

Exhibit 9.1: Teachers' Formal Education*

Students' Results based on Teachers' Reports

Country	Percent of Students by Teacher Education Level			
	Completed Postgraduate University Degree**	Completed Bachelor's Degree or Equivalent but Not a Postgraduate Degree	Completed Post-Secondary Education but Not a Bachelor's Degree	No Further than Upper-Secondary Education
Albania	r 59 (5.0)	19 (3.4)	3 (1.5)	19 (3.9)
Armenia	7 (1.9)	9 (1.9)	44 (3.7)	40 (4.0)
Australia	15 (2.4)	82 (2.5)	3 (1.1)	0 (0.0)
Austria	11 (1.8)	51 (3.4)	38 (3.2)	0 (0.0)
Azerbaijan	5 (1.8)	49 (3.5)	34 (3.6)	12 (2.5)
Bahrain	16 (3.3)	84 (3.4)	0 (0.2)	0 (0.0)
Belgium (Flemish)	3 (1.1)	97 (1.2)	0 (0.4)	0 (0.0)
Bosnia and Herzegovina	4 (1.1)	67 (3.3)	29 (3.4)	0 (0.3)
Bulgaria	73 (3.7)	21 (3.1)	6 (2.3)	0 (0.0)
Canada	19 (2.0)	80 (2.0)	0 (0.4)	0 (0.0)
Chile	12 (3.1)	86 (3.3)	2 (1.0)	0 (0.0)
Chinese Taipei	55 (4.0)	45 (3.9)	1 (0.6)	0 (0.0)
Croatia	50 (3.4)	13 (2.5)	37 (2.7)	0 (0.5)
Cyprus	63 (3.6)	35 (3.5)	2 (0.9)	0 (0.0)
Czech Republic	92 (1.9)	2 (1.1)	1 (0.9)	5 (1.4)
Denmark	8 (2.4)	82 (3.1)	2 (1.5)	7 (2.4)
England	s 6 (2.7)	94 (2.7)	0 (0.0)	0 (0.0)
Finland	93 (1.8)	6 (1.6)	1 (0.6)	0 (0.4)
France	r 49 (3.8)	37 (3.6)	10 (2.1)	4 (1.6)
Georgia	79 (3.2)	19 (3.1)	1 (0.6)	1 (0.9)
Germany	90 (2.5)	0 (0.0)	10 (2.5)	0 (0.0)
Hong Kong SAR	25 (4.4)	71 (4.6)	4 (1.8)	0 (0.0)
Hungary	9 (2.3)	90 (2.4)	1 (0.5)	0 (0.0)
Iran, Islamic Rep. of	12 (2.1)	75 (3.4)	11 (2.3)	2 (1.0)
Ireland	31 (3.5)	69 (3.5)	0 (0.4)	0 (0.2)
Italy	31 (3.6)	4 (1.6)	5 (1.8)	59 (3.6)
Japan	5 (1.3)	91 (1.6)	4 (1.4)	0 (0.0)
Kazakhstan	3 (1.4)	89 (2.5)	8 (2.1)	0 (0.2)
Korea, Rep. of	25 (3.3)	73 (3.3)	2 (1.2)	0 (0.0)
Kosovo	8 (2.1)	77 (3.5)	10 (2.5)	6 (1.8)
