

TIMSS 2011

The TIMSS 2011 Instruction to Engage Students in Learning Scale, Eighth Grade

The Instruction to Engage Students in Learning (IES) scale was created based on teachers' responses to how often they used each of four instructional practices described below. See [Creating and Interpreting TIMSS and PIRLS 2011 Context Questionnaire Scales](#) for more information on how the scales were formed.

Exhibit 1: Items in the TIMSS 2011 Instruction to Engage Students in Learning Scale, Eighth Grade

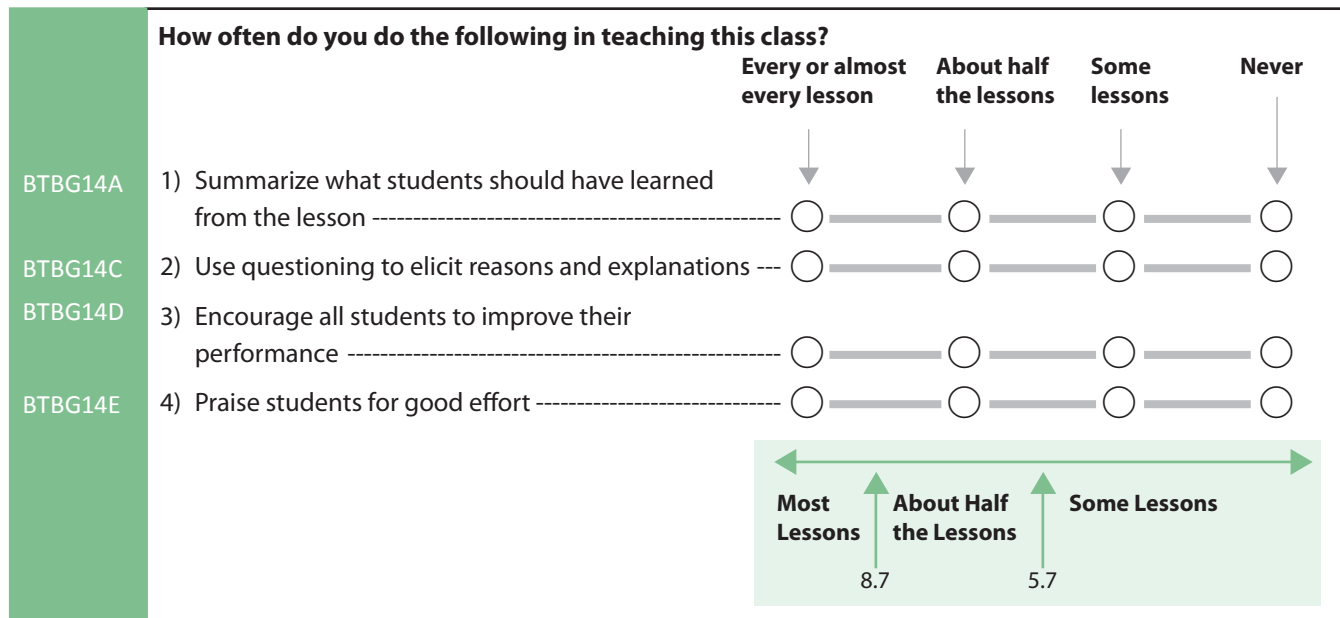


Exhibit 2: Item Parameters for the TIMSS 2011 Instruction to Engage Students in Learning Scale, Eighth Grade¹

Item	delta	tau_1	tau_2
BTBG14A	-1.41927	0.23021	-0.23021
BTBG14C	-1.67957	-0.15041	0.15041
BTBG14D	-1.68623	-0.08632	0.08632
BTBG14E	-1.62967	0.02556	-0.02556

¹ For the purpose of scaling, the categories "Some lessons" and "Never" were combined because there were very few respondents in each of these categories.

Exhibit 3: Scale Transformation Constants

Scale Transformation Constants	
A = 10.82406	Transformed Scale Score = 10.82406 + 2.28235 • Logit Scale Score
B = 2.28235	

Exhibit 4: Equivalence Table of the Raw Score and the Transformed Scale Score

Raw Score	Transformed Scale Score	Cutpoint
0	2.32277	
1	4.49924	
2	5.61124	5.7
3	6.43435	
4	7.18725	
5	7.91164	
6	8.74602	8.7
7	9.81795	
8	11.94104	

