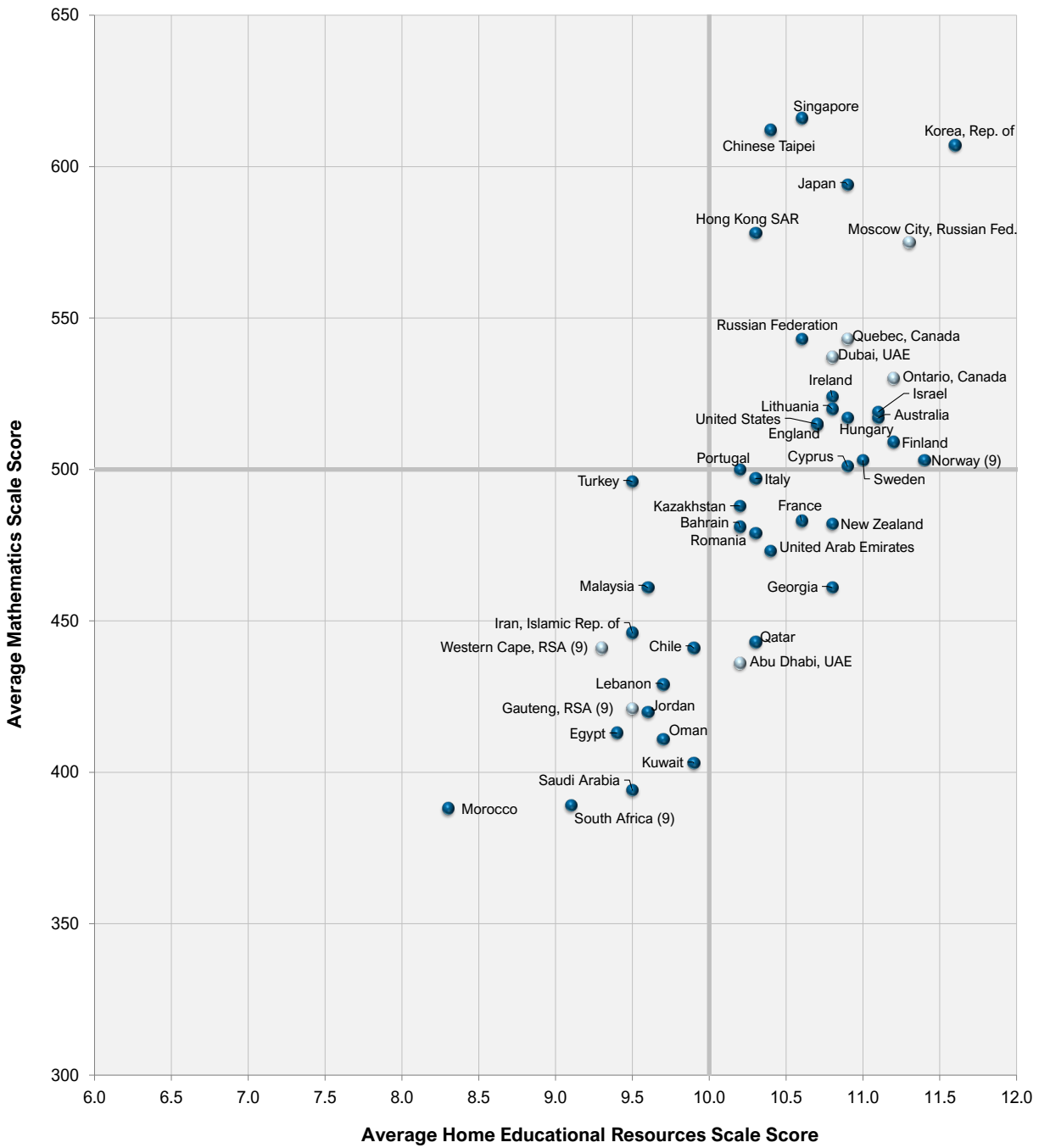
An "r" indicates data are available for at least 70% but less than 85% of the students.



