

Exhibit 10.3: Students Like Learning Science

Reported by Students

Students were scored according to their degree of agreement with nine statements on the *Students Like Learning Science* scale. Students who **Very Much Like Learning Science** had a score on the scale of at least 9.6, 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 Science** had a score no higher than 7.6, 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 Science**.

Country	Very Much Like Learning Science		Like Learning Science		Do Not Like Learning Science		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			
Portugal	82 (1.0)	512 (2.2)	16 (0.9)	493 (3.9)	3 (0.3)	487 (6.7)	11.3 (0.05)	0.8 (0.08)	▲
Turkey	81 (1.0)	499 (2.9)	17 (0.8)	423 (6.5)	2 (0.2)	~ ~	11.1 (0.04)	0.2 (0.06)	▲
Oman	74 (0.9)	456 (3.3)	23 (0.8)	374 (4.4)	3 (0.3)	348 (8.0)	10.9 (0.04)	0.6 (0.06)	▲
Iran, Islamic Rep. of	74 (1.2)	439 (4.2)	23 (1.1)	377 (7.0)	3 (0.4)	381 (14.2)	11.0 (0.06)	0.3 (0.07)	▲
Bulgaria	71 (1.3)	554 (4.5)	24 (1.1)	502 (9.0)	5 (0.6)	479 (11.8)	10.7 (0.06)	◇ ◇	
Kuwait	67 (1.5)	360 (7.0)	27 (1.3)	299 (7.2)	6 (0.5)	278 (13.4)	10.6 (0.06)	◇ ◇	
Indonesia	66 (1.6)	420 (4.5)	31 (1.4)	364 (6.6)	3 (0.4)	286 (17.2)	10.5 (0.06)	◇ ◇	
Morocco	66 (1.4)	384 (4.8)	30 (1.3)	304 (7.0)	4 (0.4)	291 (16.5)	10.7 (0.07)	0.9 (0.09)	▲
Bahrain	66 (0.9)	488 (2.9)	27 (0.8)	411 (4.6)	7 (0.4)	409 (10.7)	10.7 (0.03)	0.6 (0.09)	▲
Kazakhstan	66 (1.3)	559 (4.6)	32 (1.1)	533 (5.5)	3 (0.3)	528 (9.9)	10.5 (0.06)	0.1 (0.08)	
United Arab Emirates	64 (0.9)	484 (2.6)	28 (0.6)	401 (3.4)	7 (0.4)	397 (6.1)	10.5 (0.04)	0.2 (0.05)	▲
Lithuania	62 (1.1)	537 (2.6)	30 (0.9)	515 (3.2)	8 (0.6)	507 (6.7)	10.2 (0.05)	-0.1 (0.07)	
United States	61 (0.9)	555 (2.3)	28 (0.6)	540 (2.9)	11 (0.5)	526 (3.9)	10.3 (0.04)	0.3 (0.06)	▲
Qatar	60 (1.2)	469 (3.6)	31 (1.0)	398 (6.2)	9 (0.5)	383 (8.2)	10.4 (0.05)	0.4 (0.09)	▲
Italy	60 (1.1)	523 (2.9)	32 (1.0)	512 (3.0)	7 (0.5)	500 (6.4)	10.1 (0.04)	0.3 (0.07)	▲
Northern Ireland	59 (1.2)	526 (2.5)	32 (1.0)	515 (3.6)	10 (0.8)	500 (6.6)	10.2 (0.05)	0.4 (0.08)	▲
Ireland	58 (1.5)	539 (2.4)	31 (1.1)	519 (3.7)	11 (0.8)	506 (6.0)	10.2 (0.06)	-0.1 (0.09)	
Russian Federation	58 (1.2)	570 (3.2)	34 (1.1)	564 (3.8)	8 (0.5)	566 (9.2)	10.1 (0.05)	-0.3 (0.07)	▼
New Zealand	58 (1.1)	514 (2.8)	32 (1.0)	501 (3.4)	10 (0.6)	480 (6.0)	10.1 (0.05)	0.1 (0.07)	
Chinese Taipei	58 (1.2)	563 (2.1)	32 (0.9)	549 (2.6)	11 (0.8)	532 (5.2)	10.2 (0.06)	0.0 (0.08)	
Spain	58 (1.3)	527 (2.8)	30 (0.8)	509 (3.2)	12 (0.9)	505 (3.6)	10.1 (0.06)	0.4 (0.08)	▲
Hong Kong SAR	57 (1.0)	569 (3.4)	32 (0.9)	543 (3.4)	11 (0.6)	533 (4.9)	10.1 (0.05)	0.2 (0.07)	▲
Serbia	57 (1.5)	528 (5.1)	32 (1.2)	522 (4.6)	11 (0.8)	527 (4.6)	10.0 (0.07)	0.2 (0.09)	▲
Saudi Arabia	56 (1.5)	427 (4.9)	34 (1.3)	357 (6.8)	11 (0.7)	364 (9.6)	10.2 (0.06)	-0.3 (0.09)	▼
Singapore	56 (0.9)	600 (3.8)	33 (0.7)	582 (4.2)	11 (0.5)	567 (5.1)	10.1 (0.04)	0.0 (0.05)	
Germany	55 (1.3)	539 (2.3)	32 (1.0)	527 (3.2)	12 (0.8)	523 (4.8)	10.0 (0.06)	-0.1 (0.09)	
Australia	54 (1.2)	531 (2.7)	34 (0.9)	522 (3.6)	12 (0.6)	505 (6.2)	10.0 (0.05)	0.0 (0.07)	
Norway (5)	53 (1.5)	544 (2.8)	37 (1.0)	533 (3.4)	10 (0.8)	526 (4.6)	10.0 (0.07)	◇ ◇	
Japan	53 (1.2)	577 (2.0)	37 (1.0)	563 (2.9)	10 (0.6)	551 (4.3)	10.0 (0.05)	0.0 (0.07)	
Canada	52 (1.1)	533 (2.5)	34 (0.7)	522 (2.6)	13 (0.6)	513 (3.8)	9.9 (0.05)	◇ ◇	
Georgia	50 (1.3)	470 (4.1)	45 (1.3)	441 (4.2)	4 (0.5)	405 (11.7)	10.0 (0.05)	-0.7 (0.06)	▼
Hungary	50 (1.3)	553 (2.7)	37 (1.0)	533 (4.6)	13 (0.7)	528 (6.6)	9.7 (0.05)	0.0 (0.08)	
Croatia	50 (1.4)	538 (2.5)	40 (1.0)	528 (2.8)	11 (0.8)	532 (3.8)	9.8 (0.06)	-0.2 (0.08)	
England	49 (1.2)	542 (2.9)	34 (0.8)	535 (3.1)	17 (0.9)	523 (4.1)	9.8 (0.06)	0.3 (0.09)	▲
Poland	48 (1.4)	553 (2.6)	40 (1.0)	543 (3.0)	12 (0.8)	543 (5.6)	9.6 (0.06)	◇ ◇	
France	47 (1.2)	494 (3.0)	37 (0.9)	484 (3.4)	16 (1.0)	480 (4.7)	9.6 (0.06)	◇ ◇	
Chile	46 (1.3)	491 (3.5)	39 (0.8)	469 (3.3)	15 (0.8)	471 (3.2)	9.6 (0.06)	-0.2 (0.08)	▼
Netherlands	46 (1.4)	527 (3.4)	39 (1.2)	510 (2.9)	15 (0.9)	508 (3.4)	9.5 (0.06)	0.0 (0.10)	
Slovak Republic	46 (1.1)	526 (3.5)	38 (0.8)	517 (3.4)	16 (0.8)	517 (4.2)	9.5 (0.05)	-0.2 (0.07)	▼
Sweden	45 (1.2)	539 (4.7)	42 (1.0)	543 (3.3)	13 (0.9)	539 (5.7)	9.7 (0.05)	-0.1 (0.08)	
Denmark	45 (1.8)	532 (3.0)	37 (1.2)	526 (2.4)	18 (1.3)	518 (3.9)	9.5 (0.09)	0.0 (0.11)	
Belgium (Flemish)	44 (1.3)	518 (2.4)	39 (1.1)	514 (3.1)	17 (0.8)	493 (3.7)	9.5 (0.05)	0.2 (0.08)	▲
Cyprus	44 (1.6)	491 (2.5)	32 (1.1)	477 (3.4)	23 (1.3)	477 (4.4)	9.4 (0.08)	◇ ◇	
Czech Republic	44 (1.2)	537 (3.1)	38 (0.9)	535 (3.1)	18 (0.8)	529 (3.2)	9.5 (0.05)	-0.1 (0.08)	
Slovenia	43 (1.2)	551 (3.0)	40 (0.9)	540 (2.9)	17 (1.0)	531 (3.5)	9.4 (0.05)	0.1 (0.07)	
Korea, Rep. of	42 (1.2)	605 (2.4)	44 (1.0)	582 (2.6)	14 (0.8)	566 (3.3)	9.5 (0.05)	0.1 (0.06)	
Finland	38 (1.1)	558 (2.9)	44 (0.8)	555 (2.4)	19 (0.9)	545 (3.9)	9.2 (0.05)	0.1 (0.07)	
International Avg.	56 (0.2)	518 (0.5)	33 (0.1)	492 (0.6)	11 (0.1)	483 (1.1)			

