

**Exhibit 10.4: Students Like Learning Mathematics**

Reported by Students

Students were scored according to their degree of agreement with nine statements on the *Students Like Learning Mathematics* scale. Students who **Very Much Like Learning Mathematics** had a score on the scale of at least 11.4, which corresponds to their “agreeing a lot” with five of the nine statements and “agreeing a little” with the other four, on average. Students who **Do Not Like Learning Mathematics** had a score no higher than 9.4, which corresponds to their “disagreeing a little” with five of the nine statements and “agreeing a little” with the other four, on average. All other students **Like Learning Mathematics**.

Country	Very Much Like Learning Mathematics		Like Learning Mathematics		Do Not Like Learning Mathematics		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			
Botswana (9)	50 (1.1)	416 (1.9)	38 (1.0)	373 (3.1)	12 (0.6)	377 (5.0)	11.4 (0.04)	0.4 (0.06)	▲
Morocco	44 (0.8)	411 (2.5)	40 (0.6)	368 (3.1)	16 (0.6)	357 (2.4)	11.1 (0.03)	-0.1 (0.04)	
South Africa (9)	39 (1.2)	386 (4.7)	42 (0.8)	362 (4.9)	19 (1.0)	377 (6.3)	10.9 (0.05)	0.1 (0.06)	
Oman	39 (1.0)	436 (3.1)	45 (0.8)	385 (2.6)	17 (0.7)	382 (3.6)	11.0 (0.04)	0.2 (0.05)	▲
Egypt	39 (1.5)	429 (4.1)	42 (1.0)	369 (4.7)	20 (1.0)	378 (5.0)	10.9 (0.07)	◊	
Jordan	39 (1.0)	410 (3.6)	37 (0.8)	373 (4.0)	24 (0.8)	377 (4.2)	10.8 (0.05)	0.0 (0.08)	
Kazakhstan	34 (1.3)	548 (5.9)	54 (1.1)	522 (5.9)	12 (0.8)	503 (6.3)	11.0 (0.05)	0.1 (0.07)	
Iran, Islamic Rep. of	32 (1.1)	470 (6.1)	39 (0.9)	430 (4.8)	28 (1.1)	407 (4.3)	10.5 (0.05)	-0.1 (0.08)	
Lebanon	31 (1.3)	466 (4.5)	45 (1.5)	434 (4.7)	23 (1.4)	430 (4.6)	10.6 (0.06)	0.1 (0.08)	
Malaysia	28 (1.0)	497 (4.1)	56 (0.7)	459 (3.9)	16 (0.8)	433 (4.9)	10.7 (0.04)	-0.1 (0.07)	
Turkey	28 (1.0)	495 (6.6)	42 (0.8)	445 (5.4)	30 (1.0)	443 (4.5)	10.3 (0.05)	0.0 (0.07)	
Kuwait	26 (1.1)	413 (6.0)	38 (1.1)	392 (5.7)	36 (1.4)	379 (5.0)	10.0 (0.07)	◊	
United Arab Emirates	25 (0.7)	502 (3.0)	43 (0.6)	461 (2.3)	32 (0.8)	442 (2.6)	10.2 (0.04)	-0.1 (0.05)	
Singapore	24 (0.7)	654 (3.2)	42 (0.8)	625 (3.5)	33 (0.8)	592 (4.3)	10.1 (0.03)	-0.2 (0.05)	▼
Georgia	23 (1.2)	486 (4.8)	44 (1.0)	456 (4.4)	33 (1.3)	431 (4.2)	10.2 (0.06)	-0.6 (0.08)	▼
Saudi Arabia	21 (1.1)	396 (6.0)	37 (1.1)	370 (5.4)	42 (1.7)	354 (4.9)	9.8 (0.07)	-0.3 (0.11)	▼
Qatar	21 (0.8)	488 (4.8)	41 (0.8)	441 (3.9)	39 (0.9)	411 (2.9)	9.9 (0.04)	-0.1 (0.07)	
Bahrain	20 (0.9)	492 (3.5)	36 (1.0)	456 (2.7)	44 (1.4)	437 (2.1)	9.7 (0.06)	0.0 (0.07)	
Canada	20 (0.8)	561 (2.6)	40 (0.9)	537 (2.4)	39 (1.1)	503 (2.3)	9.8 (0.05)	◊	
Thailand	20 (0.8)	466 (7.4)	58 (0.9)	425 (4.5)	23 (1.0)	418 (5.5)	10.3 (0.04)	0.0 (0.06)	
Israel	19 (0.9)	524 (6.6)	36 (0.7)	517 (4.9)	44 (1.1)	502 (3.8)	9.6 (0.05)	-0.2 (0.07)	▼
Russian Federation	19 (1.0)	566 (6.8)	48 (0.7)	545 (5.1)	33 (1.1)	512 (4.6)	10.1 (0.04)	-0.3 (0.06)	▼
United States	17 (0.6)	554 (4.0)	36 (0.6)	528 (3.4)	47 (0.9)	499 (3.0)	9.5 (0.04)	0.0 (0.06)	
Malta	17 (0.6)	536 (3.4)	34 (0.7)	500 (2.3)	49 (0.8)	478 (1.7)	9.5 (0.03)	◊	
Italy	17 (0.9)	537 (3.7)	32 (0.9)	506 (3.4)	51 (1.2)	473 (2.8)	9.4 (0.05)	-0.1 (0.08)	
Chile	16 (0.8)	466 (4.9)	34 (0.9)	435 (4.3)	50 (1.3)	410 (3.1)	9.5 (0.06)	-0.3 (0.07)	▼
Lithuania	15 (0.9)	553 (4.5)	41 (1.2)	515 (3.1)	43 (1.4)	493 (3.3)	9.7 (0.05)	-0.1 (0.07)	
Hong Kong SAR	15 (0.6)	638 (4.5)	39 (0.8)	605 (4.6)	46 (1.1)	572 (5.2)	9.5 (0.04)	-0.2 (0.07)	
New Zealand	14 (0.6)	534 (5.9)	40 (1.0)	501 (4.5)	46 (1.2)	476 (3.1)	9.6 (0.04)	0.1 (0.07)	
England	14 (0.8)	559 (6.4)	39 (1.0)	532 (4.7)	48 (1.4)	498 (4.4)	9.5 (0.06)	0.1 (0.09)	
Sweden	14 (1.3)	546 (4.7)	34 (1.2)	522 (3.4)	52 (1.5)	476 (2.9)	9.3 (0.06)	0.0 (0.07)	
Ireland	14 (0.7)	562 (4.6)	35 (0.9)	537 (3.1)	52 (1.2)	505 (2.8)	9.3 (0.05)	◊	
Australia	13 (0.7)	551 (4.4)	36 (0.9)	522 (3.3)	50 (1.2)	482 (3.0)	9.4 (0.05)	0.1 (0.08)	
Norway (9)	13 (0.6)	562 (3.9)	35 (1.0)	527 (2.9)	52 (1.3)	490 (2.4)	9.3 (0.05)	◊	
Chinese Taipei	11 (0.5)	666 (4.4)	33 (0.7)	633 (2.8)	56 (1.0)	566 (2.9)	9.2 (0.04)	0.2 (0.07)	▲
Hungary	11 (0.7)	574 (8.8)	31 (1.1)	531 (5.3)	58 (1.3)	495 (3.5)	9.1 (0.05)	0.0 (0.07)	
Japan	9 (0.5)	640 (4.8)	32 (0.8)	614 (2.8)	59 (1.1)	563 (2.4)	9.2 (0.04)	0.1 (0.06)	
Korea, Rep. of	8 (0.4)	668 (4.2)	34 (0.7)	634 (3.0)	58 (0.8)	581 (2.7)	9.1 (0.04)	0.2 (0.05)	▲
Slovenia	5 (0.4)	560 (7.0)	28 (1.1)	541 (2.7)	67 (1.2)	503 (2.2)	8.7 (0.05)	0.2 (0.07)	
International Avg.	22 (0.1)	518 (0.8)	39 (0.1)	485 (0.6)	38 (0.2)	462 (0.6)			