Exhibit 5.5: Home Educational Resources  
Students' Reports

(Continued)

Average Mathematics Achievement by Home Educational Resources



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## Exhibit 5.6: Home Educational Resources

Students' Reports

Country	Many Resources		Some Resources		Few Resources		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Korea, Rep. of	40 (1.4)	588 (2.8)	58 (1.3)	545 (2.2)	2 (0.2)	~ ~	11.6 (0.04)
Norway (9)	31 (0.9)	536 (2.9)	68 (1.0)	480 (3.5)	2 (0.3)	~ ~	11.4 (0.04)
Australia	25 (1.1)	580 (3.8)	71 (1.0)	517 (2.8)	4 (0.3)	430 (6.5)	11.1 (0.04)
Hungary	25 (1.3)	589 (4.0)	70 (1.4)	516 (2.7)	5 (0.7)	431 (8.7)	10.9 (0.04)
Finland	23 (1.0)	587 (3.1)	75 (1.0)	532 (3.1)	2 (0.3)	~ ~	11.2 (0.04)
Sweden	23 (1.1)	587 (4.2)	73 (1.1)	509 (3.1)	4 (0.4)	423 (10.2)	11.0 (0.05)
Cyprus	22 (0.9)	531 (3.0)	74 (0.9)	475 (2.2)	4 (0.4)	409 (8.5)	10.9 (0.03)
Ireland	20 (1.0)	581 (3.6)	74 (1.0)	514 (2.6)	6 (0.5)	442 (11.6)	10.8 (0.04)
United States	20 (0.9)	588 (4.3)	72 (0.9)	513 (4.4)	8 (0.5)	455 (7.2)	10.7 (0.04)
Georgia	20 (1.2)	478 (5.7)	74 (1.3)	442 (3.8)	6 (1.1)	415 (16.2)	10.8 (0.06)
Japan	18 (0.8)	607 (3.8)	79 (0.7)	563 (1.8)	3 (0.4)	515 (8.4)	10.9 (0.03)
New Zealand	17 (0.9)	570 (3.5)	77 (0.8)	490 (3.3)	6 (0.4)	418 (9.4)	10.8 (0.04)
England	17 (1.3)	582 (7.6)	78 (1.2)	509 (4.8)	5 (0.5)	444 (10.7)	10.7 (0.05)
Chinese Taipei	16 (0.7)	623 (3.3)	70 (0.8)	574 (1.9)	13 (0.6)	515 (3.6)	10.4 (0.03)
Lithuania	16 (0.9)	589 (4.2)	81 (0.9)	527 (3.2)	3 (0.4)	457 (7.9)	10.8 (0.03)
Israel	16 (1.2)	572 (6.3)	82 (1.2)	519 (4.3)	2 (0.3)	~ ~	11.1 (0.05)
Italy	15 (0.9)	546 (3.4)	72 (1.0)	501 (2.4)	13 (1.0)	449 (5.5)	10.3 (0.05)
France	15 (0.9)	547 (4.0)	78 (0.8)	483 (2.5)	7 (0.5)	422 (5.6)	10.6 (0.04)
Singapore	14 (0.5)	659 (3.5)	78 (0.6)	607 (3.7)	8 (0.6)	525 (8.4)	10.6 (0.03)
Portugal	14 (1.2)	568 (3.7)	70 (1.2)	518 (2.9)	16 (1.0)	481 (4.6)	10.2 (0.06)
Romania	14 (0.9)	537 (5.7)	76 (1.1)	468 (4.0)	10 (1.0)	404 (6.6)	10.3 (0.06)
Hong Kong SAR	13 (0.7)	553 (9.1)	74 (0.9)	500 (5.2)	13 (0.7)	473 (8.1)	10.3 (0.04)