Kuwait	12 (3.2)	82 (3.2)	3 (1.3)	3 (1.4)
Latvia	51 (4.0)	48 (4.1)	0 (0.5)	1 (0.8)
Lithuania	29 (3.7)	67 (4.0)	4 (1.2)	0 (0.0)
Malta	18 (0.3)	70 (0.4)	6 (0.2)	7 (0.2)
Montenegro	3 (1.0)	75 (2.9)	22 (2.7)	0 (0.0)
Morocco	r 8 (2.0)	44 (4.1)	6 (1.9)	43 (3.9)
Netherlands	r 1 (0.7)	80 (3.6)	17 (3.4)	1 (1.1)
New Zealand	33 (2.9)	59 (3.2)	8 (1.5)	0 (0.0)
North Macedonia	6 (2.9)	76 (3.5)	11 (2.5)	7 (2.2)
Northern Ireland	15 (3.1)	78 (3.8)	2 (1.4)	4 (2.2)
Norway (5)	r 35 (4.3)	65 (4.3)	0 (0.0)	0 (0.0)
Oman	6 (1.1)	87 (2.2)	5 (1.6)	2 (1.0)
Pakistan	29 (7.1)	5 (2.2)	30 (6.4)	36 (7.2)
Philippines	30 (3.7)	57 (4.1)	2 (1.1)	12 (2.8)
Poland	96 (1.1)	4 (1.1)	0 (0.0)	0 (0.0)
Portugal	10 (2.2)	84 (2.7)	5 (1.5)	0 (0.0)
Qatar	19 (3.5)	80 (3.5)	0 (0.3)	0 (0.0)
Russian Federation	44 (3.8)	31 (3.6)	18 (2.7)	6 (1.6)
Saudi Arabia	0 (0.2)	1 (0.4)	93 (1.7)	6 (1.7)
Serbia	15 (2.5)	62 (3.8)	23 (3.4)	1 (0.6)
Singapore	13 (1.8)	76 (2.2)	10 (1.5)	0 (0.3)
Slovak Republic	99 (0.7)	0 (0.0)	1 (0.7)	0 (0.0)
South Africa (5)	2 (1.2)	60 (3.8)	33 (3.0)	5 (1.5)
Spain	25 (2.8)	72 (3.2)	2 (1.2)	0 (0.0)
Sweden	r 13 (3.6)	77 (4.1)	6 (2.1)	4 (1.4)
Turkey (5)	6 (1.6)	94 (1.6)	0 (0.0)	0 (0.0)
United Arab Emirates	r 27 (2.0)	70 (2.1)	3 (0.7)	1 (0.3)
United States	49 (2.3)	51 (2.3)	0 (0.0)	0 (0.0)
International Average	28 (0.4)	56 (0.4)	10 (0.3)	5 (0.2)
Benchmarking Participants				
Ontario, Canada	r 27 (3.8)	72 (3.8)	1 (0.9)	0 (0.0)
Quebec, Canada	9 (2.6)	91 (2.6)	0 (0.0)	0 (0.0)
Moscow City, Russian Fed.	56 (4.8)	39 (4.8)	3 (1.5)	2 (1.0)
Madrid, Spain	31 (3.7)	66 (3.6)	3 (0.9)	0 (0.0)
Abu Dhabi, UAE	26 (2.1)	70 (2.2)	3 (1.1)	1 (0.7)
Dubai, UAE	r 30 (3.9)	68 (3.9)	1 (0.5)	0 (0.3)

