

**Exhibit M10.2: Students Like Learning Advanced Mathematics**

Reported by Advanced Mathematics Students

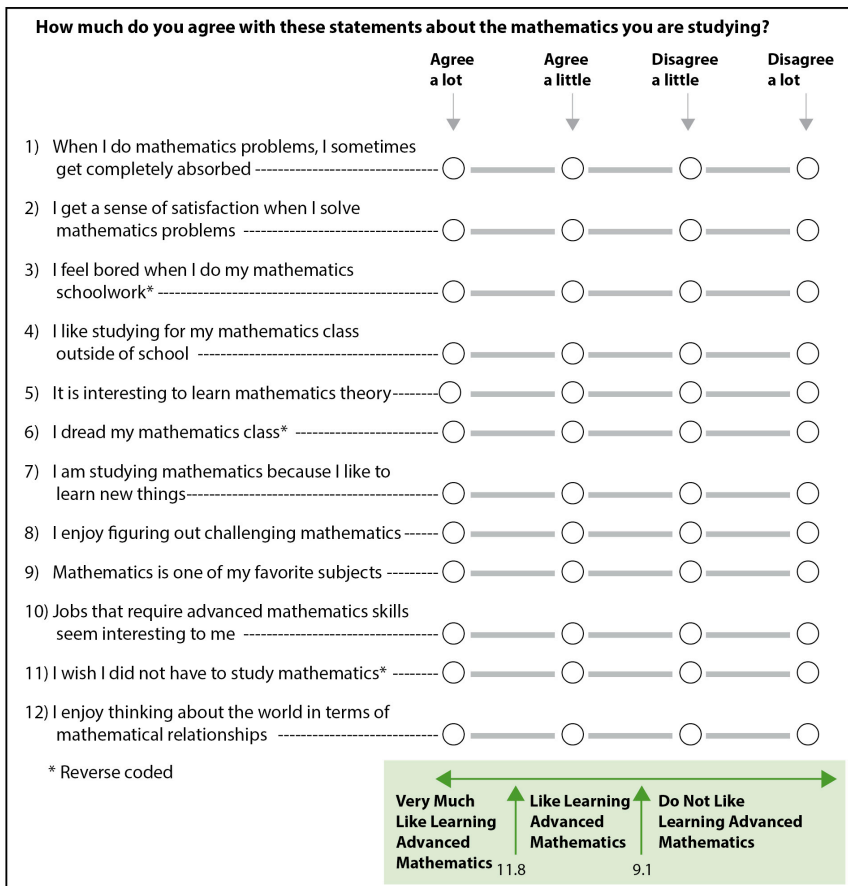
Students were scored according to their degree of agreement with twelve statements on the *Students Like Learning Advanced Mathematics* scale. Students who **Very Much Like Learning Advanced Mathematics** had a score on the scale of at least 11.8, which corresponds to their “agreeing a lot” with six of the twelve statements and “agreeing a little” with the other six, on average. Students who **Do Not Like Learning Advanced Mathematics** had a score no higher than 9.1, which corresponds to their “disagreeing a little” with six of the twelve statements and “agreeing a little” with the other six, on average. All other students **Like Learning Advanced Mathematics**.

Country	Very Much Like Learning Advanced Mathematics		Like Learning Advanced Mathematics		Do Not Like Learning Advanced Mathematics		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Lebanon	39 (1.8)	553 (4.1)	55 (1.9)	520 (4.4)	6 (0.9)	511 (8.0)	11.5 (0.07)
Russian Federation 6hr+	28 (2.3)	587 (7.9)	49 (1.4)	539 (7.2)	23 (1.6)	484 (11.7)	10.6 (0.11)
Norway	24 (1.2)	509 (5.1)	55 (1.0)	454 (4.5)	21 (1.1)	416 (5.6)	10.5 (0.06)
United States	19 (1.5)	542 (7.2)	50 (1.6)	490 (7.2)	31 (1.4)	445 (6.1)	10.0 (0.07)
Russian Federation	19 (1.2)	549 (6.3)	49 (1.0)	490 (5.9)	32 (1.7)	437 (6.9)	10.1 (0.08)
Portugal	19 (1.0)	537 (3.1)	49 (1.0)	490 (2.7)	33 (1.0)	441 (3.1)	10.0 (0.05)
Sweden	16 (0.8)	518 (4.6)	50 (0.8)	443 (4.2)	35 (0.9)	377 (5.1)	9.9 (0.05)
France	11 (0.6)	529 (4.9)	56 (0.9)	473 (3.0)	33 (1.1)	422 (3.4)	9.8 (0.04)
Italy	9 (0.6)	499 (6.5)	47 (1.0)	441 (5.6)	44 (1.2)	387 (6.8)	9.4 (0.04)
Slovenia	4 (0.5)	559 (8.8)	35 (1.3)	504 (3.3)	61 (1.4)	429 (3.6)	8.7 (0.05)
International Avg.	18 (0.4)	533 (1.9)	49 (0.4)	478 (1.6)	33 (0.4)	429 (1.9)	

The Russian Federation 6hr+ results are for a subset of the Russian Federation students. This subset of students are in an Intensive stream that have at least 6 hours of mathematics lessons per week.