Russian Federation	13 (0.9)	576 (5.3)	81 (0.9)	541 (4.3)	6 (0.7)	504 (8.6)	10.6 (0.05)
United Arab Emirates	12 (0.3)	538 (3.3)	79 (0.3)	474 (2.3)	10 (0.3)	409 (5.6)	10.4 (0.02)
Qatar	11 (0.7)	524 (7.8)	79 (0.8)	477 (4.5)	10 (0.7)	411 (6.3)	10.3 (0.05)
Bahrain	9 (0.4)	531 (5.0)	79 (0.7)	490 (2.0)	12 (0.5)	433 (5.4)	10.2 (0.02)
Turkey	9 (0.7)	612 (5.7)	59 (1.5)	527 (3.6)	32 (1.7)	467 (5.1)	9.5 (0.07)
Iran, Islamic Rep. of	8 (0.7)	535 (7.4)	61 (1.2)	459 (3.5)	31 (1.3)	409 (3.8)	9.5 (0.05)
Kazakhstan	7 (0.6)	512 (6.9)	83 (1.0)	480 (3.0)	10 (0.8)	441 (5.8)	10.2 (0.04)
Oman	7 (0.4)	513 (5.9)	71 (0.8)	466 (2.9)	22 (0.8)	421 (4.5)	9.7 (0.03)
Kuwait	6 (0.4)	474 (9.4)	80 (0.7)	448 (5.5)	14 (0.7)	420 (7.9)	9.9 (0.03)
Lebanon	6 (0.5)	449 (8.9)	73 (1.3)	389 (4.8)	22 (1.3)	322 (6.4)	9.7 (0.05)
Chile	5 (0.4)	537 (6.0)	79 (0.9)	466 (2.9)	16 (0.9)	420 (4.8)	9.9 (0.04)
Saudi Arabia	4 (0.4)	471 (7.9)	69 (1.0)	441 (2.7)	27 (1.1)	405 (3.6)	9.5 (0.05)
Malaysia	4 (0.3)	549 (4.9)	75 (0.8)	469 (3.1)	21 (0.8)	413 (5.4)	9.6 (0.04)
Jordan	4 (0.4)	489 (11.1)	74 (1.1)	462 (4.2)	22 (1.2)	420 (6.2)	9.6 (0.05)
Egypt	4 (0.4)	422 (9.4)	71 (1.1)	402 (4.9)	25 (1.3)	361 (7.8)	9.4 (0.06)
South Africa (9)	2 (0.2)	~ ~	63 (0.7)	381 (3.2)	35 (0.7)	345 (3.6)	9.1 (0.03)
Morocco	2 (0.3)	~ ~	43 (1.0)	401 (3.2)	55 (1.0)	386 (3.1)	8.3 (0.05)
<b>International Average</b>	<b>14 (0.1)</b>	<b>549 (1.0)</b>	<b>73 (0.2)</b>	<b>489 (0.6)</b>	<b>13 (0.1)</b>	<b>431 (1.2)</b>	
<b>Benchmarking Participants</b>							
Moscow City, Russian Fed.	29 (1.4)	589 (3.6)	69 (1.3)	559 (2.7)	2 (0.3)	~ ~	11.3 (0.04)
Ontario, Canada	25 (1.3)	563 (4.4)	73 (1.3)	510 (2.7)	1 (0.3)	~ ~	11.2 (0.04)
Quebec, Canada	18 (1.1)	581 (5.0)	80 (1.1)	528 (3.6)	2 (0.3)	~ ~	10.9 (0.05)
Dubai, UAE	17 (0.5)	592 (4.0)	77 (0.6)	544 (2.2)	6 (0.3)	477 (5.7)	10.8 (0.02)
Abu Dhabi, UAE	10 (0.4)	499 (6.2)	79 (0.5)	423 (3.7)	12 (0.5)	353 (9.7)	10.2 (0.03)
Western Cape, RSA (9)	6 (0.8)	598 (10.0)	60 (0.9)	450 (5.4)	34 (1.1)	393 (4.0)	9.3 (0.06)
Gauteng, RSA (9)	4 (0.5)	516 (10.8)	72 (0.9)	428 (4.2)	24 (0.9)	391 (4.2)	9.5 (0.05)