* Based on countries' categorizations according to UNESCO's International Standard Classification of Education (Operational Manual for ISCED-2011)

** For example, doctorate, master's, or other postgraduate degree.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students. An "s" indicates data are available for at least 50% but less than 70% of the students.

Exhibit 9.2: Teachers' Formal Education*
Students' Results based on Teachers' Reports

Country	Percent of Students by Teacher Education Level			
	Completed Postgraduate University Degree**	Completed Bachelor's Degree or Equivalent but Not a Postgraduate Degree	Completed Post-Secondary Education but Not a Bachelor's Degree	No Further than Upper-Secondary Education
Albania	r 61 (4.9)	19 (3.4)	2 (1.1)	18 (3.9)
Armenia	6 (1.6)	11 (2.4)	48 (3.9)	35 (4.0)
Australia	16 (2.0)	80 (2.3)	3 (1.2)	0 (0.0)
Austria	10 (1.8)	51 (3.5)	39 (3.5)	0 (0.0)
Azerbaijan	4 (1.0)	48 (3.6)	37 (3.6)	11 (2.3)
Bahrain	14 (2.2)	86 (2.2)	0 (0.2)	0 (0.0)
Belgium (Flemish)	3 (1.1)	97 (1.1)	0 (0.0)	0 (0.0)
Bosnia and Herzegovina	4 (1.1)	67 (3.3)	29 (3.4)	0 (0.3)
Bulgaria	70 (3.8)	22 (3.2)	7 (2.4)	0 (0.0)
Canada	r 16 (2.5)	83 (2.5)	0 (0.4)	0 (0.0)
Chile	7 (2.4)	91 (2.6)	1 (0.9)	0 (0.0)
Chinese Taipei	49 (4.0)	51 (4.0)	0 (0.3)	0 (0.0)
Croatia	50 (3.4)	13 (2.5)	37 (2.7)	0 (0.5)
Cyprus	72 (4.3)	27 (4.1)	1 (0.8)	0 (0.0)
Czech Republic	92 (1.8)	3 (1.3)	0 (0.0)	5 (1.4)
Denmark	12 (2.7)	82 (3.1)	1 (0.6)	6 (2.1)
England	s 6 (2.7)	94 (2.7)	0 (0.0)	0 (0.0)
Finland	93 (1.7)	6 (1.7)	1 (0.6)	0 (0.4)
France	r 50 (3.9)	37 (3.6)	9 (2.0)	4 (1.5)
Georgia	81 (3.3)	18 (3.2)	1 (0.6)	0 (0.0)
Germany	93 (1.9)	1 (0.6)	6 (1.8)	0 (0.0)
Hong Kong SAR	25 (4.2)	70 (4.4)	5 (1.9)	0 (0.0)
Hungary	6 (1.4)	93 (1.5)	1 (0.6)	0 (0.5)
Iran, Islamic Rep. of	12 (2.1)	75 (3.4)	11 (2.3)	2 (1.0)
Ireland	31 (3.5)	69 (3.5)	0 (0.4)	0 (0.2)
