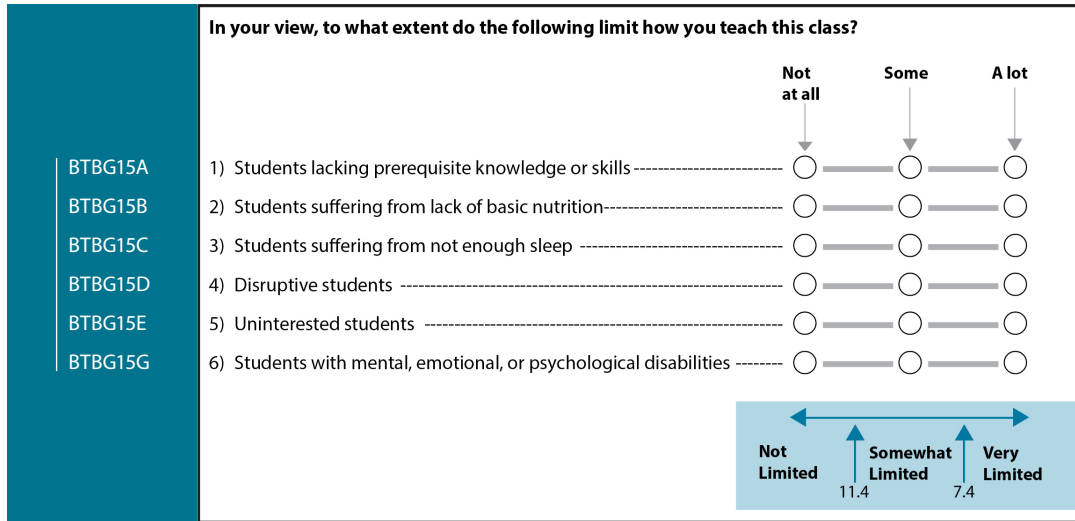


Teaching Limited by Student Needs Scale, Eighth Grade

The Teaching Limited by Student Needs (LSN) scale was created based on teachers' responses concerning six needs described below.

Items in the TIMSS 2015 Teaching Limited by Student Needs Scale, Eighth Grade



Item Parameters for the TIMSS 2015 Teaching Limited by Student Needs Scale, Eighth Grade

Item	delta	tau_1	tau_2	Infit
BTBG15A	1.14171	-1.83653	1.83653	1.03
BTBG15B	-1.14425	-1.12334	1.12334	1.09
BTBG15C	-0.16051	-1.68796	1.68796	1.04
BTBG15D	0.30396	-1.44379	1.44379	0.94
BTBG15E	0.86567	-1.84509	1.84509	0.89
BTBG15G	-1.00658	-1.45309	1.45309	1.07

Scale Transformation Constants for the TIMSS 2015 Teaching Limited by Student Needs Scale, Eighth Grade

Scale Transformation Constants	
A = 9.392409	Transformed Scale Score = 9.392409 + 1.217478 • Logit Scale Score
B = 1.217478	

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

**Equivalence Table of Raw and Transformed Scale Scores for the TIMSS
2015 Teaching Limited by Student Needs Scale, Eighth Grade**

Raw Score	Transformed Scale Score	Cutpoint
0	4.10087	
1	5.69119	
2	6.59237	
3	7.31350	7.4
4	7.96367	
5	8.59178	
6	9.23167	
7	9.91091	
8	10.64876	
9	11.44991	11.4
10	12.32894	
11	13.37525	
12	15.08058	

