

TIMSS 2011

The TIMSS 2011 School Discipline and Safety Scale, Eighth Grade

The School Discipline and Safety (DAS) scale was created based on principals' responses to the eleven 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 School Discipline and Safety Scale, Eighth Grade

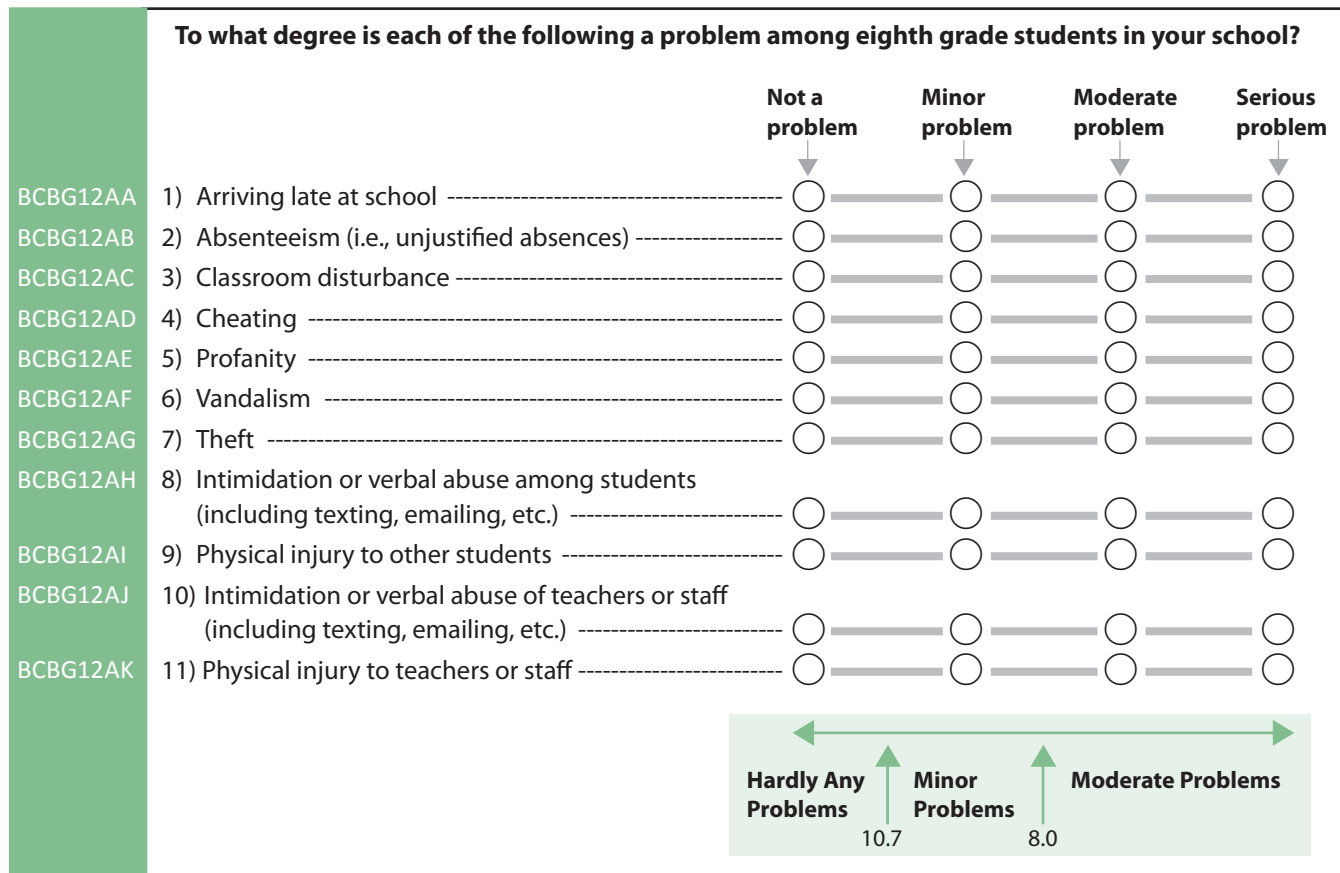


Exhibit 2: Item Parameters for the TIMSS 2011 School Discipline and Safety Scale, Eighth Grade

Item	delta	tau_1	tau_2	tau_3
BCBG12AA	-1.41783	-2.66038	-0.44483	3.10521
BCBG12AB	-0.95470	-1.98278	-0.60883	2.59161
BCBG12AC	-0.88425	-2.36170	-0.37631	2.73801
BCBG12AD	-1.61673	-1.66640	-0.69693	2.36333
BCBG12AE	-1.03232	-1.87245	-0.45305	2.32550
BCBG12AF	-1.46861	-1.03479	-0.69199	1.72678
BCBG12AG	-1.82940	-0.26153	-1.24646	1.50799
BCBG12AH	-1.45181	-1.79912	-0.53614	2.33526
BCBG12AI	-1.81395	-0.74346	-1.01591	1.75937
BCBG12AJ	-2.16361	-0.09371	-0.87572	0.96943
BCBG12AK	-2.55088	1.19612	-0.60232	-0.59380

