

Students' Views on Engaging Teaching in Mathematics Lessons Scale, Fourth Grade

The Students' Views on Engaging Teaching in Mathematics Lessons (EML) scale was created based on students' degree of agreement with the ten statements described below.

Items in the TIMSS 2015 Students' Views on Engaging Teaching in Mathematics Lessons Scale, Fourth Grade

How much do you agree with these statements about your mathematics lessons?

	Agree a lot	Agree a little	Disagree a little	Disagree a lot
ASBM02A 1) I know what my teacher expects me to do -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBM02B 2) My teacher is easy to understand -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBM02C 3) I am interested in what my teacher says -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBM02D 4) My teacher gives me interesting things to do -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBM02E 5) My teacher has clear answers to my questions ----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBM02F 6) My teacher is good at explaining mathematics ----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBM02G 7) My teacher lets me show what I have learned-----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBM02H 8) My teacher does a variety of things to help us learn -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBM02I 9) My teacher tells me how to do better when I make a mistake -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ASBM02J 10) My teacher listens to what I have to say -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Very Engaging Teaching 9.0 Engaging Teaching 7.0 Less than Engaging Teaching

Item Parameters for the TIMSS 2015 Students' Views on Engaging Teaching in Mathematics Lessons Scale, Fourth Grade

Item	delta	tau_1	tau_2	tau_3	Infit
ASBM02A	0.38419	-0.45928	-0.74716	1.20644	1.45
ASBM02B	0.03877	-0.72151	-0.67326	1.39477	1.09
ASBM02C	0.12130	-0.75604	-0.46634	1.22238	0.99
ASBM02D	0.40625	-0.83775	-0.35861	1.19636	0.99
ASBM02E	-0.14411	-0.72485	-0.45891	1.18376	0.90
ASBM02F	-0.48092	-0.43600	-0.50640	0.94240	0.86
ASBM02G	0.35273	-0.79575	-0.43071	1.22646	1.10
ASBM02H	-0.39195	-0.38697	-0.55457	0.94154	0.95
ASBM02I	-0.20522	-0.43958	-0.49368	0.93326	1.01
ASBM02J	-0.08104	-0.40846	-0.52440	0.93286	1.01

Scale Transformation Constants for the TIMSS 2015 Students' Views on Engaging Teaching in Mathematics Lessons Scale, Fourth Grade

Scale Transformation Constants	
A = 7.092835	Transformed Scale Score = 7.092835 + 1.336512 • Logit Scale Score
B = 1.336512	

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

Equivalence Table of Raw and Transformed Scale Scores for the TIMSS 2015 Students' Views on Engaging Teaching in Mathematics Lessons Scale, Fourth Grade

Raw Score	Transformed Scale Score	Cutpoint
0	2.28692	
1	3.63188	
2	4.24280	
3	4.64797	
4	4.95849	
5	5.21283	
6	5.43698	
7	5.63375	
8	5.81602	
9	5.98702	
10	6.15013	
11	6.30793	
12	6.46248	
13	6.61730	
14	6.76989	
15	6.92442	7.0
16	7.08212	
17	7.24591	
18	7.41643	
19	7.59618	
20	7.78743	
21	7.99236	
22	8.21605	
23	8.46252	
24	8.73772	
25	9.04989	9.0
26	9.41158	
27	9.84507	
28	10.39553	
29	11.17927	
30	12.74909	

