## Advanced Physics

## **Exhibit P10.1: Students' Views on Engaging Teaching in Physics Lessons**

Reported by Physics Students

Students were scored according to their degree of agreement with fourteen statements on the Students' Views on Engaging Teaching in Physics Lessons scale. Students who experienced Very Engaging Teaching in physics lessons had a score on the scale of at least 10.6, which corresponds to their "agreeing a lot" with seven of the fourteen statements and "agreeing a little" with the other seven, on average. Students who experienced teaching that was Less than Engaging had a score no higher than 8.2, which corresponds to their "disagreeing a little" with seven of the fourteen statements and "agreeing a little" with the other seven, on average. All other students experienced Engaging Teaching in physics lessons.

Country	Very Engaging Teaching		Engaging Teaching		Less than Engaging Teaching		Average
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Scale Score
Lebanon	56 (2.9)	419 (5.2)	33 (1.7)	409 (6.9)	10 (2.1)	378 (16.2)	10.8 (0.17)
Russian Federation	55 (1.8)	526 (8.1)	37 (1.1)	493 (7.4)	8 (1.3)	452 (13.5)	10.8 (0.09)
United States	45 (2.6)	452 (10.1)	38 (1.5)	442 (9.9)	17 (1.7)	390 (14.1)	10.3 (0.13)
Portugal	44 (3.2)	466 (6.4)	41 (2.0)	470 (5.4)	15 (2.1)	460 (9.2)	10.2 (0.14)
Norway	43 (1.9)	529 (4.5)	46 (1.7)	500 (5.8)	11 (0.9)	451 (7.6)	10.3 (0.07)
Sweden	26 (1.4)	491 (8.1)	54 (1.1)	456 (6.1)	21 (1.5)	406 (9.5)	9.5 (0.07)
France	23 (1.5)	402 (7.1)	59 (1.4)	373 (3.9)	18 (1.5)	339 (4.6)	9.5 (0.07)
Slovenia	23 (1.7)	570 (7.1)	61 (2.1)	534 (4.2)	16 (2.0)	468 (7.1)	9.5 (0.09)
Italy	20 (1.4)	387 (14.0)	50 (1.4)	381 (7.0)	31 (1.7)	356 (8.7)	9.1 (0.08)
International Avg.	37 (0.7)	471 (2.8)	47 (0.5)	451 (2.2)	16 (0.6)	411 (3.6)	

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.

	Agree a lot	Agree a little	Disagree a little	Disagre a lot
	+	•	•	•
The teacher clearly communicates the purpose of each physics lesson				-0
2) I know what my teacher expects me to do		$-\circ$	$-\circ$	$-\bigcirc$
3) My teacher is easy to understand		$-\circ$	$-\circ$	$-\bigcirc$
4) I am interested in what my teacher says	-0-	$-\circ$	$-\circ$	$-\bigcirc$
5) My teacher gives me interesting things to do		_0_	$-\circ$	$-\bigcirc$
6) My teacher asks me thought provoking questions		_0_		-0
7) My teacher has clear answers to my questions		$-\circ$	$-\circ$	$-\bigcirc$
8) My teacher links new content to what I already know		_0_		-0
9) My teacher is good at explaining physics		_0_	_0	
10) My teacher provides the opportunity for me to show what I have learned		_0_		-0
11) My teacher encourages me to keep working on physics problems until I solve them		_0_		-0
12) My teacher provides helpful feedback on my schoolwork (including homework)		_0_		-0
<ol> <li>My teacher uses a variety of teaching methods, tasks, and activities to help us learn</li> </ol>		_0_	_0	-0
14) My teacher believes that I can learn difficult physics material				-0
	<b>4</b>			<b></b>
	Very	Engaging Teaching	Less than	



## Exhibit P10.1: Students' Views on Engaging Teaching in Physics Lessons (Continued)



## Students' Views on Engaging Teaching in Physics Lessons by Gender

Reported by Physics Students

Country	Very Engaging Teaching		Engaging Teaching		Less than Eng	aging Teaching
	Percent	Average	Percent	Average	Percent	Average
	of Students	Achievement	of Students	Achievement	of Students	Achievemen
Lebanon						
Females	64 (3.7)	421 (5.7)	28 (2.5)	416 (8.8)	8 (2.6)	405 (23.8)
Males	52 (3.5)	417 (7.1)	36 (2.5)	406 (10.0)	12 (2.1)	367 (19.1)
Russian Federation						
Females	54 (2.2)	519 (9.4)	37 (1.6)	481 (9.3)	9 (1.4)	448 (15.4)
Males	55 (2.0)	531 (8.0)	37 (1.4)	502 (8.2)	7 (1.2)	456 (18.1)
United States						
Females	40 (3.3)	425 (13.9)	41 (1.9)	414 (13.0)	20 (2.3)	370 (20.7)
Males	48 (2.8)	467 (10.4)	36 (1.9)	462 (9.4)	16 (2.1)	407 (13.9)
Portugal						
Females	51 (4.4)	449 (7.6)	35 (3.5)	465 (11.6)	14 (2.7)	460 (15.6)
Males	42 (3.2)	473 (6.8)	43 (2.1)	471 (5.8)	16 (2.2)	459 (10.2)
Norway						
Females	35 (2.8)	509 (7.3)	51 (2.5)	486 (8.5)	14 (1.7)	452 (11.0)
Males	47 (2.1)	536 (4.8)	44 (1.9)	507 (5.9)	9 (0.9)	451 (9.7)
Sweden						
Females	23 (1.6)	483 (10.7)	52 (1.8)	455 (7.2)	26 (2.4)	404 (8.8)
Males	28 (1.7)	496 (8.9)	55 (1.4)	457 (6.5)	17 (1.3)	408 (13.6)
France						
Females	21 (1.5)	382 (8.2)	60 (1.6)	354 (4.3)	19 (1.7)	327 (6.2)
Males	24 (1.9)	418 (8.5)	58 (1.7)	391 (4.7)	18 (1.6)	351 (5.7)
Slovenia						
Females	19 (2.2)	564 (11.8)	62 (3.1)	509 (7.9)	19 (3.0)	461 (15.8)
Males	24 (2.3)	572 (9.4)	61 (2.4)	545 (4.4)	15 (2.2)	473 (9.2)
Italy						
Females	19 (1.7)	360 (16.1)	50 (1.7)	361 (8.0)	31 (1.9)	349 (8.5)
Males	21 (1.6)	407 (15.9)	49 (1.7)	398 (8.8)	30 (2.0)	363 (10.8)
International Avg.						
Females	36 (0.9)	457 (3.5)	46 (0.8)	438 (3.0)	18 (0.8)	408 (5.0)
Males	38 (0.8)	480 (3.1)	47 (0.6)	460 (2.4)	16 (0.6)	415 (4.3)

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.



 $<sup>() \ \</sup> Standard\ errors\ appear\ in\ parentheses.\ Because\ of\ rounding\ some\ results\ may\ appear\ inconsistent.$