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Instruction to Engage Students in Learning Scale, Eighth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item			
			BTBG14A	BTBG14C	BTBG14D	BTBG14E
Armenia	0.45	39	0.23	0.30	0.83	0.84
Australia	0.55	44	0.64	0.56	0.70	0.73
Bahrain	0.40	38	0.54	0.48	0.68	0.75
Chile	0.50	43	0.55	0.58	0.75	0.71
Chinese Taipei	0.76	59	0.58	0.76	0.87	0.83
England	0.50	41	0.60	0.52	0.70	0.73
Finland	0.49	41	0.39	0.48	0.80	0.79
Georgia	0.50	40	0.45	0.53	0.75	0.75
Ghana	0.41	37	0.57	0.57	0.61	0.67
Hong Kong SAR	0.70	54	0.55	0.70	0.82	0.83
Hungary	0.60	46	0.51	0.58	0.79	0.79
Indonesia	0.44	38	0.61	0.60	0.70	0.56
Iran, Islamic Rep. of	0.54	43	0.48	0.61	0.74	0.75
Israel	0.55	45	0.57	0.57	0.77	0.75
Italy	0.39	38	0.23	0.46	0.83	0.75
Japan	0.68	52	0.45	0.65	0.84	0.86
Jordan	0.52	43	0.45	0.71	0.75	0.66
Kazakhstan	0.44	38	0.48	0.56	0.75	0.65
Korea, Rep. of	0.70	53	0.52	0.66	0.83	0.84
Lebanon	0.50	42	0.30	0.62	0.79	0.77
Lithuania	0.48	41	0.53	0.54	0.69	0.76
Macedonia, Rep. of	0.62	48	0.56	0.69	0.81	0.68
Malaysia	0.64	49	0.61	0.65	0.80	0.73
Morocco	0.40	39	0.38	0.63	0.77	0.64
New Zealand	0.49	42	0.49	0.60	0.78	0.68

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Instruction to Engage Students in Learning Scale, Eighth Grade (Continued)

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item			
			BTBG14A	BTBG14C	BTBG14D	BTBG14E
Norway	0.62	47	0.64	0.57	0.75	0.77
Oman	0.42	38	0.31	0.64	0.77	0.65
Palestinian Nat'l Auth.	0.32	35	0.49	0.73	0.59	0.51
Qatar	0.56	45	0.44	0.66	0.78	0.76
Romania	0.45	40	0.38	0.63	0.73	0.73
Russian Federation	0.53	43	0.54	0.67	0.74	0.65
Saudi Arabia	0.24	32	0.36	0.53	0.69	0.61
Singapore	0.70	53	0.65	0.70	0.79	0.77
Slovenia	0.57	44	0.55	0.60	0.79	0.70
Sweden	0.56	44	0.51	0.64	0.74	0.75
Syrian Arab Republic	0.18	31	0.26	0.55	0.72	0.58
Thailand	0.67	51	0.51	0.69	0.85	0.75
Tunisia	0.45	39	0.50	0.48	0.75	0.72
Turkey	0.45	38	0.48	0.45	0.76	0.72
Ukraine	0.49	41	0.67	0.56	0.70	0.64
United Arab Emirates	0.34	36	0.30	0.61	0.71	0.69
United States	0.54	43	0.63	0.65	0.68	0.65
Ninth Grade Participants						
Botswana	0.37	37	0.59	0.25	0.78	0.68
Honduras	0.47	40	0.59	0.47	0.71	0.73
South Africa	0.58	45	0.60	0.63	0.72	0.72
Benchmarking Participants						
Alberta, Canada	0.51	41	0.52	0.64	0.70	0.70
Ontario, Canada	0.60	47	0.59	0.66	0.76	0.72
Quebec, Canada	0.61	47	0.48	0.58	0.79	0.84
Abu Dhabi, UAE	0.31	36	0.16	0.74	0.67	0.65
Dubai, UAE	0.41	40	0.33	0.55	0.78	0.74
Alabama, US	0.59	48	0.44	0.64	0.84	0.79
California, US	0.55	47	0.58	0.58	0.70	0.83
Colorado, US	0.60	46	0.70	0.53	0.70	0.75
Connecticut, US	0.65	50	0.63	0.70	0.74	0.76
Florida, US	0.52	43	0.65	0.42	0.80	0.69
Indiana, US	0.59	45	0.69	0.59	0.74	0.67
Massachusetts, US	0.37	36	0.33	0.60	0.71	0.68
Minnesota, US	0.50	40	0.70	0.58	0.70	0.54
North Carolina, US	0.68	52	0.61	0.71	0.82	0.74

Exhibit 6: Relationship Between the TIMSS 2011 Instruction to Engage Students in Learning Scale, Eighth Grade, and TIMSS 2011 Achievement