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 Teaching Limited by Student Needs Scale, Eighth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Component Loadings for Each Item					
			BTBG15A	BTBG15B	BTBG15C	BTBG15D	BTBG15E	BTBG15G
Australia	0.78	48	0.66	0.55	0.73	0.75	0.77	0.66
Bahrain	0.75	44	0.67	0.58	0.62	0.77	0.74	0.58
Botswana (9)	0.61	35	0.28	0.61	0.70	0.60	0.65	0.61
Canada	0.76	46	0.64	0.65	0.74	0.64	0.72	0.67
Chile	0.75	44	0.65	0.68	0.68	0.69	0.71	0.59
Chinese Taipei	0.75	45	0.65	0.65	0.61	0.71	0.70	0.69
Egypt	0.68	39	0.55	0.56	0.58	0.75	0.75	0.53
England	0.80	50	0.64	0.67	0.74	0.74	0.76	0.68
Georgia	0.65	37	0.60	0.49	0.56	0.65	0.69	0.63
Hong Kong SAR	0.71	41	0.62	0.47	0.64	0.73	0.67	0.69
Hungary	0.80	50	0.66	0.65	0.72	0.74	0.73	0.71
Iran, Islamic Rep. of	0.74	43	0.48	0.63	0.66	0.75	0.69	0.72
Ireland	0.76	45	0.56	0.65	0.68	0.72	0.76	0.66
Israel	0.82	52	0.69	0.67	0.72	0.77	0.78	0.69
Italy	0.70	41	0.69	0.64	0.69	0.69	0.69	0.39
Japan	0.75	44	0.76	0.21	0.72	0.68	0.80	0.65
Jordan	0.61	34	0.62	0.50	0.59	0.63	0.71	0.38
Kazakhstan	0.80	51	0.70	0.63	0.76	0.82	0.72	0.65
Korea, Rep. of	0.80	50	0.64	0.55	0.74	0.78	0.79	0.70
Kuwait	0.64	36	0.64	0.50	0.64	0.70	0.70	0.37
Lebanon	0.67	38	0.63	0.54	0.63	0.63	0.63	0.62
Lithuania	0.75	44	0.62	0.55	0.62	0.76	0.76	0.66
Malaysia	0.73	43	0.67	0.52	0.56	0.76	0.78	0.62
Malta	0.77	47	0.65	0.59	0.65	0.77	0.78	0.65
Morocco	0.66	38	0.34	0.51	0.64	0.75	0.74	0.63
New Zealand	0.79	49	0.70	0.65	0.69	0.76	0.78	0.63
Norway (9)	0.73	43	0.58	0.72	0.73	0.60	0.64	0.64
Oman	0.76	45	0.66	0.59	0.66	0.69	0.76	0.67
Qatar	0.76	47	0.65	0.65	0.65	0.80	0.79	0.49
Russian Federation	0.78	47	0.61	0.65	0.72	0.73	0.68	0.72
Saudi Arabia	0.66	37	0.62	0.55	0.61	0.66	0.70	0.52
Singapore	0.73	43	0.64	0.55	0.68	0.71	0.72	0.61
Slovenia	0.76	45	0.67	0.42	0.68	0.78	0.81	0.61
South Africa (9)	0.73	42	0.66	0.57	0.60	0.70	0.72	0.62
Sweden	0.77	47	0.68	0.61	0.70	0.72	0.74	0.64
Thailand	0.69	40	0.50	0.49	0.55	0.75	0.76	0.67
Turkey	0.71	41	0.67	0.56	0.55	0.74	0.69	0.60
United Arab Emirates	0.75	45	0.64	0.62	0.72	0.75	0.79	0.46
United States	0.74	44	0.61	0.62	0.66	0.71	0.68	0.68
Benchmarking Participants								
Buenos Aires, Argentina	0.78	49	0.49	0.72	0.81	0.70	0.69	0.74
Ontario, Canada	0.74	44	0.61	0.67	0.74	0.62	0.69	0.65
Quebec, Canada	0.80	51	0.71	0.63	0.74	0.70	0.77	0.72
Norway (8)	0.73	43	0.54	0.66	0.68	0.63	0.74	0.64
Abu Dhabi, UAE	0.74	43	0.67	0.63	0.67	0.68	0.78	0.49
Dubai, UAE	0.76	46	0.63	0.55	0.75	0.79	0.78	0.52
Florida, US	0.81	52	0.74	0.68	0.77	0.69	0.77	0.67

