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)	568 (3.7)	30 (0.8)	558 (3.6)	1 (0.2)	~ ~	11.3 (0.04)	0.2 (0.07)	⬤
Northern Ireland	s	68 (1.3)	592 (3.5)	31 (1.2)	571 (5.5)	0 (0.1)	~ ~	11.5 (0.06) s	0.2 (0.08)	⬤
Kazakhstan		66 (1.3)	551 (4.9)	34 (1.3)	532 (4.6)	0 (0.1)	~ ~	11.1 (0.06)	◊ ◊	
Serbia		62 (1.1)	530 (3.2)	37 (0.9)	504 (4.8)	1 (0.5)	~ ~	10.9 (0.06)	◊ ◊	
Ireland		62 (1.0)	560 (2.2)	38 (1.0)	535 (3.1)	1 (0.2)	~ ~	11.1 (0.05)	0.2 (0.07)	⬤
New Zealand	s	61 (1.0)	525 (2.7)	38 (1.0)	492 (3.7)	1 (0.1)	~ ~	11.2 (0.05)	◊ ◊	
Poland		60 (1.0)	541 (2.3)	39 (1.0)	528 (2.8)	0 (0.1)	~ ~	10.9 (0.04)	◊ ◊	
Slovak Republic		60 (0.8)	506 (2.8)	39 (0.8)	493 (3.2)	1 (0.4)	~ ~	10.8 (0.04)	0.0 (0.06)	
Croatia		59 (0.9)	511 (2.0)	41 (0.9)	491 (2.1)	0 (0.1)	~ ~	10.8 (0.03)	0.1 (0.05)	⬤
Czech Republic		57 (0.9)	533 (2.3)	43 (0.9)	525 (2.8)	0 (0.1)	~ ~	10.7 (0.03)	0.1 (0.04)	
Hungary		56 (1.0)	538 (3.4)	43 (1.0)	522 (3.8)	1 (0.4)	~ ~	10.6 (0.03)	0.0 (0.06)	
Slovenia	s	56 (1.0)	533 (2.9)	43 (1.0)	524 (2.7)	1 (0.2)	~ ~	10.7 (0.04) s	0.2 (0.06)	⬤
Canada	r	55 (1.2)	525 (2.0)	44 (1.1)	510 (2.8)	1 (0.2)	~ ~	10.7 (0.05)	◊ ◊	
Georgia		53 (1.0)	469 (3.8)	46 (1.0)	460 (4.2)	1 (0.2)	~ ~	10.6 (0.04)	0.4 (0.08)	⬤
Italy		51 (1.0)	515 (2.6)	48 (1.0)	504 (3.1)	1 (0.2)	~ ~	10.5 (0.04)	0.1 (0.05)	
Cyprus		50 (0.9)	538 (3.0)	48 (0.8)	513 (2.9)	2 (0.2)	~ ~	10.5 (0.04)	◊ ◊	
Korea, Rep. of		48 (0.9)	625 (2.6)	50 (0.9)	596 (2.4)	2 (0.3)	~ ~	10.4 (0.04)	◊ ◊	
Lithuania		48 (1.1)	547 (2.8)	51 (1.1)	531 (3.2)	1 (0.2)	~ ~	10.3 (0.04)	0.3 (0.05)	⬤
Spain		48 (0.9)	520 (2.2)	51 (0.9)	500 (2.6)	1 (0.2)	~ ~	10.3 (0.03)	0.1 (0.05)	⬤
Germany	s	46 (0.9)	537 (2.7)	53 (0.9)	529 (2.6)	1 (0.2)	~ ~	10.3 (0.04) s	0.0 (0.05)	
Bulgaria		44 (1.6)	541 (3.8)	45 (1.1)	520 (5.0)	11 (1.5)	485 (16.9)	9.7 (0.12)	◊ ◊	
Chile	r	44 (1.1)	478 (2.6)	55 (1.1)	454 (2.7)	2 (0.3)	~ ~	10.2 (0.05)	◊ ◊	
Portugal		43 (0.9)	553 (2.4)	55 (0.9)	534 (2.8)	1 (0.2)	~ ~	10.1 (0.03)	0.2 (0.06)	⬤
France		41 (1.1)	503 (3.4)	58 (1.1)	484 (2.9)	1 (0.2)	~ ~	10.1 (0.03)	◊ ◊	
Bahrain		40 (0.7)	471 (1.8)	58 (0.7)	443 (2.4)	2 (0.2)	~ ~	10.0 (0.02)	◊ ◊	
United Arab Emirates		38 (0.6)	479 (2.9)	60 (0.6)	441 (2.5)	2 (0.2)	~ ~	9.9 (0.03)	0.2 (0.04)	⬤
Denmark		36 (1.0)	552 (3.2)	63 (1.0)	536 (3.2)	1 (0.2)	~ ~	9.9 (0.04)	◊ ◊	
Qatar	r	35 (1.1)	470 (4.3)	62 (1.2)	433 (3.5)	2 (0.2)	~ ~	9.8 (0.04) r	0.1 (0.06)	
Singapore		35 (0.7)	636 (3.7)	61 (0.7)	611 (4.0)	4 (0.3)	581 (7.8)	9.8 (0.04)	0.2 (0.05)	⬤
Jordan		33 (1.0)	417 (4.1)	62 (0.9)	381 (3.2)	5 (1.0)	323 (15.1)	9.6 (0.09)	◊ ◊	
Sweden		32 (0.9)	535 (3.4)	67 (0.9)	519 (2.7)	1 (0.2)	~ ~	9.8 (0.03)	0.1 (0.05)	
Saudi Arabia		32 (1.2)	391 (4.8)	65 (1.1)	384 (4.1)	4 (0.6)	364 (11.3)	9.7 (0.07)	◊ ◊	
Kuwait	r	31 (1.1)	375 (5.5)	66 (1.2)	352 (4.4)	3 (0.3)	311 (13.6)	9.6 (0.04)	◊ ◊	
Finland		29 (0.8)	547 (2.8)	69 (0.9)	533 (1.9)	1 (0.2)	~ ~	9.7 (0.03)	0.1 (0.04)	
Belgium (Flemish)		28 (0.8)	556 (2.3)	69 (0.8)	545 (2.4)	3 (0.2)	538 (7.7)	9.5 (0.03)	◊ ◊	
South Africa (5)		27 (1.0)	415 (6.2)	66 (1.1)	367 (3.3)	7 (0.9)	339 (5.8)	9.3 (0.07)	◊ ◊	
Indonesia		26 (1.2)	418 (4.3)	67 (1.2)	395 (3.9)	7 (1.0)	363 (9.7)	9.2 (0.08)	◊ ◊	
Iran, Islamic Rep. of		25 (1.1)	453 (5.5)	67 (1.1)	432 (3.6)	7 (0.9)	358 (13.7)	9.2 (0.08)	0.2 (0.09)	
Turkey		25 (1.1)	523 (3.7)	64 (1.1)	483 (3.2)	11 (0.9)	400 (6.3)	9.0 (0.07)	◊ ◊	
Oman		24 (0.7)	449 (3.8)	72 (0.7)	421 (2.5)	3 (0.3)	390 (7.3)	9.4 (0.03)	0.3 (0.04)	⬤
Chinese Taipei		23 (0.8)	616 (2.8)	69 (0.8)	595 (2.0)	8 (0.6)	561 (4.0)	9.0 (0.05)	0.2 (0.06)	⬤
Japan		22 (0.7)	611 (3.1)	72 (0.7)	590 (2.0)	5 (0.3)	570 (5.9)	9.2 (0.03)	◊ ◊	
Hong Kong SAR		21 (0.8)	638 (4.1)	75 (1.0)	612 (2.9)	5 (0.5)	587 (5.7)	9.2 (0.04)	0.3 (0.05)	⬤
Morocco		13 (0.7)	401 (4.4)	58 (1.7)	382 (3.9)	29 (2.0)	362 (7.1)	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.		43 (0.1)	518 (0.5)	54 (0.2)	497 (0.5)	3 (0.1)	435 (2.6)			

