

TIMSS 2011

# The TIMSS 2011 Collaborate to Improve Teaching Scale, Fourth Grade

The Collaborate to Improve Teaching (CIT) scale was created based on teachers' responses to the five statements 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 Collaborate to Improve Teaching Scale, Fourth Grade

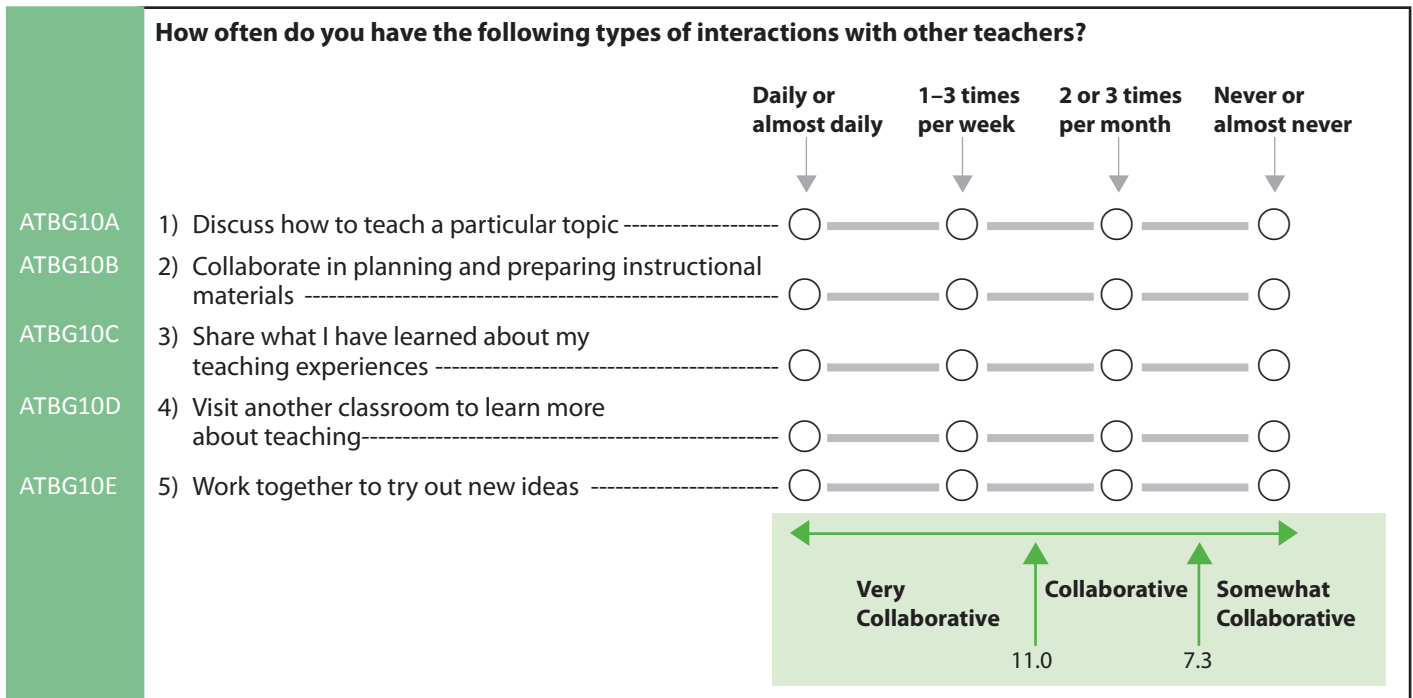


Exhibit 2: Item Parameters for the TIMSS 2011 Collaborate to Improve Teaching Scale, Fourth Grade

Item	delta	tau_1	tau_2	tau_3
ATBG10A	-0.23387	-2.20010	0.38579	1.81431
ATBG10B	0.17198	-2.22496	0.34848	1.87648
ATBG10C	-0.45666	-2.23292	0.57531	1.65761
ATBG10D	2.05223	-1.77060	0.54923	1.22137
ATBG10E	0.68215	-2.31163	0.82094	1.49069