Italy	31 (3.6)	4 (1.6)	5 (1.8)	59 (3.6)
Japan	4 (1.6)	93 (1.4)	2 (1.2)	0 (0.0)
Kazakhstan	3 (1.5)	89 (2.5)	8 (2.0)	0 (0.2)
Korea, Rep. of	26 (3.5)	73 (3.4)	1 (1.1)	0 (0.0)
Kosovo	8 (2.1)	77 (3.5)	10 (2.5)	6 (1.8)
Kuwait	14 (2.8)	77 (3.5)	6 (2.0)	3 (1.5)
Latvia	52 (3.8)	48 (3.8)	0 (0.0)	0 (0.0)
Lithuania	30 (3.8)	66 (4.0)	4 (1.2)	0 (0.0)
Malta	16 (0.3)	74 (0.3)	5 (0.2)	5 (0.1)
Montenegro	3 (1.0)	75 (2.9)	22 (2.7)	0 (0.0)
Morocco	r 6 (2.1)	37 (4.3)	4 (1.7)	53 (4.5)
Netherlands	r 1 (0.7)	80 (3.6)	17 (3.4)	1 (1.1)
New Zealand	34 (2.9)	58 (3.1)	8 (1.4)	0 (0.0)
North Macedonia	6 (2.9)	76 (3.5)	11 (2.5)	7 (2.2)
Northern Ireland	15 (3.1)	78 (3.8)	2 (1.4)	4 (2.2)
Norway (5)	r 30 (4.0)	69 (4.0)	0 (0.3)	0 (0.0)
Oman	12 (2.0)	81 (2.4)	5 (1.8)	1 (0.6)
Pakistan	35 (6.4)	8 (2.5)	28 (6.1)	29 (5.0)
Philippines	33 (4.1)	51 (4.3)	0 (0.0)	16 (3.0)
Poland	99 (0.7)	1 (0.7)	0 (0.0)	0 (0.0)
Portugal	10 (2.2)	84 (2.7)	5 (1.5)	0 (0.0)
Qatar	27 (3.0)	72 (3.1)	1 (1.0)	0 (0.0)
Russian Federation	44 (3.8)	31 (3.6)	18 (2.7)	6 (1.6)
Saudi Arabia	0 (0.0)	8 (2.5)	89 (2.8)	4 (1.4)
Serbia	15 (2.5)	62 (3.8)	23 (3.4)	1 (0.6)
Singapore	17 (1.9)	74 (2.2)	9 (1.4)	1 (0.4)
Slovak Republic	98 (1.1)	1 (0.8)	1 (0.7)	0 (0.2)
South Africa (5)	1 (0.6)	57 (2.9)	37 (3.2)	6 (1.7)
Spain	26 (3.1)	73 (3.3)	2 (0.8)	0 (0.0)
Sweden	r 17 (4.3)	70 (4.9)	7 (2.2)	6 (2.2)
Turkey (5)	9 (2.0)	91 (2.0)	0 (0.0)	0 (0.0)
United Arab Emirates	33 (1.6)	65 (1.6)	2 (0.5)	1 (0.4)
United States	52 (2.2)	48 (2.2)	0 (0.0)	0 (0.0)
International Average	29 (0.4)	56 (0.4)	10 (0.3)	5 (0.2)
Benchmarking Participants				
Ontario, Canada	r 22 (5.0)	77 (5.0)	1 (1.0)	0 (0.0)
Quebec, Canada	8 (2.4)	92 (2.4)	0 (0.0)	0 (0.0)
Moscow City, Russian Fed.	56 (4.8)	38 (4.8)	3 (1.5)	2 (1.0)
Madrid, Spain	31 (2.9)	66 (2.8)	3 (1.4)	0 (0.0)
Abu Dhabi, UAE	35 (2.5)	61 (2.8)	2 (1.0)	2 (1.0)
Dubai, UAE	r 40 (2.5)	59 (2.5)	0 (0.2)	0 (0.2)