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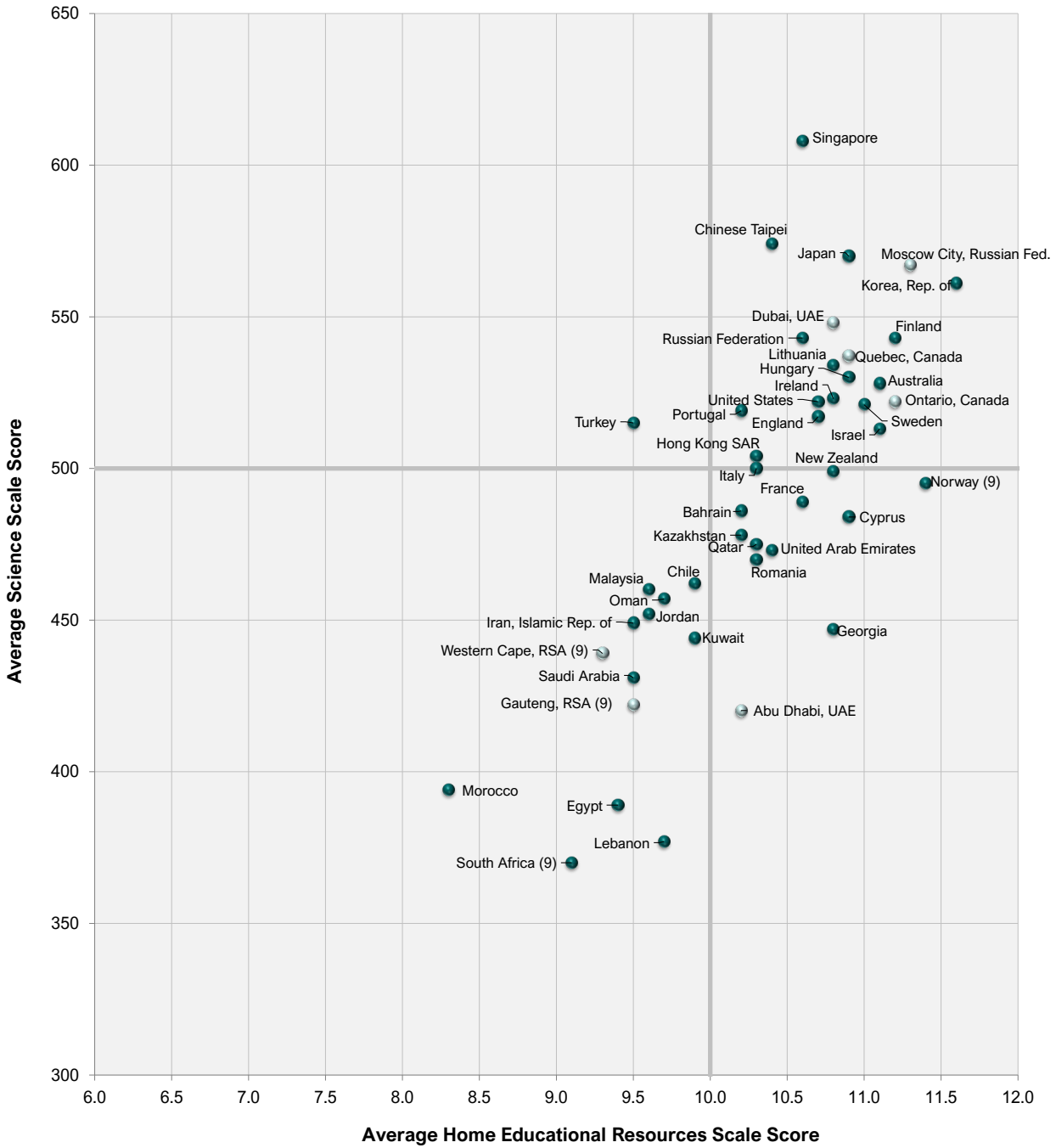
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**Exhibit 5.6: Home Educational Resources**  
Students' Reports

(Continued)

**Average Science Achievement by Home Educational Resources**



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