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

Relationship Between the TIMSS 2015 Teaching Limited by Student Needs Scale, Eighth Grade, and TIMSS 2015 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		
Australia	0.45	0.27	0.20	0.07	0.18	0.06
Bahrain	0.16	0.18	0.03	0.03	0.02	0.03
Botswana (9)	0.11	0.09	0.01	0.01	0.00	0.00
Canada	0.26	0.18	0.07	0.03	0.05	0.02
Chile	0.32	0.38	0.10	0.15	0.09	0.11
Chinese Taipei	0.20	0.19	0.04	0.04	0.03	0.04
Egypt	0.11	0.10	0.01	0.01	0.01	0.01
England	0.51	0.44	0.26	0.19	0.18	0.17
Georgia	0.07	0.06	0.00	0.00	0.01	0.00
Hong Kong SAR	0.37	0.28	0.14	0.08	0.06	0.04
Hungary	0.37	0.31	0.14	0.10	0.12	0.07
Iran, Islamic Rep. of	0.16	0.17	0.02	0.03	0.04	0.03
Ireland	0.40	0.20	0.16	0.04	0.11	0.03
Israel	0.40	0.29	0.16	0.09	0.14	0.08
Italy	0.13	0.09	0.02	0.01	0.01	0.01
Japan	0.16	0.12	0.03	0.02	0.01	0.01
Jordan	0.11	0.17	0.01	0.03	0.01	0.03
Kazakhstan	0.08	0.10	0.01	0.01	0.00	0.01
Korea, Rep. of	0.11	0.05	0.01	0.00	0.01	0.00
Kuwait	0.20	0.09	0.04	0.01	0.04	0.01
Lebanon	0.02	-0.01	0.00	0.00	0.01	0.00
Lithuania	0.20	0.17	0.04	0.03	0.03	0.02
Malaysia	0.37	0.39	0.14	0.15	0.11	0.10
Malta	0.40	0.28	0.16	0.08	0.14	0.05
Morocco	0.04	0.12	0.00	0.01	0.00	0.01
New Zealand	0.45	0.41	0.21	0.17	0.13	0.13
Norway (9)	0.12	0.15	0.01	0.02	0.01	0.02
Oman	0.11	0.08	0.01	0.01	0.02	0.01
Qatar	0.33	0.33	0.11	0.11	0.12	0.09
Russian Federation	0.07	0.08	0.00	0.01	0.01	0.01
Saudi Arabia	0.25	0.09	0.06	0.01	0.06	0.01
Singapore	0.32	0.38	0.10	0.15	0.07	0.12
Slovenia	0.17	0.09	0.03	0.01	0.03	0.01
South Africa (9)	0.10	0.12	0.01	0.01	0.01	0.03
Sweden	0.25	0.17	0.06	0.03	0.05	0.02
Thailand	0.25	0.20	0.06	0.04	0.06	0.04
Turkey	0.22	0.27	0.05	0.07	0.04	0.06
United Arab Emirates	0.30	0.30	0.09	0.09	0.08	0.08
United States	0.30	0.21	0.09	0.04	0.08	0.03
International Median	0.20	0.17	0.04	0.03	0.04	0.03
Benchmarking Participants						
Buenos Aires, Argentina	0.17	0.22	0.03	0.05	0.04	0.04
Ontario, Canada	0.21	0.17	0.04	0.03	0.04	0.03
Quebec, Canada	0.34	0.19	0.12	0.04	0.09	0.02
Norway (8)	0.19	0.13	0.04	0.02	0.03	0.02
Abu Dhabi, UAE	0.28	0.21	0.08	0.04	0.06	0.05
Dubai, UAE	0.29	0.27	0.08	0.07	0.08	0.07
Florida, US	0.41	0.15	0.16	0.02	0.16	0.02