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



Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2015 Students' Views on Engaging Teaching in Mathematics Lessons Scale, Fourth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item									
			ASBM02A	ASBM02B	ASBM02C	ASBM02D	ASBM02E	ASBM02F	ASBM02G	ASBM02H	ASBM02I	ASBM02J
Australia	0.88	49	0.52	0.73	0.75	0.75	0.74	0.76	0.65	0.71	0.68	0.68
Bahrain	0.88	49	0.45	0.63	0.71	0.76	0.76	0.74	0.73	0.75	0.70	0.68
Belgium (Flemish)	0.83	41	0.52	0.65	0.66	0.63	0.70	0.72	0.57	0.65	0.61	0.65
Bulgaria	0.86	47	0.50	0.65	0.70	0.69	0.76	0.71	0.73	0.66	0.70	0.71
Canada	0.88	48	0.54	0.70	0.73	0.73	0.75	0.75	0.64	0.69	0.67	0.68
Chile	0.87	48	0.49	0.63	0.71	0.69	0.74	0.76	0.65	0.72	0.72	0.75
Chinese Taipei	0.90	54	0.70	0.71	0.77	0.71	0.76	0.75	0.75	0.77	0.74	0.66
Croatia	0.87	48	0.54	0.68	0.61	0.67	0.79	0.77	0.70	0.71	0.73	0.72
Cyprus	0.89	51	0.54	0.62	0.76	0.75	0.76	0.77	0.72	0.77	0.68	0.73
Czech Republic	0.88	50	0.54	0.76	0.69	0.66	0.77	0.77	0.57	0.77	0.72	0.74
Denmark	0.88	50	0.49	0.75	0.73	0.73	0.73	0.79	0.67	0.72	0.67	0.73
England	0.87	48	0.51	0.72	0.73	0.73	0.74	0.76	0.60	0.70	0.67	0.71
Finland	0.86	46	0.41	0.72	0.68	0.68	0.66	0.78	0.67	0.74	0.70	0.72
France	0.84	42	0.45	0.66	0.71	0.69	0.68	0.72	0.64	0.63	0.64	0.65
Georgia	0.87	53	0.38	0.74	0.48	0.79	0.80	0.87	0.76	0.83	0.66	0.79
Germany	0.85	44	0.46	0.74	0.69	0.71	0.74	0.73	0.65	0.63	0.63	0.63
Hong Kong SAR	0.91	56	0.67	0.76	0.78	0.78	0.79	0.75	0.74	0.75	0.72	0.73
Hungary	0.87	47	0.51	0.63	0.73	0.71	0.73	0.75	0.62	0.70	0.70	0.72
Indonesia	0.79	36	0.43	0.55	0.63	0.64	0.57	0.62	0.64	0.67	0.64	0.56
Iran, Islamic Rep. of	0.85	45	0.36	0.62	0.71	0.66	0.75	0.76	0.70	0.68	0.64	0.73
Ireland	0.87	47	0.48	0.71	0.73	0.73	0.75	0.75	0.62	0.69	0.68	0.71
Italy	0.82	41	0.36	0.54	0.70	0.69	0.72	0.71	0.67	0.60	0.60	0.69
Japan	0.90	53	0.57	0.79	0.77	0.73	0.77	0.79	0.55	0.76	0.76	0.75
Jordan	0.84	46	0.35	0.60	0.75	0.73	0.76	0.76	0.65	0.71	0.71	0.66
Kazakhstan	0.83	43	0.41	0.52	0.72	0.75	0.72	0.73	0.75	0.60	0.66	0.63
Korea, Rep. of	0.90	54	0.53	0.70	0.78	0.76	0.78	0.78	0.59	0.81	0.78	0.78
Kuwait	0.85	45	0.44	0.66	0.67	0.72	0.75	0.75	0.65	0.69	0.66	0.65
Lithuania	0.83	42	0.47	0.60	0.60	0.70	0.70	0.71	0.63	0.64	0.66	0.70
Morocco	0.78	37	0.37	0.53	0.67	0.64	0.66	0.69	0.55	0.69	0.65	0.62
Netherlands	0.82	40	0.54	0.66	0.64	0.63	0.72	0.70	0.56	0.60	0.60	0.67
New Zealand	0.87	48	0.53	0.69	0.73	0.72	0.75	0.75	0.63	0.70	0.65	0.69
Northern Ireland	0.86	45	0.49	0.70	0.73	0.70	0.75	0.72	0.57	0.66	0.63	0.71
Norway (5)	0.87	48	0.51	0.72	0.69	0.70	0.74	0.74	0.67	0.70	0.70	0.71
Oman	0.81	41	0.35	0.59	0.69	0.64	0.69	0.71	0.68	0.68	0.68	0.65
Poland	0.91	55	0.61	0.70	0.73	0.77	0.81	0.81	0.72	0.78	0.72	0.76
Portugal	0.79	38	0.37	0.51	0.64	0.71	0.67	0.67	0.63	0.57	0.63	0.67
Qatar	0.90	53	0.53	0.73	0.76	0.78	0.78	0.78	0.69	0.78	0.71	0.70
Russian Federation	0.82	42	0.43	0.64	0.68	0.69	0.69	0.69	0.62	0.67	0.64	0.68
Saudi Arabia	0.87	48	0.40	0.68	0.74	0.72	0.77	0.77	0.63	0.77	0.69	0.69
Serbia	0.85	44	0.46	0.67	0.70	0.68	0.73	0.72	0.72	0.61	0.64	0.65
Singapore	0.88	49	0.56	0.72	0.75	0.74	0.74	0.73	0.64	0.72	0.71	0.68
Slovak Republic	0.88	49	0.56	0.70	0.69	0.69	0.73	0.76	0.69	0.73	0.74	0.72
Slovenia	0.88	49	0.55	0.59	0.68	0.76	0.74	0.79	0.71	0.74	0.71	0.68
South Africa (5)	0.85	42	0.52	0.63	0.67	0.69	0.63	0.68	0.64	0.66	0.67	0.64
Spain	0.84	44	0.39	0.58	0.69	0.72	0.72	0.67	0.65	0.70	0.71	0.72
Sweden	0.86	46	0.44	0.70	0.68	0.68	0.73	0.73	0.68	0.73	0.67	0.70
Turkey	0.73	34	0.39	0.53	0.61	0.40	0.65	0.63	0.60	0.58	0.64	0.68
United Arab Emirates	0.88	48	0.48	0.70	0.72	0.74	0.76	0.75	0.67	0.71	0.69	0.68
United States	0.88	49	0.54	0.73	0.74	0.72	0.75	0.75	0.63	0.71	0.71	0.72
Benchmarking Participants												
Buenos Aires, Argentina	0.84	43	0.41	0.56	0.72	0.70	0.72	0.72	0.61	0.67	0.67	0.71
Ontario, Canada	0.88	48	0.53	0.71	0.73	0.74	0.74	0.75	0.62	0.70	0.67	0.68
Quebec, Canada	0.87	46	0.49	0.68	0.73	0.72	0.74	0.74	0.67	0.67	0.67	0.65
Norway (4)	0.85	44	0.52	0.64	0.69	0.70	0.70	0.73	0.63	0.69	0.66	0.67
Abu Dhabi, UAE	0.87	46	0.47	0.69	0.72	0.74	0.74	0.74	0.65	0.70	0.67	0.65
Dubai, UAE	0.88	49	0.53	0.70	0.71	0.74	0.75	0.75	0.67	0.71	0.70	0.69
Florida, US	0.87	47	0.57	0.72	0.74	0.72	0.72	0.73	0.65	0.65	0.66	0.71