Exhibit 3: Scale Transformation Constants

Scale Transformation Constants

A = 9.94276

B = 0.97571

Transformed Scale Score = 9.94276 + 0.97571 • 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	3.98044		17	8.08573	
1	5.11225		18	8.23471	
2	5.65427		19	8.39731	
3	6.01482		20	8.57613	
4	6.28511		21	8.77476	
5	6.50168		22	8.99517	
6	6.68312		23	9.23907	
7	6.84071		24	9.50661	
8	6.98299		25	9.79817	
9	7.11136		26	10.11045	
10	7.23211		27	10.44248	
11	7.35107		28	10.79500	10.7
12	7.46631		29	11.17350	
13	7.58128		30	11.59218	
14	7.69780		31	12.08433	
15	7.82011		32	12.73271	
16	7.94894	8.0	33	13.94491	

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 School Discipline and Safety Scale, Eighth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item									
			BCBG12AA	BCBG12AB	BCBG12AC	BCBG12AD	BCBG12AE	BCBG12AF	BCBG12AG	BCBG12AH	BCBG12AI	BCBG12AJ
Armenia	0.92	60	0.58	0.68	0.69	0.45	0.85	0.89	0.89	0.82	0.85	0.89
Australia	0.91	57	0.72	0.78	0.80	0.64	0.83	0.79	0.72	0.71	0.76	0.78
Bahrain	0.93	63	0.64	0.71	0.78	0.76	0.82	0.86	0.83	0.78	0.86	0.84
Chile	0.92	59	0.65	0.73	0.77	0.72	0.78	0.83	0.81	0.81	0.81	0.76
Chinese Taipei	0.90	54	0.65	0.68	0.76	0.72	0.77	0.79	0.77	0.69	0.76	0.72
England	0.87	47	0.73	0.66	0.78	0.40	0.80	0.74	0.62	0.67	0.65	0.73
Finland	0.85	44	0.63	0.53	0.68	0.63	0.76	0.64	0.66	0.62	0.72	0.69
Georgia	0.92	61	0.63	0.67	0.76	0.63	0.83	0.84	0.83	0.86	0.88	0.81
Ghana	0.85	43	0.48	0.56	0.54	0.72	0.74	0.73	0.72	0.66	0.70	0.69
Hong Kong SAR	0.88	50	0.73	0.65	0.74	0.66	0.82	0.79	0.71	0.68	0.71	0.53
Hungary	0.89	50	0.65	0.60	0.72	0.73	0.72	0.76	0.66	0.73	0.78	0.69
Indonesia	0.95	69	0.57	0.84	0.75	0.79	0.87	0.82	0.89	0.89	0.89	0.91
Iran, Islamic Rep. of	0.86	45	0.69	0.66	0.66	0.68	0.80	0.65	0.62	0.77	0.71	0.38
Israel	0.96	73	0.73	0.77	0.82	0.89	0.83	0.89	0.91	0.87	0.90	0.90
Italy	0.94	65	0.63	0.83	0.58	0.67	0.82	0.91	0.90	0.82	0.91	0.89
Japan	0.95	70	0.66	0.50	0.90	0.84	0.93	0.90	0.91	0.82	0.90	0.92
Jordan	0.94	65	0.63	0.74	0.78	0.82	0.80	0.83	0.87	0.85	0.87	0.84
Kazakhstan	0.78	35	0.62	0.66	0.81	0.67	0.70	0.57	0.52	0.51	0.37	0.24
Korea, Rep. of	0.95	69	0.70	0.82	0.75	0.80	0.85	0.87	0.89	0.86	0.89	0.86
Lebanon	0.95	67	0.67	0.70	0.75	0.85	0.86	0.88	0.87	0.86	0.84	0.87
Lithuania	0.85	43	0.74	0.71	0.66	0.65	0.74	0.68	0.50	0.75	0.56	0.53
Macedonia, Rep. of	0.94	65	0.58	0.74	0.83	0.77	0.83	0.85	0.86	0.86	0.86	0.85
Malaysia	0.86	45	0.58	0.65	0.76	0.71	0.59	0.74	0.69	0.72	0.68	0.57
Morocco	0.94	66	0.36	0.68	0.86	0.82	0.90	0.87	0.89	0.82	0.88	0.87
New Zealand	0.90	52	0.67	0.80	0.75	0.49	0.74	0.80	0.79	0.72	0.70	0.71
Norway	0.88	48	0.74	0.75	0.70	0.58	0.67	0.75	0.65	0.73	0.60	0.75
Oman	0.96	75	0.77	0.79	0.81	0.85	0.90	0.88	0.91	0.90	0.92	0.90
Palestinian Nat'l Auth.	0.96	73	0.66	0.76	0.80	0.88	0.89	0.90	0.92	0.87	0.90	0.91
Qatar	0.96	74	0.71	0.79	0.79	0.92	0.89	0.86	0.88	0.88	0.92	0.92
Romania	0.93	61	0.61	0.68	0.83	0.79	0.79	0.84	0.78	0.80	0.84	0.81
Russian Federation	0.81	38	0.73	0.56	0.68	0.64	0.68	0.52	0.55	0.64	0.63	0.42
Saudi Arabia	0.96	71	0.57	0.74	0.68	0.92	0.91	0.88	0.93	0.90	0.90	0.93
Singapore	0.87	47	0.56	0.63	0.69	0.74	0.74	0.75	0.79	0.71	0.62	0.56
Slovenia	0.90	53	0.63	0.69	0.73	0.63	0.79	0.77	0.69	0.77	0.79	0.77
Sweden	0.85	43	0.52	0.67	0.60	0.42	0.74	0.63	0.68	0.73	0.77	0.72
Syrian Arab Republic	0.94	65	0.62	0.67	0.70	0.87	0.90	0.87	0.88	0.82	0.87	0.82
Thailand	0.90	54	0.63	0.63	0.76	0.77	0.70	0.78	0.78	0.80	0.75	0.71
Tunisia	0.92	59	0.35	0.59	0.74	0.85	0.87	0.81	0.88	0.79	0.85	0.81