* Based on countries' categorizations according to UNESCO's International Standard Classification of Education (Operational Manual for ISCED-2011)

** For example, doctorate, master's, or other postgraduate degree.

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Exhibit 9.3: Teachers' Formal Education*

Students' Results based on Teachers' Reports

Country	Percent of Students by Teacher Education Level			
	Completed Postgraduate University Degree**	Completed Bachelor's Degree or Equivalent but Not a Postgraduate Degree	Completed Post-Secondary Education but Not a Bachelor's Degree	No Further than Upper-Secondary Education
Australia	22 (3.3)	77 (3.2)	1 (0.8)	0 (0.0)
Bahrain	18 (1.7)	81 (1.8)	1 (0.6)	1 (0.4)
Chile	10 (2.7)	88 (2.8)	1 (1.0)	0 (0.0)
Chinese Taipei	60 (3.3)	40 (3.3)	0 (0.0)	0 (0.0)
Cyprus	r 62 (4.0)	38 (4.0)	0 (0.0)	0 (0.0)
Egypt	6 (2.3)	76 (4.3)	15 (3.3)	3 (1.4)
England	s 29 (5.2)	71 (5.2)	0 (0.0)	0 (0.0)
Finland	95 (1.1)	3 (0.8)	0 (0.1)	1 (0.7)
France	r 66 (4.1)	33 (4.0)	1 (1.0)	0 (0.0)
Georgia	87 (3.3)	10 (2.9)	0 (0.0)	3 (1.8)
Hong Kong SAR	45 (3.9)	55 (3.9)	0 (0.2)	0 (0.0)
Hungary	29 (3.4)	71 (3.5)	0 (0.4)	0 (0.0)
Iran, Islamic Rep. of	26 (3.1)	68 (3.5)	7 (1.8)	0 (0.0)
Ireland	44 (3.1)	55 (3.0)	0 (0.1)	0 (0.4)
Israel	50 (3.6)	46 (3.6)	3 (1.0)	1 (0.5)
Italy	100 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Japan	12 (2.4)	87 (2.4)	1 (0.4)	0 (0.0)
Jordan	6 (2.0)	76 (3.2)	13 (2.0)	5 (1.8)
Kazakhstan	16 (2.7)	81 (2.9)	2 (1.1)	1 (0.6)
Korea, Rep. of	35 (3.6)	65 (3.6)	0 (0.0)	0 (0.0)
Kuwait	12 (3.2)	88 (3.3)	0 (0.0)	1 (0.5)
Lebanon	37 (4.1)	51 (3.6)	7 (2.2)	4 (1.8)
Lithuania	51 (4.3)	47 (4.2)	1 (0.6)	0 (0.0)
Malaysia	7 (1.8)	89 (2.5)	3 (1.2)	1 (0.9)
Morocco	r 11 (2.8)	43 (4.1)	12 (2.8)	34 (3.7)
New Zealand	53 (3.3)	44 (3.1)	3 (1.1)	0 (0.0)
Norway (9)	r 41 (4.1)	57 (4.1)	2 (1.3)	0 (0.0)
Oman	9 (1.9)	89 (2.2)	1 (0.6)	1 (1.1)
Portugal	18 (2.8)	80 (3.0)	2 (1.4)	0 (0.0)
Qatar	26 (3.6)	73 (3.5)	1 (0.5)	0 (0.0)
Romania	30 (3.6)	59 (3.9)	10 (2.3)	0 (0.0)
Russian Federation	74 (3.7)	24 (3.8)	1 (0.7)	0 (0.0)
Saudi Arabia	r 1 (0.8)	99 (0.8)	0 (0.0)	0 (0.0)
Singapore	18 (2.2)	82 (2.3)	0 (0.4)	0 (0.0)
South Africa (9)	2 (0.8)	77 (2.4)	20 (2.2)	0 (0.3)
Sweden	40 (3.5)	52 (3.4)	4 (1.6)	5 (1.6)
Turkey	7 (1.8)	93 (1.8)	0 (0.0)	0 (0.0)
United Arab Emirates	33 (2.0)	65 (2.0)	1 (0.3)	1 (0.3)
United States	57 (3.2)	43 (3.2)	0 (0.0)	0 (0.0)
International Average	35 (0.5)	61 (0.5)	3 (0.2)	2 (0.1)
Benchmarking Participants				
Ontario, Canada	19 (3.6)	81 (3.6)	0 (0.0)	0 (0.0)
Quebec, Canada	12 (2.9)	88 (2.9)	0 (0.0)	0 (0.0)
Moscow City, Russian Fed.	88 (2.6)	11 (2.6)	0 (0.0)	1 (0.5)
Gauteng, RSA (9)	2 (1.3)	75 (3.8)	22 (3.6)	1 (0.8)
Western Cape, RSA (9)	2 (1.0)	80 (3.3)	17 (3.1)	1 (0.8)
Abu Dhabi, UAE	r 33 (2.3)	64 (2.2)	2 (0.9)	1 (0.7)
Dubai, UAE	41 (3.4)	59 (3.5)	0 (0.0)	0 (0.0)

* Based on countries' categorizations according to UNESCO's International Standard Classification of Education (Operational Manual for ISCED-2011)

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Exhibit 9.4: Teachers' Formal Education*

