

TIMSS 2011

The TIMSS 2011 School Discipline and Safety Scale, Fourth Grade

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

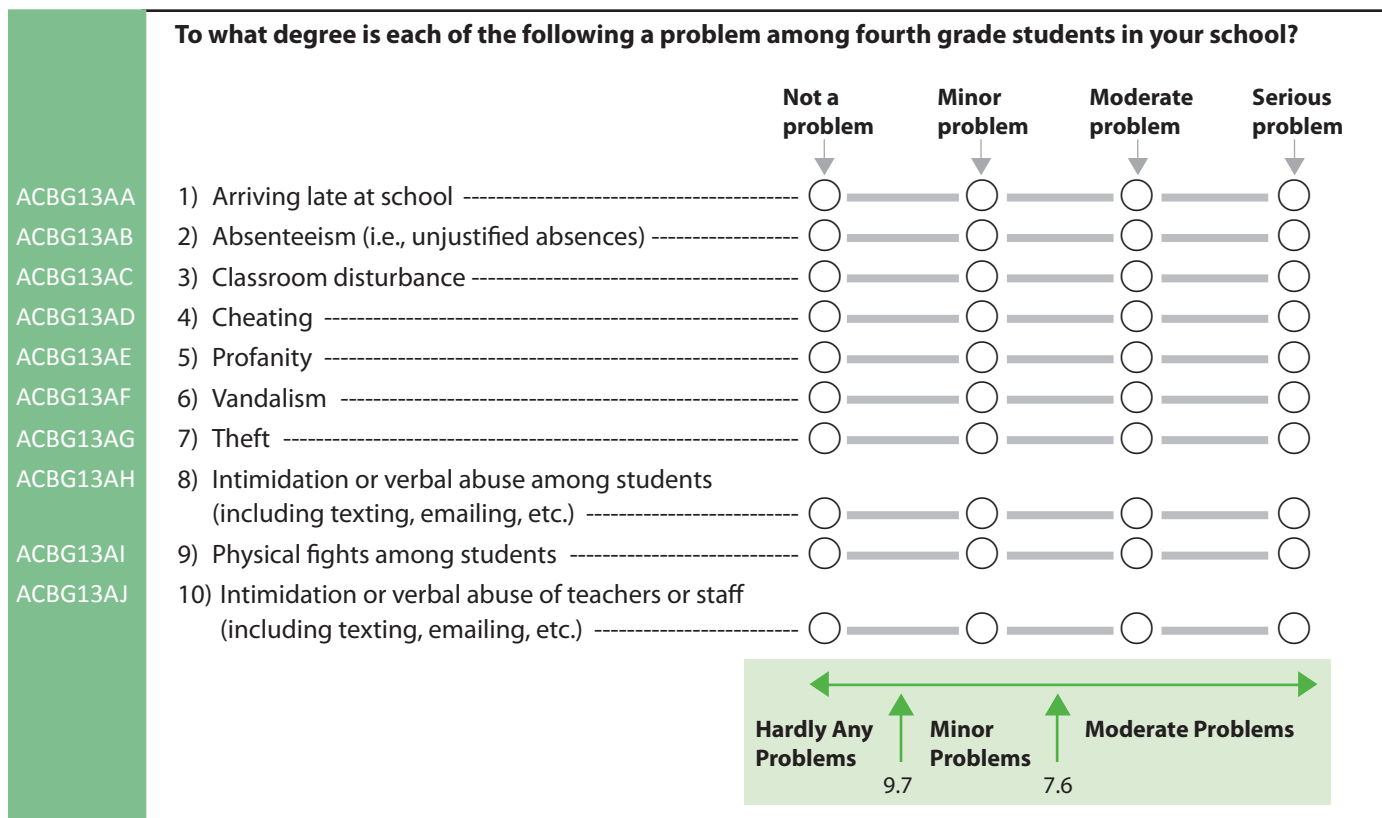


Exhibit 2: Item Parameters for the TIMSS 2011 School Discipline and Safety Scale, Fourth Grade

Item	delta	tau_1	tau_2	tau_3
ACBG13AA	-2.33153	-1.89011	-0.54339	2.43350
ACBG13AB	-1.92714	-0.94300	-0.63835	1.58135
ACBG13AC	-1.46503	-1.99974	-0.30245	2.30219
ACBG13AD	-2.35684	-0.60719	-0.99783	1.60502
ACBG13AE	-1.60209	-1.39636	-0.52292	1.91928

Item	delta	tau_1	tau_2	tau_3
ACBG13AF	-2.15907	-0.29884	-0.64623	0.94507
ACBG13AG	-2.35821	0.32489	-1.20980	0.88491
ACBG13AH	-2.01876	-1.18690	-0.67055	1.85745
ACBG13AI	-1.82158	-1.26435	-0.81212	2.07647
ACBG13AJ	-2.80987	0.39255	-0.68278	0.29023