**Exhibit 3: Scale Transformation Constants**

Scale Transformation Constants

$$A = 10.00933$$

$$\text{Transformed Scale Score} = 10.00933 + 1.20156 \cdot \text{Logit Scale Score}$$

$$B = 1.20156$$

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

Raw Score	Transformed Scale Score	Cutpoint	Raw Score	Transformed Scale Score	Cutpoint
0	4.63069		8	11.03894	11.0
1	6.24970		9	11.49129	
2	7.22023	7.3	10	11.94483	
3	8.04771		11	12.41399	
4	8.81355		12	12.92493	
5	9.48909		13	13.51366	
6	10.06437		14	14.26713	
7	10.57069		15	15.63390	

**Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Collaborate to Improve Teaching Scale, Fourth Grade**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			ATBG10A	ATBG10B	ATBG10C	ATBG10D	ATBG10E
Armenia	0.64	41	0.63	0.69	0.68	0.56	0.63
Australia	0.84	62	0.80	0.84	0.84	0.59	0.84
Austria	0.79	54	0.83	0.81	0.79	0.45	0.73
Azerbaijan	0.60	39	0.61	0.62	0.60	0.66	0.63
Bahrain	0.78	54	0.81	0.83	0.74	0.48	0.74
Belgium (Flemish)	0.66	43	0.79	0.77	0.69	0.03	0.70
Chile	0.86	65	0.81	0.86	0.88	0.60	0.84
Chinese Taipei	0.89	69	0.86	0.88	0.84	0.73	0.85
Croatia	0.78	53	0.76	0.79	0.74	0.61	0.73
Czech Republic	0.76	51	0.81	0.82	0.72	0.57	0.63
Denmark	0.79	56	0.73	0.85	0.81	0.50	0.81
England	0.82	58	0.81	0.81	0.78	0.60	0.78
Finland	0.82	58	0.81	0.79	0.80	0.60	0.79
Georgia	0.76	52	0.75	0.79	0.74	0.59	0.70
Germany	0.78	54	0.81	0.83	0.80	0.27	0.81
Hong Kong SAR	0.80	57	0.76	0.83	0.78	0.64	0.74
Hungary	0.77	52	0.79	0.82	0.72	0.58	0.69
Iran, Islamic Rep. of	0.81	57	0.82	0.79	0.78	0.60	0.76
Ireland	0.82	59	0.82	0.79	0.79	0.64	0.80
Italy	0.79	54	0.79	0.79	0.79	0.50	0.77
Japan	0.76	52	0.79	0.82	0.79	0.45	0.70

**Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Collaborate to Improve Teaching Scale, Fourth Grade (Continued)**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			ATBG10A	ATBG10B	ATBG10C	ATBG10D	ATBG10E
Kazakhstan	0.58	37	0.52	0.67	0.74	0.58	0.52
Korea, Rep. of	0.81	58	0.85	0.88	0.86	0.24	0.78
Kuwait	0.78	54	0.76	0.80	0.83	0.48	0.76
Lithuania	0.75	50	0.76	0.76	0.71	0.63	0.67
Malta	0.82	59	0.86	0.87	0.78	0.38	0.83
Morocco	0.82	58	0.79	0.79	0.84	0.61	0.77
Netherlands	0.72	47	0.84	0.82	0.75	0.17	0.63
New Zealand	0.82	58	0.80	0.80	0.72	0.68	0.80
Northern Ireland	0.85	62	0.83	0.81	0.83	0.64	0.81
Norway	0.78	53	0.82	0.82	0.78	0.35	0.76
Oman	0.69	45	0.78	0.73	0.79	0.42	0.56
Poland	0.59	39	0.74	0.55	0.72	0.41	0.62
Portugal	0.79	54	0.74	0.79	0.77	0.61	0.77
Qatar	0.76	52	0.78	0.76	0.72	0.63	0.70
Romania	0.77	52	0.76	0.83	0.78	0.44	0.75
Russian Federation	0.63	41	0.71	0.77	0.65	0.40	0.60
Saudi Arabia	0.80	55	0.77	0.79	0.73	0.62	0.79
Serbia	0.81	57	0.84	0.85	0.74	0.53	0.76
Singapore	0.85	62	0.83	0.85	0.81	0.61	0.81
Slovak Republic	0.75	50	0.78	0.77	0.77	0.48	0.69
Slovenia	0.69	45	0.73	0.65	0.72	0.58	0.67
Spain	0.81	58	0.79	0.83	0.84	0.51	0.78
Sweden	0.84	61	0.83	0.85	0.85	0.46	0.85
Thailand	0.87	66	0.80	0.78	0.89	0.79	0.79
Tunisia	0.81	56	0.79	0.81	0.82	0.56	0.74
Turkey	0.81	56	0.84	0.81	0.81	0.45	0.78
United Arab Emirates	0.76	51	0.75	0.80	0.75	0.50	0.73
United States	0.85	63	0.82	0.87	0.85	0.55	0.83
Yemen	0.73	48	0.66	0.68	0.76	0.57	0.79
<b>Sixth Grade Participants</b>							
Botswana	0.84	61	0.81	0.76	0.70	0.80	0.83
Honduras	0.82	58	0.71	0.81	0.74	0.73	0.82
Yemen	0.72	47	0.61	0.77	0.73	0.63	0.70
<b>Benchmarking Participants</b>							
Alberta, Canada	0.86	64	0.83	0.85	0.79	0.69	0.82
Ontario, Canada	0.88	67	0.83	0.87	0.78	0.74	0.87
Quebec, Canada	0.81	57	0.83	0.75	0.76	0.62	0.80
Abu Dhabi, UAE	0.78	53	0.77	0.80	0.76	0.54	0.74

**Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Collaborate to Improve Teaching Scale, Fourth Grade (Continued)**

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			ATBG10A	ATBG10B	ATBG10C	ATBG10D	ATBG10E
Dubai, UAE	0.75	51	0.78	0.78	0.76	0.47	0.72
Florida, US	0.86	66	0.87	0.88	0.88	0.51	0.86
North Carolina, US	0.81	57	0.83	0.83	0.76	0.57	0.78

**Exhibit 6: Relationship Between the TIMSS 2011 Collaborate to Improve Teaching Scale, Fourth Grade, and TIMSS 2011 Achievement**

Country	Pearson's Correlation with Achievement				Variance in Achievement Accounted for by Difference Between Regions of the Scale ( $\eta^2$ )	
	(r)		(r <sup>2</sup> )		Mathematics	Science
	Mathematics	Science	Mathematics	Science		
Armenia	0.06	0.06	0.00	0.00	0.01	0.01
Australia	0.10	0.07	0.01	0.01	0.00	0.00
Austria	-0.07	-0.08	0.00	0.01	0.01	0.01
Azerbaijan	0.02	0.03	0.00	0.00	0.01	0.01
Bahrain	0.10	0.08	0.01	0.01	0.01	0.01
Belgium (Flemish)	-0.03	-0.03	0.00	0.00	0.00	0.00
Chile	0.10	0.10	0.01	0.01	0.01	0.01
Chinese Taipei	0.01	0.03	0.00	0.00	0.00	0.00
Croatia	0.05	0.05	0.00	0.00	0.00	0.00
Czech Republic	-0.03	-0.01	0.00	0.00	0.00	0.00
Denmark	-0.01	0.03	0.00	0.00	0.00	0.00
England	0.02	-0.01	0.00	0.00	0.00	0.00
Finland	0.05	0.04	0.00	0.00	0.00	0.00
Georgia	0.07	0.03	0.00	0.00	0.01	0.01
Germany	0.03	-0.01	0.00	0.00	0.00	0.00
Hong Kong SAR	-0.03	0.02	0.00	0.00	0.01	0.00
Hungary	-0.01	-0.03	0.00	0.00	0.00	0.00
Iran, Islamic Rep. of	-0.03	-0.05	0.00	0.00	0.00	0.00
Ireland	0.01	-0.01	0.00	0.00	0.00	0.01
Italy	0.06	0.03	0.00	0.00	0.00	0.00
Japan	0.05	0.08	0.00	0.01	0.01	0.01
Kazakhstan	-0.04	-0.08	0.00	0.01	0.00	0.01
Korea, Rep. of	0.09	0.10	0.01	0.01	0.01	0.01
Kuwait	-0.01	0.04	0.00	0.00	0.00	0.00
Lithuania	0.01	0.02	0.00	0.00	0.00	0.00
Malta	0.09	0.08	0.01	0.01	0.01	0.01
Morocco	0.17	0.05	0.03	0.00	0.02	0.00
Netherlands	0.05	0.06	0.00	0.00	0.00	0.00