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 School Discipline and Safety Scale, Eighth Grade (Continued)

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item									
			BCBG12AA	BCBG12AB	BCBG12AC	BCBG12AD	BCBG12AE	BCBG12AF	BCBG12AG	BCBG12AH	BCBG12AI	BCBG12AJ
Turkey	0.94	67	0.65	0.76	0.78	0.78	0.84	0.91	0.83	0.85	0.90	0.83
Ukraine	0.93	61	0.65	0.75	0.79	0.49	0.78	0.85	0.84	0.85	0.87	0.85
United Arab Emirates	0.96	73	0.72	0.76	0.82	0.92	0.90	0.91	0.89	0.85	0.90	0.88
United States	0.89	50	0.68	0.69	0.73	0.63	0.76	0.76	0.77	0.65	0.73	0.68
Ninth Grade Participants												
Botswana	0.86	44	0.61	0.76	0.72	0.58	0.70	0.60	0.74	0.67	0.73	0.52
Honduras	0.90	54	0.53	0.64	0.67	0.62	0.78	0.81	0.85	0.82	0.81	0.77
South Africa	0.91	55	0.71	0.75	0.76	0.77	0.81	0.77	0.76	0.76	0.73	0.62
Benchmarking Participants												
Alberta, Canada	0.85	43	0.53	0.58	0.74	0.69	0.70	0.73	0.74	0.68	0.59	0.57
Ontario, Canada	0.90	53	0.65	0.72	0.77	0.76	0.80	0.75	0.73	0.69	0.76	0.66
Quebec, Canada	0.88	48	0.61	0.69	0.70	0.46	0.83	0.76	0.70	0.67	0.71	0.76
Abu Dhabi, UAE	0.95	69	0.68	0.73	0.81	0.90	0.89	0.87	0.83	0.81	0.89	0.87
Dubai, UAE	0.97	77	0.70	0.77	0.83	0.94	0.90	0.96	0.94	0.89	0.92	0.90
Alabama, US	0.86	45	0.71	0.57	0.71	0.55	0.84	0.78	0.54	0.74	0.65	0.57
California, US	0.86	46	0.65	0.77	0.69	0.54	0.75	0.76	0.79	0.56	0.66	0.51
Colorado, US	0.85	44	0.60	0.77	0.77	0.60	0.74	0.46	0.58	0.75	0.59	0.64
Connecticut, US	0.78	35	0.47	0.51	0.71	0.32	0.82	0.78	0.56	0.78	0.46	0.19
Florida, US	0.89	50	0.68	0.65	0.68	0.63	0.79	0.76	0.81	0.79	0.59	0.64
Indiana, US	0.86	45	0.77	0.71	0.67	0.58	0.79	0.66	0.69	0.49	0.65	0.61
Massachusetts, US	0.91	58	0.68	0.68	0.84	0.55	0.81	0.87	0.79	0.79	0.86	0.67
Minnesota, US	0.90	52	0.78	0.77	0.74	0.60	0.80	0.66	0.73	0.69	0.74	0.65
North Carolina, US	0.87	46	0.61	0.57	0.59	0.70	0.73	0.74	0.75	0.75	0.65	0.68