Exhibit 3: Scale Transformation Constants

Scale Transformation Constants

$$A = 10.02718$$

$$B = 1.06371$$

$$\text{Transformed Scale Score} = 10.02718 + 1.06371 \cdot \text{Logit Scale Score}$$

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	3.48383		16	7.66392	
1	4.65915		17	7.82066	
2	5.20472		18	7.98967	
3	5.56449		19	8.17467	
4	5.83599		20	8.37923	
5	6.05649		21	8.60715	
6	6.24468		22	8.86115	
7	6.41228		23	9.14425	
8	6.56323		24	9.45643	
9	6.70633		25	9.79930	9.7
10	6.84550		26	10.17820	
11	6.97733		27	10.60763	
12	7.10869		28	11.12211	
13	7.24063		29	11.81833	
14	7.37532		30	13.13152	
15	7.51667	7.6			

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

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item									
			ACBG13AA	ACBG13AB	ACBG13AC	ACBG13AD	ACBG13AE	ACBG13AF	ACBG13AG	ACBG13AH	ACBG13AI	ACBG13AJ
Armenia	0.92	61	0.60	0.60	0.74	0.50	0.87	0.94	0.93	0.84	0.79	0.89
Australia	0.89	52	0.63	0.66	0.71	0.62	0.79	0.80	0.68	0.76	0.77	0.79
Austria	0.91	58	0.56	0.81	0.66	0.77	0.76	0.81	0.82	0.74	0.80	0.82
Azerbaijan	0.98	83	0.79	0.85	0.80	0.96	0.96	0.97	0.97	0.94	0.92	0.90
Bahrain	0.93	62	0.67	0.77	0.78	0.85	0.79	0.87	0.82	0.78	0.80	0.73
Belgium (Flemish)	0.82	39	0.47	0.47	0.63	0.58	0.77	0.76	0.50	0.73	0.64	0.61
Chile	0.92	60	0.61	0.69	0.80	0.80	0.76	0.85	0.81	0.80	0.84	0.78
Chinese Taipei	0.89	50	0.69	0.53	0.73	0.65	0.86	0.81	0.73	0.80	0.75	0.45
Croatia	0.86	45	0.50	0.69	0.68	0.46	0.66	0.75	0.77	0.69	0.73	0.74
Czech Republic	0.86	45	0.61	0.67	0.71	0.65	0.77	0.81	0.69	0.74	0.66	0.29
Denmark	0.80	37	0.60	0.47	0.65	0.40	0.77	0.68	0.48	0.64	0.70	0.60
England	0.86	47	0.67	0.64	0.82	0.65	0.70	0.74	0.64	0.68	0.76	0.56
Finland	0.84	41	0.52	0.62	0.77	0.44	0.74	0.62	0.55	0.75	0.75	0.58

