

TIMSS 2011

The TIMSS 2011 Students Like Learning Physics Scale, Eighth Grade

The Students Like Learning Physics (SLP) scale was created based on students' degree of agreement to the five statements described below. This scale was administered in countries where the sciences are taught as separate subjects. 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 Students Like Learning Physics Scale, Eighth Grade

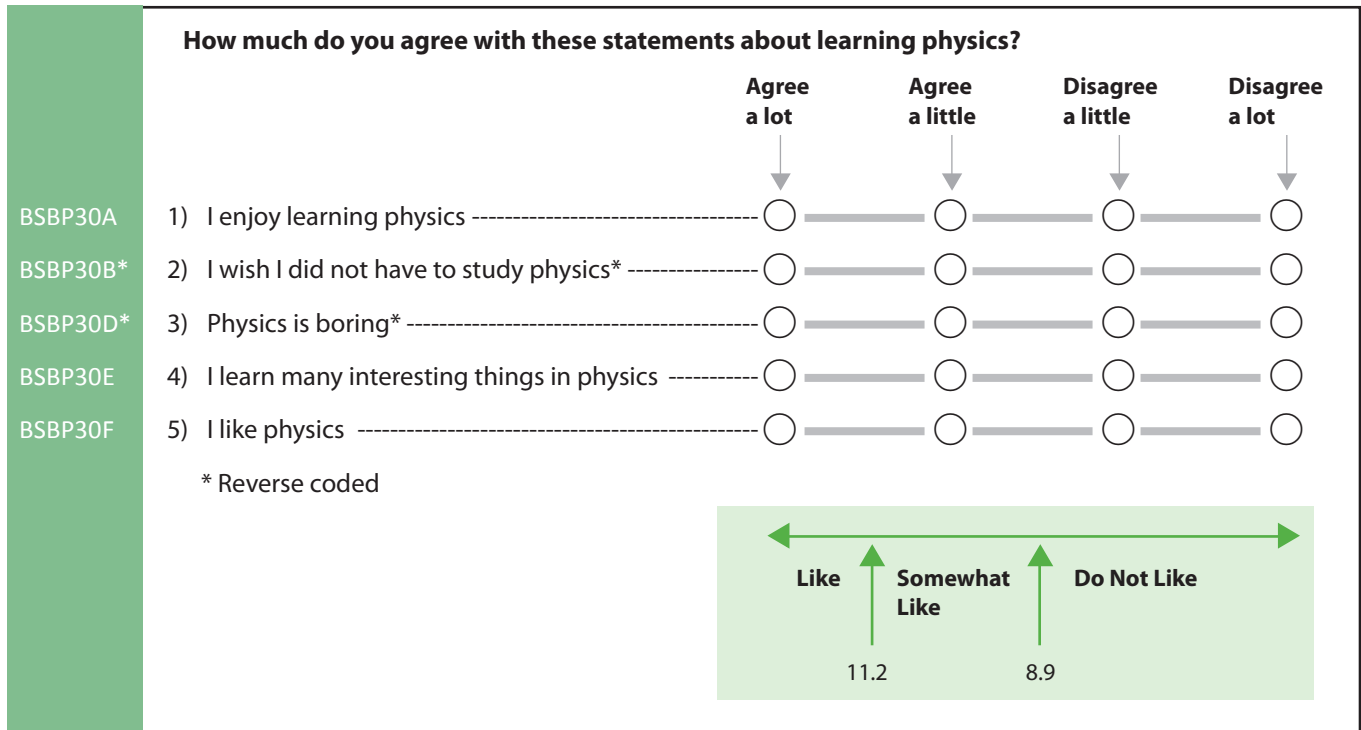


Exhibit 2: Item Parameters for the TIMSS 2011 Students Like Learning Physics Scale, Eighth Grade

Item	delta	tau_1	tau_2	tau_3
BSBP30A	-0.93300	-1.16148	-0.28499	1.44647
BSBP30B*	-0.53900	-0.97837	-0.08635	1.06472
BSBP30D*	-0.62675	-1.06742	-0.11477	1.18219
BSBP30E	-1.19913	-1.06040	-0.37488	1.43528
BSBP30F	-0.71425	-1.08411	-0.23580	1.31991

*Reverse coded

Exhibit 3: Scale Transformation Constants

Scale Transformation Constants

$$A = 10.02753$$

$$B = 1.18787$$

$$\text{Transformed Scale Score} = 10.02753 + 1.18787 \cdot \text{Logit Scale Score}$$

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	4.99571		8	9.17174	
1	6.32716		9	9.50302	
2	6.99017		10	9.85619	
3	7.46538		11	10.24289	
4	7.85733		12	10.68677	
5	8.20642		13	11.22785	11.2
6	8.53162		14	11.97182	
7	8.85117	8.9	15	13.40851	

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Students Like Learning Physics Scale, Eighth Grade

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			BSBP30A	BSBP30B*	BSBP30D*	BSBP30E	BSBP30F
Armenia	0.81	57	0.81	0.68	0.67	0.77	0.84
Finland	0.91	75	0.89	0.82	0.85	0.85	0.90
Georgia	0.82	58	0.83	0.66	0.69	0.77	0.85
Hungary	0.88	68	0.87	0.75	0.80	0.81	0.89
Indonesia	0.78	54	0.81	0.52	0.68	0.76	0.85
Kazakhstan	0.80	57	0.80	0.63	0.67	0.81	0.85
Lebanon	0.75	52	0.80	0.50	0.54	0.81	0.86
Lithuania	0.88	67	0.86	0.76	0.78	0.81	0.89
Macedonia, Rep. of	0.74	52	0.84	0.40	0.51	0.83	0.88
Morocco	0.69	47	0.78	0.44	0.61	0.70	0.83
Romania	0.79	56	0.84	0.50	0.66	0.81	0.87

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the TIMSS 2011 Students Like Learning Physics Scale, Eighth Grade (Continued)

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item				
			BSBP30A	BSBP30B*	BSBP30D*	BSBP30E	BSBP30F
Russian Federation	0.83	62	0.84	0.60	0.77	0.80	0.88
Slovenia	0.89	70	0.88	0.74	0.81	0.84	0.90
Sweden	0.89	70	0.87	0.73	0.83	0.84	0.89
Syrian Arab Republic	0.64	46	0.81	0.16	0.49	0.81	0.85
Ukraine	0.88	68	0.85	0.76	0.82	0.80	0.88

*Reverse coded

Exhibit 6: Relationship Between the TIMSS 2011 Students Like Learning Physics Scale, Eighth Grade, and TIMSS 2011 Science Achievement

Country	Pearson's Correlation with Science Achievement		Variance in Science Achievement Accounted for by Difference Between Regions of the Scale (η^2)
	(r)	(r ²)	
Armenia	0.23	0.05	0.05
Finland	0.29	0.08	0.07
Georgia	0.20	0.04	0.04
Hungary	0.18	0.03	0.04
Indonesia	-0.02	0.00	0.00
Kazakhstan	0.21	0.04	0.04
Lebanon	0.19	0.04	0.06
Lithuania	0.11	0.01	0.02
Macedonia, Rep. of	0.15	0.02	0.05
Morocco	0.23	0.05	0.06
Romania	0.12	0.01	0.03
Russian Federation	0.21	0.04	0.04
Slovenia	0.15	0.02	0.03
Sweden	0.27	0.07	0.06
Syrian Arab Republic	0.16	0.03	0.03
Ukraine	0.19	0.04	0.04
International Median	0.19	0.04	0.04