Exhibit 6: Relationship Between the TIMSS 2011 School Discipline and Safety 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	0.04	0.05	0.00	0.00	0.01	0.00
Australia	0.32	0.27	0.10	0.07	0.09	0.07
Bahrain	0.11	0.12	0.01	0.01	0.01	0.01
Chile	0.27	0.24	0.07	0.06	0.09	0.07
Chinese Taipei	-0.06	-0.06	0.00	0.00	0.00	0.00
England	0.21	0.22	0.04	0.05	0.05	0.05
Finland	0.12	0.12	0.01	0.01	0.01	0.01
Georgia	-0.01	-0.01	0.00	0.00	0.00	0.00
Ghana	0.18	0.18	0.03	0.03	0.03	0.03
Hong Kong SAR	0.38	0.33	0.14	0.11	0.10	0.08
Hungary	0.24	0.22	0.06	0.05	0.05	0.04
Indonesia	0.07	0.05	0.00	0.00	0.00	0.00
Iran, Islamic Rep. of	-0.01	0.02	0.00	0.00	0.01	0.01
Israel	0.24	0.18	0.06	0.03	0.06	0.03
Italy	0.12	0.12	0.01	0.01	0.01	0.01
Japan	0.13	0.15	0.02	0.02	0.01	0.01
Jordan	0.03	0.04	0.00	0.00	0.00	0.00
Kazakhstan	0.01	-0.05	0.00	0.00	0.00	0.01
Korea, Rep. of	0.09	0.10	0.01	0.01	0.02	0.01
Lebanon	0.14	0.12	0.02	0.02	0.04	0.04
Lithuania	-0.06	-0.06	0.00	0.00	0.01	0.01
Macedonia, Rep. of	0.10	0.11	0.01	0.01	0.01	0.01
Malaysia	0.24	0.23	0.06	0.05	0.06	0.06
Morocco	-0.02	-0.02	0.00	0.00	0.03	0.03
New Zealand	0.17	0.18	0.03	0.03	0.02	0.02
Norway	0.13	0.10	0.02	0.01	0.01	0.01
Oman	0.12	0.13	0.01	0.02	0.03	0.04
Palestinian Nat'l Auth.	0.02	0.02	0.00	0.00	0.00	0.00
Qatar	0.03	0.04	0.00	0.00	0.01	0.00
Romania	0.16	0.14	0.03	0.02	0.02	0.01
Russian Federation	0.14	0.16	0.02	0.03	0.01	0.01
Saudi Arabia	0.04	0.04	0.00	0.00	0.00	0.00
Singapore	0.24	0.24	0.06	0.06	0.03	0.02
Slovenia	-0.03	-0.03	0.00	0.00	0.01	0.01
Sweden	0.15	0.17	0.02	0.03	0.02	0.02
Syrian Arab Republic	0.10	0.11	0.01	0.01	0.01	0.01
Thailand	-0.05	-0.02	0.00	0.00	0.00	0.00

Exhibit 6: Relationship Between the TIMSS 2011 School Discipline and Safety 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		
Tunisia	-0.05	-0.05	0.00	0.00	0.00	0.00
Turkey	0.13	0.14	0.02	0.02	0.03	0.03
Ukraine	0.10	0.10	0.01	0.01	0.00	0.00
United Arab Emirates	0.13	0.12	0.02	0.01	0.03	0.03
United States	0.19	0.21	0.04	0.04	0.02	0.03
International Median	0.12	0.12	0.01	0.01	0.01	0.01
Ninth Grade Participants						
Botswana	0.14	0.13	0.02	0.02	0.01	0.01
Honduras	0.19	0.19	0.04	0.04	0.04	0.04
South Africa	0.06	0.01	0.00	0.00	0.01	0.00
Benchmarking Participants						
Alberta, Canada	0.15	0.12	0.02	0.01	0.01	0.02
Ontario, Canada	0.05	0.05	0.00	0.00	0.01	0.01
Quebec, Canada	0.13	0.11	0.02	0.01	0.01	0.01
Abu Dhabi, UAE	0.14	0.11	0.02	0.01	0.05	0.04
Dubai, UAE	0.18	0.17	0.03	0.03	0.03	0.03
Alabama, US	0.21	0.22	0.04	0.05	0.04	0.05
California, US	0.15	0.21	0.02	0.05	0.09	0.08
Colorado, US	0.17	0.17	0.03	0.03	0.04	0.04
Connecticut, US	0.51	0.51	0.26	0.26	0.14	0.14
Florida, US	0.07	0.09	0.01	0.01	0.00	0.00
Indiana, US	0.05	0.05	0.00	0.00	0.01	0.01
Massachusetts, US	0.31	0.34	0.10	0.11	0.12	0.13
Minnesota, US	0.17	0.16	0.03	0.02	0.07	0.05
North Carolina, US	0.04	0.03	0.00	0.00	0.00	0.00