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

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item									
			ACBG13AA	ACBG13AB	ACBG13AC	ACBG13AD	ACBG13AE	ACBG13AF	ACBG13AG	ACBG13AH	ACBG13AI	ACBG13AJ
Georgia	0.94	70	0.59	0.73	0.85	0.80	0.88	0.87	0.91	0.90	0.90	0.86
Germany	0.84	41	0.57	0.64	0.70	0.51	0.73	0.70	0.50	0.70	0.75	0.55
Hong Kong SAR	0.86	46	0.58	0.69	0.70	0.65	0.75	0.74	0.58	0.77	0.66	0.60
Hungary	0.90	54	0.55	0.68	0.77	0.70	0.78	0.76	0.79	0.74	0.80	0.75
Iran, Islamic Rep. of	0.80	37	0.49	0.59	0.74	0.64	0.71	0.67	0.49	0.69	0.70	0.18
Ireland	0.84	46	0.43	0.43	0.74	0.55	0.85	0.76	0.74	0.72	0.74	0.70
Italy	0.94	67	0.47	0.81	0.68	0.64	0.82	0.95	0.92	0.89	0.94	0.92
Japan	0.87	51	0.57	0.32	0.78	0.75	0.82	0.79	0.70	0.82	0.66	0.75
Kazakhstan	0.81	43	0.51	0.56	0.59	0.51	0.65	0.79	0.77	0.67	0.66	0.75
Korea, Rep. of	0.95	69	0.64	0.81	0.68	0.89	0.83	0.91	0.90	0.80	0.91	0.90
Kuwait	0.93	63	0.48	0.66	0.78	0.81	0.87	0.86	0.81	0.87	0.88	0.85
Lithuania	0.80	36	0.42	0.44	0.67	0.58	0.74	0.56	0.62	0.72	0.64	0.52
Malta	0.91	56	0.51	0.61	0.64	0.81	0.88	0.87	0.77	0.80	0.74	0.79
Morocco	0.95	70	0.61	0.76	0.85	0.87	0.90	0.88	0.88	0.87	0.90	0.82
Netherlands	0.80	37	0.59	0.63	0.66	0.52	0.51	0.61	0.55	0.74	0.69	0.55
New Zealand	0.89	52	0.61	0.64	0.83	0.64	0.79	0.76	0.78	0.73	0.69	0.75
Northern Ireland	0.74	32	0.58	0.38	0.68	0.49	0.52	0.56	0.56	0.67	0.62	0.58
Norway	0.83	40	0.43	0.49	0.68	0.55	0.77	0.72	0.62	0.72	0.66	0.63
Oman	0.95	70	0.73	0.72	0.77	0.86	0.88	0.88	0.90	0.88	0.86	0.86
Poland	0.86	46	0.65	0.43	0.78	0.57	0.77	0.77	0.74	0.73	0.74	0.44
Portugal	0.92	61	0.58	0.78	0.66	0.66	0.84	0.87	0.88	0.80	0.78	0.91
Qatar	0.96	72	0.69	0.77	0.85	0.92	0.85	0.91	0.88	0.85	0.87	0.86
Romania	0.95	71	0.65	0.75	0.85	0.86	0.82	0.92	0.92	0.86	0.88	0.87
Russian Federation	0.77	34	0.49	0.39	0.68	0.59	0.75	0.59	0.57	0.65	0.64	0.27
Saudi Arabia	0.96	75	0.58	0.76	0.76	0.93	0.89	0.93	0.94	0.92	0.93	0.92
Serbia	0.94	66	0.73	0.82	0.79	0.68	0.77	0.91	0.88	0.84	0.86	0.80
Singapore	0.88	49	0.71	0.72	0.72	0.64	0.76	0.71	0.76	0.70	0.72	0.52
Slovak Republic	0.91	57	0.60	0.64	0.71	0.77	0.81	0.84	0.83	0.76	0.78	0.75
Slovenia	0.89	51	0.65	0.61	0.66	0.63	0.75	0.79	0.74	0.75	0.78	0.75
Spain	0.96	76	0.71	0.87	0.82	0.82	0.87	0.95	0.94	0.90	0.89	0.94
Sweden	0.88	49	0.59	0.60	0.72	0.59	0.79	0.78	0.66	0.76	0.76	0.74
Thailand	0.91	57	0.57	0.70	0.63	0.83	0.74	0.82	0.84	0.77	0.83	0.75
Tunisia	0.95	71	0.57	0.72	0.83	0.91	0.90	0.91	0.93	0.87	0.88	0.87
Turkey	0.95	68	0.62	0.78	0.86	0.81	0.85	0.90	0.86	0.86	0.86	0.85
United Arab Emirates	0.96	75	0.71	0.78	0.85	0.90	0.88	0.92	0.91	0.87	0.91	0.89
United States	0.87	48	0.65	0.70	0.75	0.61	0.77	0.72	0.75	0.70	0.71	0.50
Yemen	0.93	60	0.48	0.62	0.69	0.84	0.83	0.90	0.85	0.84	0.73	0.86

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

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item									
			ACBG13AA	ACBG13AB	ACBG13AC	ACBG13AD	ACBG13AE	ACBG13AF	ACBG13AG	ACBG13AH	ACBG13AI	ACBG13AJ
Sixth Grade Participants												
Botswana	0.87	46	0.54	0.54	0.60	0.75	0.71	0.79	0.78	0.70	0.70	0.60
Honduras	0.95	70	0.72	0.73	0.80	0.81	0.84	0.93	0.89	0.91	0.86	0.87
Yemen	0.93	63	0.50	0.60	0.69	0.85	0.85	0.92	0.86	0.85	0.82	0.88
Benchmarking Participants												
Alberta, Canada	0.80	37	0.53	0.54	0.69	0.57	0.65	0.65	0.66	0.70	0.54	0.50
Ontario, Canada	0.86	46	0.44	0.52	0.74	0.57	0.81	0.83	0.75	0.69	0.64	0.66
Quebec, Canada	0.83	42	0.53	0.57	0.59	0.63	0.75	0.75	0.64	0.67	0.65	0.63
Abu Dhabi, UAE	0.95	70	0.67	0.72	0.83	0.90	0.84	0.90	0.87	0.86	0.87	0.88
Dubai, UAE	0.97	77	0.68	0.77	0.86	0.91	0.92	0.94	0.93	0.87	0.92	0.91
Florida, US	0.88	51	0.53	0.65	0.79	0.77	0.81	0.72	0.83	0.76	0.64	0.61
North Carolina, US	0.85	45	0.62	0.60	0.81	0.74	0.73	0.61	0.69	0.59	0.74	0.52

