

TIMSS 2011

The TIMSS 2011 Teacher Working Conditions Scale, Fourth Grade

The Teacher Working Conditions (TWC) 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 Teacher Working Conditions Scale, Fourth Grade

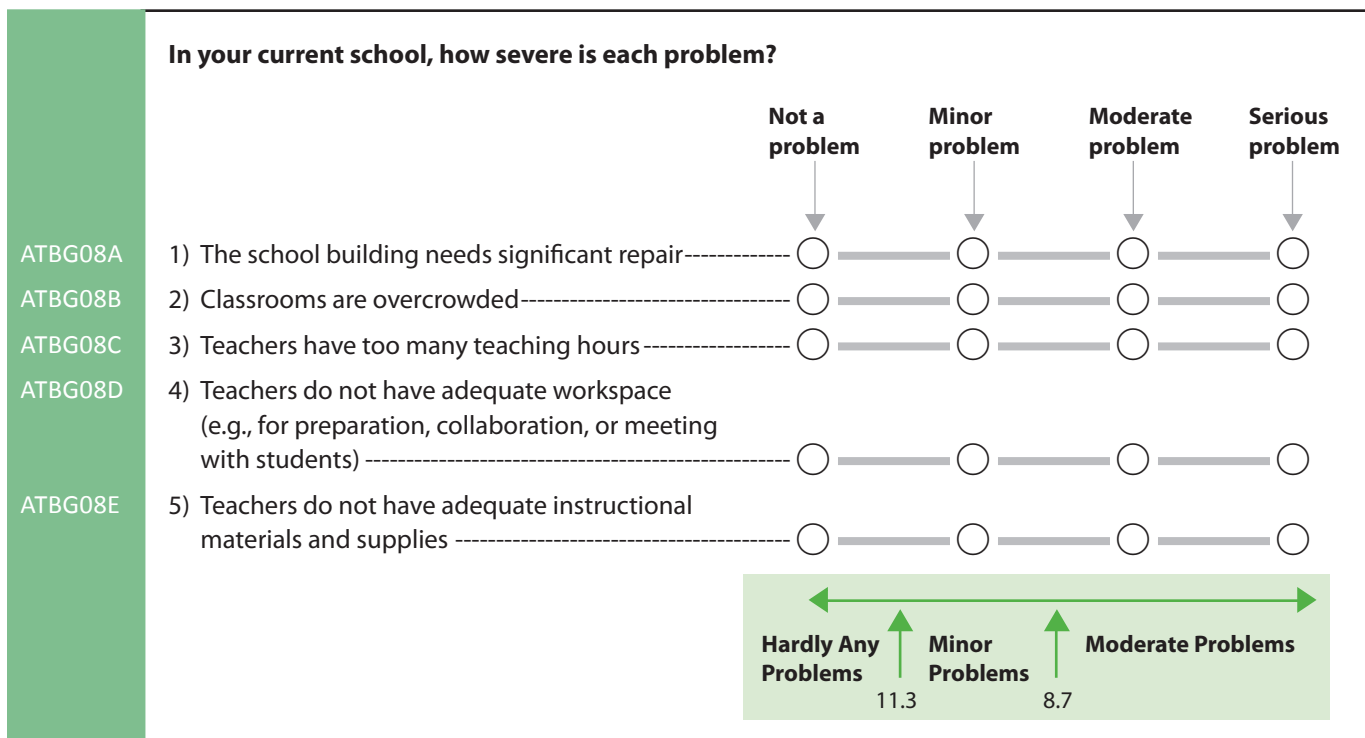


Exhibit 2: Item Parameters for TIMSS 2011 Teacher Working Conditions Scale, Fourth Grade

Item	delta	tau_1	tau_2	tau_3
ATBG08A	-0.66623	-0.70917	0.05938	0.64979
ATBG08B	-0.74691	-0.73220	0.13001	0.60219
ATBG08C	-0.86902	-0.79433	0.20769	0.58664
ATBG08D	-0.49506	-0.63520	0.15079	0.48441
ATBG08E	-0.57468	-0.85560	-0.00734	0.86294

Exhibit 3: Scale Transformation Constants

Scale Transformation Constants

$$A = 10.01266$$

$$B = 1.84795$$

$$\text{Transformed Scale Score} = 10.01266 + 1.84795 \cdot \text{Logit Scale Score}$$

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	3.08576		8	8.99902	
1	5.17365		9	9.37462	
2	6.17264		10	9.77172	
3	6.85625		11	10.19980	
4	7.39053		12	10.70416	
5	7.84357		13	11.33701	11.3
6	8.24977		14	12.26446	
7	8.62694	8.7	15	14.23924	

