Exhibit M10.3: Students Value Advanced Mathematics

Reported by Advanced Mathematics Students

Students were scored according to their degree of agreement with nine statements on the *Students Value Advanced Mathematics* scale. Students who **Strongly Value Advanced Mathematics** had a score on the scale of at least 11.0, 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 Value Advanced Mathematics** had a score no higher than 8.0, 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 **Value Advanced Mathematics**.

Country	Strongly Value Advanced Mathematics		Value Advanced Mathematics		Do Not Value Advanced Mathematics		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
United States	54 (1.6)	506 (7.1)	43 (1.3)	463 (5.6)	3 (0.5)	448 (13.6)	11.3 (0.07)
Lebanon	47 (1.5)	547 (4.2)	50 (1.5)	522 (3.8)	3 (0.7)	492 (13.3)	11.1 (0.06)
Portugal	41 (1.4)	509 (2.8)	51 (1.2)	469 (3.1)	8 (0.6)	432 (4.9)	10.5 (0.05)
Norway	40 (1.2)	475 (5.1)	56 (1.2)	452 (5.0)	5 (0.6)	418 (7.3)	10.6 (0.05)
Russian Federation 6hr+	36 (2.2)	567 (7.1)	51 (1.4)	537 (7.2)	12 (1.4)	473 (17.5)	10.3 (0.12)
Russian Federation	26 (1.4)	525 (6.3)	56 (0.6)	482 (5.7)	18 (1.1)	433 (7.5)	9.8 (0.08)
Sweden	26 (0.9)	461 (5.1)	64 (1.0)	426 (4.5)	10 (0.6)	391 (6.9)	10.0 (0.04)
Italy	18 (0.9)	457 (7.1)	59 (1.0)	428 (5.9)	24 (1.0)	383 (7.7)	9.3 (0.05)
France	15 (0.7)	503 (4.8)	69 (0.8)	464 (2.8)	16 (0.8)	419 (4.1)	9.4 (0.04)
Slovenia	2 (0.3)	~ ~	50 (1.6)	486 (4.0)	48 (1.6)	430 (3.7)	8.2 (0.04)
International Avg.	30 (0.4)	498 (1.9)	55 (0.4)	466 (1.5)	15 (0.3)	427 (2.8)	

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.

A tilde (~) indicates insufficient data to report achievement.

How much do you agree with these statements about the mathematics you are studying?

Agree a lot | Agree a little | Disagree a little | Disagree a lot

1) Learning mathematics will help me get ahead in the world
2) It is important to do well in my mathematics class
3) The mathematics I am studying is not useful for my future*
4) My parents are pleased that I am taking advanced mathematics
5) Doing well in mathematics will help me get into the university of my choice
6) Learning advanced mathematics does not seem to be a worthwhile exercise*
7) My parents think that it is important that I do well in my mathematics class
8) I like telling people I am studying advanced mathematics
9) Learning advanced mathematics will give me more job opportunities

*Reverse coded

Strongly Value Advanced Mathematics | Value Advanced Mathematics | Do Not Value Advanced Mathematics
11.0 | 8.0

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Exhibit M10.3: Students Value Advanced Mathematics (Continued)

Students Value Advanced Mathematics by Gender

Reported by Advanced Mathematics Students

Country	Strongly Value Advanced Mathematics		Value Advanced Mathematics		Do Not Value Advanced Mathematics	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
United States						
Females	52 (1.8)	492 (6.7)	45 (1.7)	447 (5.3)	3 (0.6)	441 (20.3)
Males	55 (2.4)	519 (9.5)	41 (1.9)	481 (8.1)	4 (1.0)	454 (17.4)
Lebanon						
Females	52 (2.6)	543 (5.8)	46 (2.5)	525 (6.5)	2 (0.6)	~ ~
Males	44 (2.1)	550 (5.3)	53 (2.3)	521 (4.8)	3 (0.9)	487 (13.4)
Portugal						
Females	38 (1.6)	508 (3.6)	54 (1.5)	469 (3.6)	8 (0.6)	437 (5.2)
Males	43 (1.8)	510 (3.7)	49 (1.6)	469 (4.4)	8 (0.9)	427 (7.6)
Norway						
Females	36 (1.8)	465 (5.7)	59 (1.8)	450 (6.6)	5 (0.8)	409 (12.2)
Males	42 (1.3)	480 (6.4)	53 (1.4)	453 (5.2)	5 (0.7)	423 (7.6)
Russian Federation 6hr+						
Females	33 (2.6)	560 (8.4)	53 (1.5)	527 (8.0)	14 (2.2)	465 (22.5)
Males	39 (2.2)	572 (7.6)	50 (1.7)	546 (7.4)	11 (1.0)	481 (15.2)
Russian Federation						
Females	23 (1.3)	520 (7.5)	57 (0.9)	480 (6.2)	20 (1.3)	435 (8.3)
Males	30 (1.6)	529 (7.0)	54 (0.9)	485 (6.2)	16 (1.2)	430 (8.6)
Sweden						
Females	25 (1.2)	448 (6.5)	65 (1.3)	420 (5.3)	10 (0.8)	392 (10.8)
Males	27 (1.3)	469 (6.0)	64 (1.4)	430 (5.5)	9 (0.8)	390 (9.5)
Italy						
Females	16 (1.4)	461 (12.6)	61 (1.5)	432 (6.7)	24 (1.6)	394 (11.4)
Males	19 (1.0)	456 (8.1)	57 (1.6)	425 (7.8)	24 (1.3)	376 (8.5)
France						
Females	12 (0.8)	486 (5.1)	70 (1.2)	452 (3.3)	18 (1.0)	416 (5.0)
Males	17 (0.9)	513 (5.8)	68 (1.1)	476 (3.2)	14 (1.1)	424 (4.9)
Slovenia						
Females	2 (0.4)	~ ~	44 (1.6)	476 (3.8)	54 (1.6)	425 (4.6)
Males	3 (0.5)	557 (12.1)	58 (2.4)	497 (5.4)	40 (2.5)	442 (5.4)
International Avg.						
Females	28 (0.5)	490 (2.5)	56 (0.5)	461 (1.8)	16 (0.4)	418 (3.8)
Males	31 (0.5)	509 (2.5)	55 (0.6)	471 (1.9)	14 (0.4)	428 (3.3)

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.

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

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