Exhibit 6: Relationship Between the TIMSS 2011 School Discipline and Safety 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	0.01	0.00	0.00	0.01	0.01
Australia	0.22	0.23	0.05	0.05	0.02	0.02
Austria	0.08	0.09	0.01	0.01	0.01	0.01
Azerbaijan	0.04	0.06	0.00	0.00	0.00	0.00
Bahrain	0.09	0.10	0.01	0.01	0.00	0.01
Belgium (Flemish)	0.09	0.10	0.01	0.01	0.01	0.01
Chile	0.16	0.15	0.03	0.02	0.03	0.03
Chinese Taipei	0.04	0.05	0.00	0.00	0.00	0.00
Croatia	0.07	0.05	0.00	0.00	0.01	0.00
Czech Republic	0.01	0.02	0.00	0.00	0.00	0.00
Denmark	0.09	0.08	0.01	0.01	0.03	0.02
England	0.19	0.19	0.03	0.04	0.04	0.04
Finland	0.11	0.11	0.01	0.01	0.01	0.01
Georgia	-0.07	-0.07	0.01	0.00	0.01	0.00
Germany	0.20	0.22	0.04	0.05	0.06	0.07
Hong Kong SAR	0.21	0.21	0.05	0.04	0.07	0.07
Hungary	0.23	0.23	0.05	0.05	0.07	0.07
Iran, Islamic Rep. of	0.07	0.07	0.01	0.01	0.02	0.02
Ireland	0.18	0.19	0.03	0.04	0.01	0.02

Exhibit 6: Relationship Between the TIMSS 2011 School Discipline and Safety 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		
Italy	0.05	0.06	0.00	0.00	0.00	0.00
Japan	0.01	0.00	0.00	0.00	0.00	0.00
Kazakhstan	0.07	0.03	0.00	0.00	0.02	0.01
Korea, Rep. of	0.03	0.04	0.00	0.00	0.00	0.00
Kuwait	0.08	0.09	0.01	0.01	0.00	0.01
Lithuania	0.05	0.05	0.00	0.00	0.01	0.01
Malta	0.09	0.11	0.01	0.01	0.02	0.02
Morocco	-0.09	-0.07	0.01	0.00	0.01	0.01
Netherlands	0.11	0.10	0.01	0.01	0.02	0.02
New Zealand	0.27	0.27	0.07	0.07	0.08	0.07
Northern Ireland	0.18	0.18	0.03	0.03	0.01	0.01
Norway	0.06	0.05	0.00	0.00	0.00	0.00
Oman	0.03	0.04	0.00	0.00	0.00	0.00
Poland	-0.03	-0.03	0.00	0.00	0.00	0.00
Portugal	0.04	0.05	0.00	0.00	0.00	0.01
Qatar	0.19	0.17	0.04	0.03	0.04	0.03
Romania	0.18	0.19	0.03	0.04	0.03	0.04
Russian Federation	0.04	0.04	0.00	0.00	0.00	0.00
Saudi Arabia	0.04	0.06	0.00	0.00	0.01	0.02
Serbia	-0.06	-0.06	0.00	0.00	0.00	0.01
Singapore	0.07	0.07	0.01	0.00	0.00	0.00
Slovak Republic	0.12	0.11	0.01	0.01	0.01	0.01
Slovenia	-0.01	0.01	0.00	0.00	0.00	0.00
Spain	0.11	0.09	0.01	0.01	0.03	0.02
Sweden	0.18	0.20	0.03	0.04	0.03	0.04
Thailand	0.08	0.08	0.01	0.01	0.03	0.03
Tunisia	-0.02	-0.03	0.00	0.00	0.00	0.00
Turkey	0.18	0.20	0.03	0.04	0.05	0.05
United Arab Emirates	0.10	0.09	0.01	0.01	0.02	0.02
United States	0.15	0.16	0.02	0.03	0.02	0.03
Yemen	0.07	0.04	0.00	0.00	0.01	0.01
International Median	0.08	0.08	0.01	0.01	0.01	0.01
Sixth Grade Participants						
Botswana	0.22	0.22	0.05	0.05	0.04	0.04
Honduras	0.13	0.16	0.02	0.02	0.01	0.02
Yemen	0.06	0.07	0.00	0.01	0.02	0.02

Exhibit 6: Relationship Between the TIMSS 2011 School Discipline and Safety 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		
Benchmarking Participants						
Alberta, Canada	0.13	0.12	0.02	0.01	0.01	0.01
Ontario, Canada	0.08	0.05	0.01	0.00	0.01	0.00
Quebec, Canada	0.10	0.09	0.01	0.01	0.01	0.01
Abu Dhabi, UAE	0.11	0.09	0.01	0.01	0.03	0.02
Dubai, UAE	0.16	0.15	0.03	0.02	0.05	0.04
Florida, US	0.16	0.18	0.03	0.03	0.01	0.01
North Carolina, US	0.14	0.16	0.02	0.03	0.02	0.02