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.

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.

Significantly higher than 2011 ▲
Significantly lower than 2011 ▼

Exhibit 10.3: Students Like Learning Science (Continued)

Country	Very Much Like Learning Science		Like Learning Science		Do Not Like Learning Science		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								
Dubai, UAE	72 (0.8)	535 (1.8)	23 (0.7)	483 (3.9)	5 (0.3)	458 (6.7)	10.9 (0.04)	0.3 (0.05) ▲
Florida, US	58 (2.0)	560 (5.2)	29 (1.4)	543 (6.4)	13 (1.2)	526 (5.9)	10.1 (0.09)	0.4 (0.12) ▲
Norway (4)	57 (1.7)	497 (2.4)	32 (1.1)	495 (2.7)	11 (0.9)	472 (5.1)	10.1 (0.07)	-0.1 (0.10)
Abu Dhabi, UAE	56 (1.7)	457 (5.8)	34 (1.2)	367 (6.5)	10 (0.8)	373 (10.4)	10.1 (0.08)	-0.1 (0.11)
Ontario, Canada	52 (1.5)	537 (3.1)	35 (0.9)	527 (3.2)	14 (0.9)	517 (3.7)	9.9 (0.07)	0.2 (0.09)
Quebec, Canada	49 (1.8)	531 (4.9)	37 (1.2)	521 (4.4)	14 (1.1)	514 (5.9)	9.7 (0.08)	-0.2 (0.10)
Buenos Aires, Argentina	47 (1.4)	434 (5.4)	37 (1.2)	417 (5.7)	17 (1.2)	422 (6.5)	9.6 (0.07)	0 0

▲ Significantly higher than 2011
▼ Significantly lower than 2011

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