This TIMSS Advanced questionnaire scale was established in 2015 based on the combined response distribution of all countries that participated in TIMSS Advanced 2015. 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.



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

**Exhibit M10.2: Students Like Learning Advanced Mathematics (Continued)**

**Students Like Learning Advanced Mathematics by Gender**

Reported by Advanced Mathematics Students

Country	Very Much Like Learning Advanced Mathematics		Like Learning Advanced Mathematics		Do Not Like Learning Advanced Mathematics	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
<b>Lebanon</b>						
Females	44 (3.0)	547 (7.0)	51 (2.8)	525 (6.5)	5 (1.4)	506 (19.7)
Males	36 (1.9)	557 (4.7)	57 (2.0)	518 (5.1)	7 (1.2)	513 (9.3)
<b>Russian Federation 6hr+</b>						
Females	25 (2.7)	576 (9.5)	49 (1.6)	534 (8.8)	26 (2.6)	477 (14.2)
Males	31 (2.6)	595 (9.0)	49 (2.1)	543 (6.8)	20 (1.4)	492 (10.7)
<b>Norway</b>						
Females	24 (1.9)	497 (5.8)	56 (1.8)	451 (5.8)	20 (1.4)	408 (7.7)
Males	25 (1.6)	516 (5.7)	54 (1.6)	456 (4.6)	21 (1.4)	420 (6.3)
<b>United States</b>						
Females	17 (2.0)	528 (9.2)	45 (2.1)	477 (6.4)	38 (1.9)	437 (6.5)
Males	22 (1.9)	552 (9.1)	54 (1.9)	500 (9.8)	24 (1.6)	457 (8.0)
<b>Russian Federation</b>						
Females	16 (1.0)	544 (6.6)	48 (1.6)	487 (6.6)	36 (2.1)	441 (7.2)
Males	22 (1.6)	553 (7.5)	50 (1.2)	492 (6.3)	28 (1.8)	432 (8.0)
<b>Portugal</b>						
Females	18 (1.3)	531 (3.9)	48 (1.4)	491 (3.4)	34 (1.5)	443 (3.5)
Males	19 (1.3)	543 (4.4)	50 (1.2)	488 (3.3)	31 (1.1)	439 (5.1)
<b>Sweden</b>						
Females	14 (0.8)	506 (7.7)	48 (1.3)	438 (4.6)	38 (1.4)	376 (6.8)
Males	17 (1.1)	525 (4.9)	51 (1.1)	446 (5.1)	33 (1.3)	377 (6.1)
<b>France</b>						
Females	10 (0.7)	509 (5.8)	54 (1.3)	460 (3.3)	36 (1.3)	416 (4.0)
Males	13 (0.8)	543 (5.8)	58 (1.2)	484 (3.3)	30 (1.3)	429 (4.0)
<b>Italy</b>						
Females	9 (1.0)	492 (10.7)	46 (2.0)	450 (7.2)	44 (2.1)	390 (8.0)
Males	9 (0.6)	503 (8.2)	47 (1.0)	435 (6.5)	44 (1.2)	384 (8.5)
<b>Slovenia</b>						
Females	3 (0.5)	545 (12.4)	31 (1.5)	499 (3.9)	66 (1.5)	422 (4.3)
Males	6 (0.9)	570 (9.4)	42 (1.8)	509 (5.6)	53 (2.0)	441 (4.8)
<b>International Avg.</b>						
Females	17 (0.5)	522 (2.7)	47 (0.6)	475 (1.8)	35 (0.6)	427 (2.9)
Males	19 (0.5)	540 (2.3)	51 (0.5)	481 (1.9)	30 (0.5)	433 (2.3)

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

The Russian Federation 6hr+ results are for a subset of the Russian Federation students. This subset of students are in an Intensive stream that have at least 6 hours of mathematics lessons per week.

This TIMSS Advanced questionnaire scale was established in 2015 based on the combined response distribution of all countries that participated in TIMSS Advanced 2015. 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.