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Teacher Working Conditions Scale, Fourth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			ATBG08A	ATBG08B	ATBG08C	ATBG08D	ATBG08E
Armenia	0.52	36	0.55	0.50	0.37	0.73	0.76
Australia	0.83	59	0.78	0.78	0.71	0.84	0.73
Austria	0.77	52	0.69	0.79	0.57	0.76	0.78
Azerbaijan	0.57	39	0.25	0.64	0.71	0.75	0.63
Bahrain	0.81	57	0.65	0.77	0.77	0.82	0.76
Belgium (Flemish)	0.66	44	0.70	0.47	0.58	0.79	0.72
Chile	0.79	55	0.77	0.72	0.62	0.82	0.77
Chinese Taipei	0.79	55	0.67	0.77	0.77	0.79	0.69
Croatia	0.76	51	0.72	0.66	0.57	0.83	0.78
Czech Republic	0.67	45	0.54	0.70	0.63	0.72	0.74
Denmark	0.68	44	0.65	0.69	0.67	0.70	0.60
England	0.67	44	0.55	0.77	0.60	0.71	0.67
Finland	0.65	43	0.67	0.56	0.53	0.78	0.70
Georgia	0.69	45	0.67	0.65	0.60	0.74	0.67
Germany	0.75	51	0.69	0.73	0.61	0.79	0.72
Hong Kong SAR	0.77	52	0.62	0.73	0.76	0.78	0.71
Hungary	0.74	50	0.56	0.74	0.73	0.79	0.71
Iran, Islamic Rep. of	0.65	42	0.61	0.57	0.52	0.82	0.68
Ireland	0.76	52	0.70	0.78	0.59	0.83	0.68
Italy	0.73	48	0.75	0.71	0.48	0.77	0.72

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Teacher Working Conditions Scale, Fourth Grade (Continued)

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			ATBG08A	ATBG08B	ATBG08C	ATBG08D	ATBG08E
Japan	0.74	50	0.59	0.68	0.74	0.77	0.72
Kazakhstan	0.77	52	0.61	0.70	0.71	0.83	0.75
Korea, Rep. of	0.79	55	0.56	0.74	0.83	0.77	0.78
Kuwait	0.79	55	0.64	0.73	0.74	0.78	0.80
Lithuania	0.59	39	0.52	0.67	0.43	0.78	0.65
Malta	0.77	52	0.67	0.68	0.72	0.81	0.72
Morocco	0.72	48	0.62	0.63	0.68	0.80	0.72
Netherlands	0.67	44	0.55	0.67	0.71	0.66	0.71
New Zealand	0.75	51	0.70	0.71	0.63	0.76	0.74
Northern Ireland	0.77	53	0.76	0.77	0.61	0.79	0.69
Norway	0.72	48	0.68	0.68	0.62	0.79	0.67
Oman	0.76	51	0.61	0.72	0.73	0.79	0.70
Poland	0.66	42	0.63	0.65	0.48	0.80	0.64
Portugal	0.77	53	0.75	0.65	0.59	0.84	0.78
Qatar	0.75	50	0.66	0.75	0.62	0.77	0.74
Romania	0.79	54	0.63	0.77	0.74	0.80	0.75
Russian Federation	0.68	45	0.62	0.66	0.48	0.81	0.73
Saudi Arabia	0.80	56	0.72	0.79	0.62	0.82	0.77
Serbia	0.71	47	0.76	0.75	0.42	0.73	0.71
Singapore	0.82	58	0.69	0.76	0.73	0.83	0.78
Slovak Republic	0.67	44	0.54	0.62	0.67	0.79	0.68
Slovenia	0.68	44	0.67	0.51	0.59	0.78	0.71
Spain	0.72	48	0.56	0.66	0.67	0.79	0.75
Sweden	0.71	47	0.71	0.61	0.57	0.83	0.65
Thailand	0.75	51	0.73	0.69	0.71	0.80	0.62
Tunisia	0.81	57	0.72	0.65	0.75	0.84	0.81
Turkey	0.73	49	0.59	0.63	0.65	0.80	0.81
United Arab Emirates	0.78	53	0.68	0.76	0.65	0.80	0.74
United States	0.72	48	0.64	0.71	0.61	0.80	0.67
Yemen	0.65	42	0.60	0.69	0.41	0.78	0.70
Sixth Grade Participants							
Botswana	0.71	47	0.65	0.77	0.49	0.77	0.70
Honduras	0.70	46	0.62	0.55	0.66	0.78	0.76
Yemen	0.68	44	0.67	0.69	0.60	0.70	0.66
Benchmarking Participants							
Alberta, Canada	0.74	50	0.55	0.75	0.72	0.79	0.70
Ontario, Canada	0.63	41	0.49	0.70	0.64	0.75	0.58
Quebec, Canada	0.68	44	0.59	0.73	0.63	0.66	0.70

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Component Analysis of the Items in the TIMSS 2011 Teacher Working Conditions Scale, Fourth Grade (Continued)

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			ATBG08A	ATBG08B	ATBG08C	ATBG08D	ATBG08E
Abu Dhabi, UAE	0.79	55	0.59	0.80	0.64	0.86	0.78
Dubai, UAE	0.76	51	0.72	0.76	0.68	0.76	0.67
Florida, US	0.72	48	0.73	0.49	0.70	0.79	0.70
North Carolina, US	0.65	42	0.63	0.46	0.65	0.79	0.69