Significantly higher than 2011 ⬤
Significantly lower than 2011 ⬇

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 that data are available for less than 50% of students.

IEA TIMSS & PIRLS International Study Center
Lynch School of Education, Boston College

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)	527 (2.4)	41 (1.7)	508 (3.2)	1 (0.2)	~ ~	10.9 (0.08)	◊ ◊
Quebec, Canada	r	47 (1.2)	547 (4.1)	51 (1.2)	534 (4.3)	2 (0.4)	~ ~	10.3 (0.05)	r 0.0 (0.07)
Dubai, UAE		45 (0.7)	533 (1.9)	54 (0.7)	496 (2.3)	1 (0.2)	~ ~	10.2 (0.02)	0.2 (0.04) ⬤
Abu Dhabi, UAE		37 (1.0)	448 (6.1)	61 (1.0)	412 (5.1)	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	○	○	○
2) Tell stories	○	○	○
3) Sing songs	○	○	○
4) Play with alphabet toys (e.g., blocks with letters of the alphabet)	○	○	○
5) Talk about things you had done	○	○	○
6) Talk about what you had read	○	○	○
7) Play word games	○	○	○
8) Write letters or words	○	○	○
9) Read aloud signs and labels	○	○	○
10) Say counting rhymes or sing counting songs	○	○	○
11) Play with number toys (e.g., blocks with numbers)	○	○	○
12) Count different things	○	○	○
13) Play games involving shapes (e.g., shape sorting toys, puzzles)	○	○	○
14) Play with building blocks or construction toys	○	○	○
15) Play board or card games	○	○	○
16) Write numbers	○	○	○

Often | Sometimes | Never or Almost Never

10.4   6.5

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