**Exhibit 6: Relationship Between the TIMSS 2011 Collaborate to Improve Teaching Scale, Fourth Grade, and TIMSS 2011 Achievement (Continued)**

Country	Pearson's Correlation with Achievement				Variance in Achievement Accounted for by Difference Between Regions of the Scale ( $\eta^2$ )	
	(r)		(r <sup>2</sup> )		Mathematics	Science
	Mathematics	Science	Mathematics	Science		
New Zealand	0.06	0.04	0.00	0.00	0.00	0.00
Northern Ireland	0.01	0.02	0.00	0.00	0.00	0.00
Norway	0.04	0.05	0.00	0.00	0.00	0.00
Oman	0.07	0.07	0.00	0.00	0.01	0.01
Poland	-0.01	-0.01	0.00	0.00	0.00	0.00
Portugal	-0.01	-0.02	0.00	0.00	0.00	0.00
Qatar	-0.10	-0.03	0.01	0.00	0.01	0.00
Romania	-0.05	-0.07	0.00	0.00	0.00	0.00
Russian Federation	-0.04	-0.05	0.00	0.00	0.00	0.00
Saudi Arabia	0.02	0.05	0.00	0.00	0.00	0.01
Serbia	0.08	0.08	0.01	0.01	0.01	0.01
Singapore	-0.04	-0.03	0.00	0.00	0.00	0.00
Slovak Republic	0.08	0.06	0.01	0.00	0.01	0.01
Slovenia	-0.02	-0.02	0.00	0.00	0.00	0.00
Spain	0.11	0.10	0.01	0.01	0.01	0.01
Sweden	-0.04	-0.02	0.00	0.00	0.00	0.00
Thailand	0.01	0.01	0.00	0.00	0.00	0.00
Tunisia	0.04	0.01	0.00	0.00	0.00	0.00
Turkey	0.02	0.02	0.00	0.00	0.00	0.00
United Arab Emirates	0.09	0.10	0.01	0.01	0.01	0.01
United States	0.02	0.03	0.00	0.00	0.00	0.00
Yemen	0.05	0.02	0.00	0.00	0.01	0.02
<b>International Median</b>	<b>0.02</b>	<b>0.03</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Sixth Grade Participants</b>						
Botswana	-0.06	-0.08	0.00	0.01	0.01	0.01
Honduras	-0.04	-0.07	0.00	0.00	0.00	0.01
Yemen	0.05	0.02	0.00	0.00	0.03	0.03
<b>Benchmarking Participants</b>						
Alberta, Canada	0.03	0.02	0.00	0.00	0.00	0.00
Ontario, Canada	0.01	0.01	0.00	0.00	0.00	0.00
Quebec, Canada	-0.07	-0.07	0.00	0.00	0.00	0.00
Abu Dhabi, UAE	0.09	0.07	0.01	0.01	0.00	0.00
Dubai, UAE	0.07	0.05	0.01	0.00	0.01	0.00
Florida, US	0.04	0.03	0.00	0.00	0.00	0.00
North Carolina, US	-0.02	-0.01	0.00	0.00	0.00	0.00