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

Relationship Between the TIMSS 2015 Students' Views on Engaging Teaching in Mathematics Lessons Scale, Fourth Grade, and TIMSS 2015 Mathematics Achievement

Country	Pearson's Correlation with Mathematics Achievement		Variance in Mathematics Achievement Accounted for by Difference Between Regions of the Scale (η^2)
	(r)	(r^2)	
Australia	0.03	0.00	0.01
Bahrain	0.13	0.02	0.02
Belgium (Flemish)	-0.06	0.00	0.00
Bulgaria	0.09	0.01	0.02
Canada	0.02	0.00	0.00
Chile	0.12	0.01	0.02
Chinese Taipei	0.10	0.01	0.01
Croatia	0.08	0.01	0.00
Cyprus	0.05	0.00	0.00
Czech Republic	-0.05	0.00	0.00
Denmark	0.11	0.01	0.01
England	0.01	0.00	0.00
Finland	0.08	0.01	0.01
France	0.01	0.00	0.00
Georgia	0.13	0.02	0.03
Germany	-0.01	0.00	0.00
Hong Kong SAR	0.12	0.02	0.02
Hungary	0.05	0.00	0.00
Indonesia	0.07	0.00	0.02
Iran, Islamic Rep. of	0.04	0.00	0.01
Ireland	-0.01	0.00	0.00
Italy	0.07	0.00	0.01
Japan	0.05	0.00	0.01
Jordan	0.14	0.02	0.03
Kazakhstan	0.10	0.01	0.02
Korea, Rep. of	0.11	0.01	0.01
Kuwait	0.06	0.00	0.01
Lithuania	0.03	0.00	0.00
Morocco	0.13	0.02	0.03
Netherlands	0.04	0.00	0.01
New Zealand	-0.06	0.00	0.00
Northern Ireland	-0.03	0.00	0.00
Norway (5)	0.05	0.00	0.00
Oman	0.15	0.02	0.04
Poland	0.02	0.00	0.00
Portugal	0.08	0.01	0.00
Qatar	0.13	0.02	0.04
Russian Federation	0.04	0.00	0.00
Saudi Arabia	0.11	0.01	0.03
Serbia	-0.01	0.00	0.00
Singapore	0.10	0.01	0.01
Slovak Republic	-0.08	0.01	0.00
Slovenia	0.05	0.00	0.00
South Africa (5)	0.23	0.05	0.07
Spain	-0.01	0.00	0.00
Sweden	-0.02	0.00	0.00
Turkey	0.24	0.06	0.06
United Arab Emirates	0.17	0.03	0.03
United States	0.07	0.01	0.01
International Median	0.06	0.00	0.01
Benchmarking Participants			
Buenos Aires, Argentina	-0.01	0.00	0.00
Ontario, Canada	0.03	0.00	0.01
Quebec, Canada	-0.01	0.00	0.00
Norway (4)	0.05	0.00	0.00
Abu Dhabi, UAE	0.17	0.03	0.04
Dubai, UAE	0.12	0.01	0.02
Florida, US	0.10	0.01	0.02

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