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

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.

Significantly higher than 2011 ▲  
Significantly lower than 2011 ▼

**Exhibit 10.4: Students Like Learning Mathematics (Continued)**

Country	Very Much Like Learning Mathematics		Like Learning Mathematics		Do Not Like Learning Mathematics		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		
<b>Benchmarking Participants</b>								
Dubai, UAE	28 (1.0)	546 (3.6)	41 (0.9)	510 (2.7)	31 (1.0)	484 (2.8)	10.3 (0.05)	0.2 (0.07) ●
Ontario, Canada	25 (1.2)	561 (2.9)	40 (1.1)	529 (3.0)	35 (1.4)	490 (2.9)	10.0 (0.06)	0.2 (0.09)
Abu Dhabi, UAE	24 (1.4)	477 (6.6)	43 (1.0)	439 (5.4)	33 (1.5)	421 (4.8)	10.2 (0.07)	-0.1 (0.09)
Norway (8)	17 (0.9)	521 (3.4)	35 (0.8)	497 (2.7)	48 (1.1)	468 (2.2)	9.5 (0.05)	0.1 (0.07)
Buenos Aires, Argentina	17 (1.0)	417 (6.5)	35 (1.0)	404 (5.7)	48 (1.2)	384 (5.1)	9.5 (0.05)	◊ ◊
Florida, US	15 (1.1)	524 (10.7)	34 (1.1)	500 (7.5)	50 (1.7)	482 (5.9)	9.3 (0.07)	0.0 (0.11)
Quebec, Canada	12 (0.7)	573 (4.3)	42 (1.5)	558 (3.1)	46 (1.8)	528 (4.0)	9.5 (0.07)	0.2 (0.08)

Significantly higher than 2011 ●  
Significantly lower than 2011 ▼

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