Students' Results based on Teachers' Reports

Country	Percent of Students by Teacher Education Level			
	Completed Postgraduate University Degree**	Completed Bachelor's Degree or Equivalent but Not a Postgraduate Degree	Completed Post-Secondary Education but Not a Bachelor's Degree	No Further than Upper-Secondary Education
Australia	24 (2.6)	76 (2.6)	0 (0.2)	0 (0.0)
Bahrain	19 (3.0)	79 (3.1)	1 (0.7)	0 (0.0)
Chile	12 (2.5)	86 (2.7)	1 (1.0)	0 (0.1)
Chinese Taipei	67 (3.3)	33 (3.3)	0 (0.0)	0 (0.0)
Cyprus	59 (1.8)	41 (1.8)	0 (0.0)	0 (0.0)
Egypt	3 (1.5)	87 (3.1)	9 (2.6)	1 (0.8)
England	34 (5.1)	66 (5.1)	0 (0.0)	0 (0.0)
Finland	97 (0.7)	3 (0.7)	0 (0.1)	1 (0.4)
France	85 (2.3)	14 (2.3)	0 (0.0)	0 (0.4)
Georgia	90 (1.4)	9 (1.3)	0 (0.2)	1 (0.5)
Hong Kong SAR	48 (4.4)	50 (4.3)	2 (1.3)	0 (0.0)
Hungary	44 (2.6)	55 (2.6)	0 (0.2)	1 (0.3)
Iran, Islamic Rep. of	29 (3.3)	67 (3.4)	3 (1.5)	1 (0.7)
Ireland	35 (3.5)	61 (3.6)	1 (1.2)	2 (0.8)
Israel	53 (3.7)	43 (3.9)	2 (0.9)	2 (1.1)
Italy	100 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Japan	15 (2.9)	85 (2.9)	0 (0.0)	0 (0.0)
Jordan	13 (2.4)	78 (3.2)	0 (0.3)	9 (2.1)
Kazakhstan	15 (1.9)	84 (1.9)	1 (0.3)	1 (0.3)
Korea, Rep. of	40 (3.4)	60 (3.4)	0 (0.0)	0 (0.0)
Kuwait	14 (3.5)	86 (3.5)	0 (0.0)	0 (0.0)
Lebanon	49 (2.7)	44 (2.8)	3 (1.3)	3 (0.8)
Lithuania	54 (2.4)	44 (2.3)	1 (0.5)	0 (0.2)
Malaysia	5 (1.6)	92 (1.9)	1 (0.7)	1 (0.6)
Morocco	15 (1.9)	55 (2.8)	15 (2.1)	16 (2.0)
New Zealand	69 (3.2)	30 (3.3)	1 (1.1)	0 (0.0)
Norway (9)	51 (4.5)	48 (4.6)	2 (1.3)	0 (0.0)
Oman	11 (1.8)	87 (2.1)	2 (1.1)	0 (0.0)
Portugal	24 (2.6)	74 (2.4)	2 (0.8)	0 (0.0)
Qatar	37 (3.6)	62 (3.6)	1 (0.4)	0 (0.0)
Romania	33 (2.4)	55 (2.4)	11 (1.8)	1 (0.6)
Russian Federation	76 (2.0)	21 (1.8)	1 (0.6)	2 (0.4)
Saudi Arabia	5 (1.8)	93 (2.0)	1 (0.8)	0 (0.2)
Singapore	22 (2.4)	77 (2.4)	1 (0.6)	0 (0.0)
South Africa (9)	2 (0.7)	80 (2.3)	16 (2.4)	2 (1.3)
Sweden	43 (3.8)	49 (3.8)	1 (0.8)	6 (1.5)
Turkey	9 (2.4)	90 (2.4)	1 (0.0)	0 (0.0)
United Arab Emirates	39 (1.4)	60 (1.4)	0 (0.2)	1 (0.2)
United States	61 (2.7)	39 (2.7)	0 (0.0)	0 (0.0)
International Average	38 (0.4)	58 (0.5)	2 (0.2)	1 (0.1)
Benchmarking Participants				
Ontario, Canada	22 (4.1)	78 (4.1)	0 (0.0)	0 (0.0)
Moscow City, Russian Fed.	86 (1.4)	13 (1.3)	0 (0.2)	0 (0.3)
Gauteng, RSA (9)	1 (0.9)	86 (3.5)	13 (3.1)	1 (0.6)
Western Cape, RSA (9)	5 (1.7)	86 (2.8)	10 (2.4)	0 (0.0)
Abu Dhabi, UAE	36 (2.1)	64 (2.1)	0 (0.5)	0 (0.3)
Dubai, UAE	53 (3.1)	46 (3.2)	0 (0.0)	1 (0.6)
Quebec, Canada	- -	- -	- -	- -

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** For example, doctorate, master's, or other postgraduate degree.

() Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

A dash (-) indicates comparable data not available.

An "r" indicates data are available for at least 70% but less than 85% of the students. An "s" indicates data are available for at least 50% but less than 70% of the students.

An "x" indicates data are available for at least 40% but less than 50% of the students—interpret with caution. A "y" indicates data are available for less than 40% of the students.

SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2019

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