Country	Pearson's Correlation with Achievement				Variance in Achievement Accounted for by Difference Between Regions of the Scale (η^2)	
	(r)		(r ²)		Mathematics	Science
	Mathematics	Science	Mathematics	Science		
Armenia	0.08	0.01	0.01	0.00	0.00	0.00
Australia	-0.05	-0.02	0.00	0.00	0.00	0.00
Bahrain	0.08	0.20	0.01	0.04	0.01	0.02
Chile	-0.13	-0.03	0.02	0.00	0.01	0.01
Chinese Taipei	0.06	-0.04	0.00	0.00	0.01	0.00
England	0.08	0.00	0.01	0.00	0.04	0.00
Finland	0.02	0.04	0.00	0.00	0.00	0.00
Georgia	0.07	0.02	0.01	0.00	0.00	0.00
Ghana	-0.03	-0.02	0.00	0.00	0.00	0.00
Hong Kong SAR	0.06	0.11	0.00	0.01	0.01	0.00
Hungary	0.01	-0.05	0.00	0.00	0.00	0.00
Indonesia	0.18	0.10	0.03	0.01	0.05	0.00
Iran, Islamic Rep. of	0.06	0.03	0.00	0.00	0.01	0.01
Israel	0.00	-0.05	0.00	0.00	0.00	0.01
Italy	-0.10	-0.10	0.01	0.01	0.00	0.00
Japan	0.04	0.02	0.00	0.00	0.00	0.00
Jordan	0.08	0.02	0.01	0.00	0.01	0.00
Kazakhstan	0.18	0.09	0.03	0.01	0.04	0.01
Korea, Rep. of	0.05	-0.02	0.00	0.00	0.00	0.00
Lebanon	0.10	0.08	0.01	0.01	0.00	0.01
Lithuania	-0.03	0.00	0.00	0.00	0.00	0.00
Macedonia, Rep. of	0.17	0.11	0.03	0.01	0.02	0.01
Malaysia	0.09	0.02	0.01	0.00	0.02	0.00
Morocco	0.10	0.03	0.01	0.00	0.01	0.00
New Zealand	-0.10	0.02	0.01	0.00	0.01	0.00
Norway	-0.03	-0.04	0.00	0.00	0.00	0.00
Oman	0.20	0.06	0.04	0.00	0.02	0.00
Palestinian Nat'l Auth.	-0.03	0.03	0.00	0.00	0.00	0.00
Qatar	0.12	0.02	0.01	0.00	0.02	0.00
Romania	0.10	0.08	0.01	0.01	0.01	0.01
Russian Federation	0.02	0.02	0.00	0.00	0.01	0.00
Saudi Arabia	0.14	0.05	0.02	0.00	0.00	0.00
Singapore	0.06	0.02	0.00	0.00	0.01	0.00
Slovenia	0.01	0.00	0.00	0.00	0.00	0.00
Sweden	0.01	-0.03	0.00	0.00	0.00	0.00
Syrian Arab Republic	0.08	-0.05	0.01	0.00	0.00	0.00
Thailand	0.03	0.01	0.00	0.00	0.00	0.00
Tunisia	0.06	0.01	0.00	0.00	0.00	0.00

Exhibit 6: Relationship Between the TIMSS 2011 Instruction to Engage Students in Learning Scale, Eighth Grade, and TIMSS 2011 Achievement (Continued)

Country	Pearson's Correlation with Achievement				Variance in Achievement Accounted for by Difference Between Regions of the Scale (η^2)	
	(r)		(r ²)		Mathematics	Science
	Mathematics	Science	Mathematics	Science		
Turkey	0.05	0.01	0.00	0.00	0.01	0.00
Ukraine	0.10	0.08	0.01	0.01	0.00	0.00
United Arab Emirates	0.08	0.04	0.01	0.00	0.00	0.00
United States	-0.03	0.06	0.00	0.00	0.00	0.00
International Median	0.06	0.02	0.00	0.00	0.00	0.00
Ninth Grade Participants						
Botswana	0.07	0.02	0.01	0.00	0.00	0.00
Honduras	0.01	-0.06	0.00	0.00	0.00	0.00
South Africa	-0.02	-0.09	0.00	0.01	0.00	0.01
Benchmarking Participants						
Alberta, Canada	0.01	-0.06	0.00	0.00	0.00	0.00
Ontario, Canada	-0.02	-0.03	0.00	0.00	0.01	0.00
Quebec, Canada	-0.09	-0.09	0.01	0.01	0.02	0.00
Abu Dhabi, UAE	-0.04	-0.02	0.00	0.00	0.02	0.01
Dubai, UAE	0.19	0.10	0.03	0.01	0.03	0.02
Alabama, US	-0.01	-0.03	0.00	0.00	0.00	0.01
California, US	0.01	-0.05	0.00	0.00	0.00	0.03
Colorado, US	0.08	-0.01	0.01	0.00	0.01	0.00
Connecticut, US	0.09	0.04	0.01	0.00	0.01	0.02
Florida, US	0.32	-0.03	0.10	0.00	0.06	0.00
Indiana, US	-0.10	-0.02	0.01	0.00	0.02	0.00
Massachusetts, US	-0.12	-0.13	0.01	0.02	0.02	0.00
Minnesota, US	0.07	0.01	0.01	0.00	0.00	0.00
North Carolina, US	0.04	0.11	0.00	0.01	0.00	0.01