

Exhibit 4.6: Early Literacy and Numeracy Activities Before Beginning Primary School

Reported by Parents

Students were scored according to their parents' frequency of doing the sixteen activities on the *Early Literacy and Numeracy Activities* scale. Students **Often** engaged in early learning activities had a score on the scale of at least 10.4, which corresponds to their parents "often" doing eight of the sixteen activities with them and "sometimes" doing the other eight, on average. Students **Never or Almost Never** engaged in such activities had a score no higher than 6.5, which corresponds to parents "never or almost never" doing eight of the sixteen activities with them and "sometimes" doing the other eight, on average. All other students had parents who **Sometimes** engaged them in early literacy and numeracy activities.

Country	Often		Sometimes		Never or Almost Never		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			
Russian Federation	70 (0.8)	572 (3.2)	30 (0.8)	558 (3.9)	1 (0.2)	~ ~	11.3 (0.04)	0.2 (0.07)	●
Northern Ireland	s 68 (1.3)	537 (2.5)	31 (1.2)	514 (4.5)	0 (0.1)	~ ~	11.5 (0.06)	s 0.2 (0.08)	●
Kazakhstan	66 (1.3)	557 (4.7)	34 (1.3)	535 (4.8)	0 (0.1)	~ ~	11.1 (0.06)	◇ ◇	
Serbia	62 (1.1)	536 (2.8)	37 (0.9)	513 (5.8)	1 (0.5)	~ ~	10.9 (0.06)	◇ ◇	
Ireland	62 (1.0)	541 (2.5)	38 (1.0)	516 (3.2)	1 (0.2)	~ ~	11.1 (0.05)	0.2 (0.07)	●
New Zealand	s 61 (1.0)	539 (2.7)	38 (1.0)	507 (3.7)	1 (0.1)	~ ~	11.2 (0.05)	◇ ◇	
Poland	60 (1.0)	552 (2.5)	39 (1.0)	541 (3.1)	0 (0.1)	~ ~	10.9 (0.04)	◇ ◇	
Slovak Republic	60 (0.8)	528 (2.9)	39 (0.8)	516 (3.4)	1 (0.4)	~ ~	10.8 (0.04)	0.0 (0.06)	
Croatia	59 (0.9)	542 (2.4)	41 (0.9)	522 (1.9)	0 (0.1)	~ ~	10.8 (0.03)	0.1 (0.05)	●
Czech Republic	57 (0.9)	537 (2.3)	43 (0.9)	532 (2.9)	0 (0.1)	~ ~	10.7 (0.03)	0.1 (0.04)	
Hungary	56 (1.0)	549 (3.4)	43 (1.0)	536 (3.9)	1 (0.4)	~ ~	10.6 (0.03)	0.0 (0.06)	
Slovenia	s 56 (1.0)	557 (2.7)	43 (1.0)	547 (3.5)	1 (0.2)	~ ~	10.7 (0.04)	s 0.2 (0.06)	●
Canada	r 55 (1.2)	541 (2.1)	44 (1.1)	520 (2.8)	1 (0.2)	~ ~	10.7 (0.05)	◇ ◇	
Georgia	53 (1.0)	460 (4.0)	46 (1.0)	445 (4.3)	1 (0.2)	~ ~	10.6 (0.04)	0.4 (0.08)	●
Italy	51 (1.0)	526 (2.8)	48 (1.0)	512 (3.0)	1 (0.2)	~ ~	10.5 (0.04)	0.1 (0.05)	
Cyprus	50 (0.9)	499 (2.8)	48 (0.8)	470 (2.5)	2 (0.2)	~ ~	10.5 (0.04)	◇ ◇	
Korea, Rep. of	48 (0.9)	603 (2.5)	50 (0.9)	579 (2.2)	2 (0.3)	~ ~	10.4 (0.04)	◇ ◇	
Lithuania	48 (1.1)	538 (3.2)	51 (1.1)	525 (2.9)	1 (0.2)	~ ~	10.3 (0.04)	0.3 (0.05)	●
Spain	48 (0.9)	534 (2.6)	51 (0.9)	514 (2.5)	1 (0.2)	~ ~	10.3 (0.03)	0.1 (0.05)	●
Germany	s 46 (0.9)	545 (3.0)	53 (0.9)	537 (3.2)	1 (0.2)	~ ~	10.3 (0.04)	s 0.0 (0.05)	
Bulgaria	44 (1.6)	561 (4.0)	45 (1.1)	531 (5.7)	11 (1.5)	465 (18.3)	9.7 (0.12)	◇ ◇	
Chile	r 44 (1.1)	498 (3.3)	55 (1.1)	474 (3.2)	2 (0.3)	~ ~	10.2 (0.05)	◇ ◇	
Portugal	43 (0.9)	519 (2.6)	55 (0.9)	502 (2.4)	1 (0.2)	~ ~	10.1 (0.03)	0.2 (0.06)	●
France	41 (1.1)	503 (3.2)	58 (1.1)	482 (2.9)	1 (0.2)	~ ~	10.1 (0.03)	◇ ◇	
Bahrain	40 (1.0)	483 (3.1)	58 (1.0)	451 (3.4)	2 (0.3)	~ ~	10.0 (0.03)	◇ ◇	
United Arab Emirates	38 (0.6)	485 (3.0)	60 (0.6)	440 (3.0)	2 (0.2)	~ ~	9.9 (0.03)	0.2 (0.04)	●
Denmark	36 (1.0)	537 (2.4)	63 (1.0)	525 (2.5)	1 (0.2)	~ ~	9.9 (0.04)	◇ ◇	
Qatar	r 35 (1.1)	475 (4.6)	62 (1.2)	432 (4.4)	2 (0.2)	~ ~	9.8 (0.04)	r 0.1 (0.06)	
Singapore	35 (0.7)	611 (3.6)	61 (0.7)	583 (3.9)	4 (0.3)	547 (7.0)	9.8 (0.04)	0.2 (0.05)	●
Sweden	32 (0.9)	557 (3.7)	67 (0.9)	541 (3.9)	1 (0.2)	~ ~	9.8 (0.03)	0.1 (0.05)	
Kuwait	r 32 (1.2)	366 (9.0)	65 (1.3)	340 (5.8)	3 (0.5)	262 (18.7)	9.6 (0.05)	◇ ◇	
Saudi Arabia	32 (1.2)	406 (5.5)	65 (1.1)	388 (5.2)	4 (0.6)	349 (13.0)	9.7 (0.07)	◇ ◇	
Finland	29 (0.8)	567 (3.4)	69 (0.9)	551 (2.2)	1 (0.2)	~ ~	9.7 (0.03)	0.1 (0.04)	
Belgium (Flemish)	28 (0.8)	523 (3.1)	69 (0.8)	511 (2.5)	3 (0.2)	500 (8.1)	9.5 (0.03)	◇ ◇	
Indonesia	27 (1.4)	420 (6.0)	67 (1.4)	393 (5.7)	6 (1.0)	364 (13.2)	9.2 (0.08)	◇ ◇	
Iran, Islamic Rep. of	26 (1.4)	443 (7.2)	67 (1.4)	420 (4.5)	7 (1.1)	355 (19.3)	9.2 (0.09)	0.2 (0.10)	
Turkey	25 (1.1)	522 (3.4)	64 (1.1)	484 (3.4)	11 (0.9)	401 (6.7)	9.0 (0.07)	◇ ◇	
Oman	24 (0.7)	464 (4.6)	72 (0.7)	426 (3.2)	3 (0.3)	376 (9.0)	9.4 (0.03)	0.3 (0.04)	●
Chinese Taipei	23 (0.8)	575 (2.4)	69 (0.8)	554 (1.9)	8 (0.6)	522 (4.0)	9.0 (0.05)	0.2 (0.06)	●
Japan	22 (0.7)	583 (2.7)	72 (0.7)	567 (2.0)	5 (0.3)	549 (5.5)	9.2 (0.03)	◇ ◇	
Hong Kong SAR	21 (0.8)	582 (4.1)	75 (1.0)	552 (3.1)	5 (0.5)	533 (7.3)	9.2 (0.04)	0.3 (0.05)	●
Morocco	14 (0.8)	387 (6.4)	57 (1.7)	360 (5.4)	29 (2.0)	326 (9.8)	7.7 (0.12)	-0.5 (0.18)	▼
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.	44 (0.2)	521 (0.6)	53 (0.2)	499 (0.6)	3 (0.1)	427 (3.3)			