Exhibit 6: Relationship Between the TIMSS 2011 Teacher Working Conditions 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 (η^2)	
	(r)		(r ²)		Mathematics	Science
	Mathematics	Science	Mathematics	Science		
Armenia	-0.01	0.02	0.00	0.00	0.00	0.00
Australia	0.10	0.09	0.01	0.01	0.02	0.01
Austria	0.08	0.07	0.01	0.00	0.01	0.01
Azerbaijan	0.09	0.06	0.01	0.00	0.01	0.00
Bahrain	0.16	0.07	0.02	0.01	0.03	0.03
Belgium (Flemish)	0.02	0.02	0.00	0.00	0.00	0.01
Chile	0.18	0.17	0.03	0.03	0.04	0.03
Chinese Taipei	0.01	0.01	0.00	0.00	0.00	0.00
Croatia	-0.04	-0.06	0.00	0.00	0.00	0.00
Czech Republic	-0.06	-0.05	0.00	0.00	0.00	0.00
Denmark	0.04	0.03	0.00	0.00	0.00	0.00
England	-0.01	0.01	0.00	0.00	0.00	0.00
Finland	0.01	0.01	0.00	0.00	0.00	0.00
Georgia	-0.04	-0.04	0.00	0.00	0.02	0.02
Germany	0.05	0.07	0.00	0.01	0.00	0.01
Hong Kong SAR	-0.02	0.01	0.00	0.00	0.00	0.00
Hungary	-0.14	-0.13	0.02	0.02	0.01	0.01
Iran, Islamic Rep. of	0.06	0.05	0.00	0.00	0.01	0.01
Ireland	0.05	0.05	0.00	0.00	0.00	0.01
Italy	0.07	0.07	0.01	0.01	0.01	0.01
Japan	0.02	0.02	0.00	0.00	0.00	0.00
Kazakhstan	0.07	0.08	0.00	0.01	0.01	0.01
Korea, Rep. of	-0.01	-0.02	0.00	0.00	0.00	0.00
Kuwait	0.01	0.02	0.00	0.00	0.00	0.00
Lithuania	-0.03	-0.02	0.00	0.00	0.00	0.00
Malta	0.09	0.03	0.01	0.00	0.01	0.02
Morocco	0.22	0.23	0.05	0.05	0.08	0.06

Exhibit 6: Relationship Between the TIMSS 2011 Teacher Working Conditions 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 (η^2)	
	(r)		(r ²)		Mathematics	Science
	Mathematics	Science	Mathematics	Science		
Netherlands	0.01	-0.01	0.00	0.00	0.00	0.00
New Zealand	0.03	0.03	0.00	0.00	0.00	0.00
Northern Ireland	0.04	0.05	0.00	0.00	0.00	0.01
Norway	0.03	0.01	0.00	0.00	0.00	0.00
Oman	0.14	0.08	0.02	0.01	0.02	0.00
Poland	-0.11	-0.11	0.01	0.01	0.01	0.01
Portugal	-0.01	-0.01	0.00	0.00	0.00	0.01
Qatar	0.10	0.12	0.01	0.01	0.00	0.03
Romania	0.03	0.01	0.00	0.00	0.00	0.00
Russian Federation	0.03	0.04	0.00	0.00	0.00	0.00
Saudi Arabia	0.08	0.18	0.01	0.03	0.00	0.02
Serbia	0.02	0.02	0.00	0.00	0.00	0.00
Singapore	0.02	0.04	0.00	0.00	0.00	0.01
Slovak Republic	-0.02	-0.01	0.00	0.00	0.01	0.01
Slovenia	0.01	0.00	0.00	0.00	0.00	0.00
Spain	0.03	0.03	0.00	0.00	0.00	0.00
Sweden	0.04	0.04	0.00	0.00	0.00	0.00
Thailand	0.05	0.07	0.00	0.01	0.00	0.01
Tunisia	0.14	0.12	0.02	0.01	0.01	0.01
Turkey	0.18	0.18	0.03	0.03	0.04	0.04
United Arab Emirates	0.11	0.09	0.01	0.01	0.01	0.01
United States	0.07	0.07	0.00	0.01	0.01	0.01
Yemen	0.02	-0.08	0.00	0.01	0.01	0.00
International Median	0.03	0.03	0.00	0.00	0.00	0.01
Sixth Grade Participants						
Botswana	0.18	0.18	0.03	0.03	0.04	0.04
Honduras	0.29	0.28	0.08	0.08	0.07	0.06
Yemen	0.01	0.02	0.00	0.00	0.00	0.01
Benchmarking Participants						
Alberta, Canada	0.01	-0.01	0.00	0.00	0.00	0.00
Ontario, Canada	-0.03	-0.04	0.00	0.00	0.00	0.00
Quebec, Canada	0.09	0.10	0.01	0.01	0.01	0.01
Abu Dhabi, UAE	0.10	0.13	0.01	0.02	0.00	0.01
Dubai, UAE	0.17	0.14	0.03	0.02	0.03	0.02
Florida, US	0.02	0.01	0.00	0.00	0.00	0.01
North Carolina, US	-0.11	-0.11	0.01	0.01	0.02	0.02