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 ▼

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



Exhibit 4.6: Early Literacy and Numeracy Activities Before Beginning Primary School (Continued)

Country	Often		Sometimes		Never or Almost Never		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 58 (1.8)	546 (2.7)	41 (1.7)	523 (3.0)	1 (0.2)	~ ~	10.9 (0.08)	0 0	
Quebec, Canada	r 47 (1.2)	536 (3.8)	51 (1.2)	522 (4.5)	2 (0.4)	~ ~	10.3 (0.05)	r 0.0 (0.07)	
Dubai, UAE	45 (0.7)	545 (2.2)	54 (0.7)	504 (2.5)	1 (0.2)	~ ~	10.2 (0.02)	0.2 (0.04)	▲
Abu Dhabi, UAE	37 (1.0)	452 (6.2)	61 (1.0)	408 (6.2)	2 (0.3)	~ ~	9.9 (0.05)	0.3 (0.07)	▲
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	- -	- -	- -	- -	- -	- -	- -	- -	

Significantly higher than 2011 ▲
Significantly lower than 2011 ▼

Before your child began primary/elementary school, how often did you or someone else in your home do the following activities with him or her?

	Often	Sometimes	Never or almost never
1) Read books-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2) Tell stories-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3) Sing songs-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4) Play with alphabet toys (e.g., blocks with letters of the alphabet)-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5) Talk about things you had done-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6) Talk about what you had read-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7) Play word games-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8) Write letters or words-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9) Read aloud signs and labels-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10) Say counting rhymes or sing counting songs-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11) Play with number toys (e.g., blocks with numbers)-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12) Count different things-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13) Play games involving shapes (e.g., shape sorting toys, puzzles)-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14) Play with building blocks or construction toys-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15) Play board or card games-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16) Write numbers-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

← Often Sometimes Never or Almost Never →

10.4 6.5

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