

TIMSS 2011

The TIMSS 2011 Students Value Chemistry Scale, Eighth Grade

The Students Value Chemistry (SVC) scale was created based on students' degree of agreement to the six 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 Value Chemistry Scale, Eighth Grade

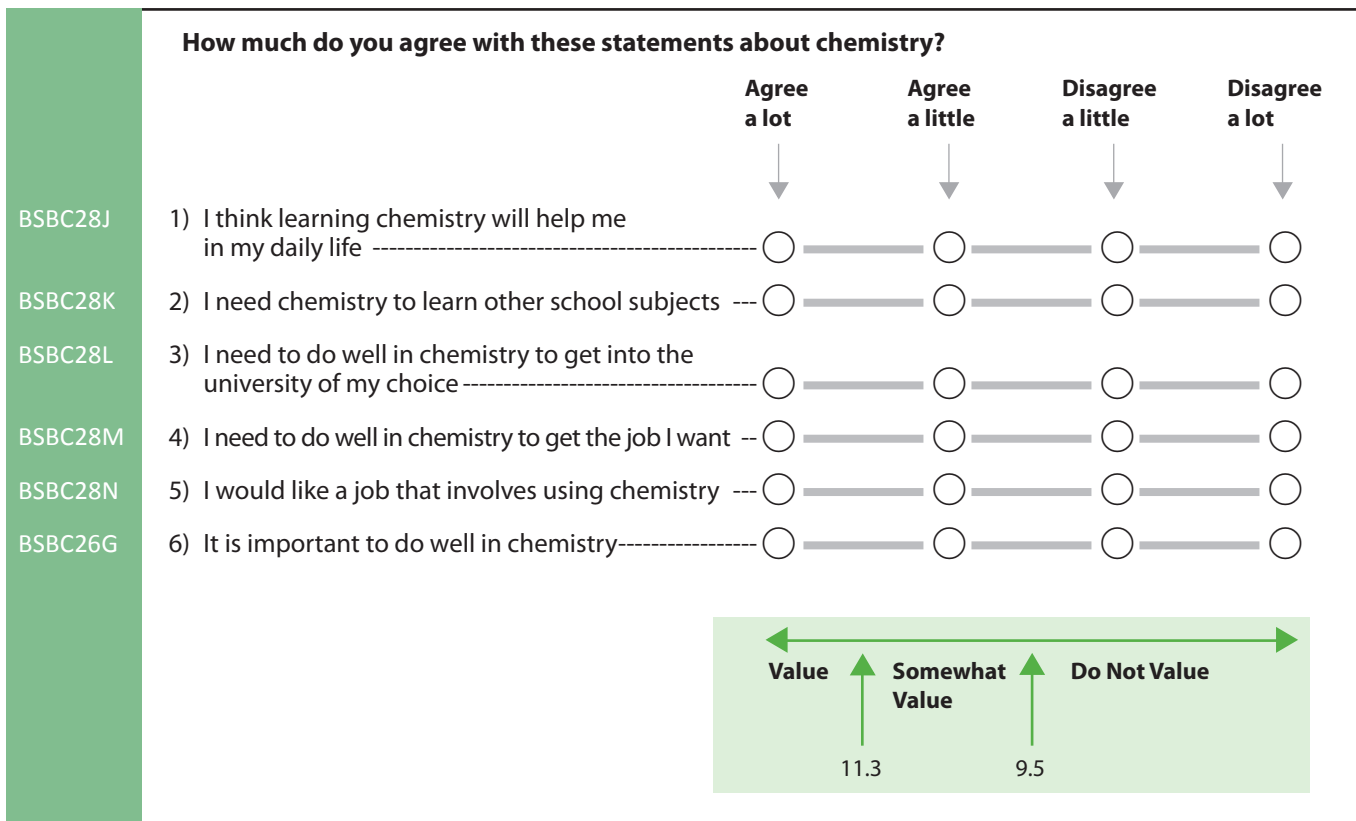


Exhibit 2: Item Parameters for the TIMSS 2011 Students Value Chemistry Scale, Eighth Grade

Item	delta	tau_1	tau_2	tau_3
BSBC28J	-1.24402	-1.48251	-0.21217	1.69468
BSBC28K	-0.66550	-1.81937	-0.02318	1.84255
BSBC28L	-0.51704	-1.40651	0.01464	1.39187
BSBC28M	-0.31822	-1.48245	0.15581	1.32664
BSBC28N	0.29897	-1.39399	0.16564	1.22835
BSBC26G	-1.57526	-1.39506	-0.35226	1.74732

Exhibit 3: Scale Transformation Constants

Scale Transformation Constants

$$A = 10.10323$$

$$B = 1.01038$$

$$\text{Transformed Scale Score} = 10.10323 + 1.01038 \cdot \text{Logit Scale Score}$$

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	5.17562		10	9.74576	
1	6.38026		11	10.04141	
2	7.00432		12	10.34190	
3	7.46578		13	10.65442	
4	7.85293		14	10.99038	
5	8.20493		15	11.36341	11.3
6	8.53185		16	11.81387	
7	8.84581		17	12.43074	
8	9.15067		18	13.63271	
9	9.45024	9.5			

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

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item					
			BSBC28J	BSBC28K	BSBC28L	BSBC28M	BSBC28N	BSBC26G
Armenia	0.88	62	0.73	0.78	0.88	0.88	0.86	0.58
Finland	0.90	66	0.80	0.79	0.84	0.86	0.78	0.79
Georgia	-	-	-	-	-	-	-	-
Hungary	0.89	65	0.79	0.81	0.84	0.87	0.78	0.74
Indonesia	0.87	60	0.72	0.76	0.86	0.87	0.76	0.69
Kazakhstan	0.87	60	0.78	0.73	0.86	0.87	0.77	0.62
Lebanon	0.87	61	0.77	0.78	0.84	0.84	0.77	0.65
Lithuania	0.89	65	0.81	0.81	0.87	0.87	0.74	0.71
Macedonia, Rep. of	0.91	68	0.78	0.84	0.89	0.89	0.83	0.72

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

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item					
			BSBC28J	BSBC28K	BSBC28L	BSBC28M	BSBC28N	BSBC26G
Morocco	0.86	59	0.73	0.79	0.85	0.84	0.73	0.64
Romania	0.89	65	0.78	0.79	0.87	0.87	0.80	0.72
Russian Federation	0.89	64	0.78	0.77	0.89	0.88	0.81	0.64
Slovenia	0.88	63	0.81	0.77	0.85	0.86	0.76	0.69
Sweden	0.89	64	0.78	0.79	0.87	0.87	0.77	0.70
Syrian Arab Republic	0.85	57	0.73	0.79	0.83	0.82	0.72	0.62
Ukraine	0.88	64	0.82	0.80	0.85	0.85	0.73	0.71

A dash (-) indicates that the item was not administered or comparable data was not available.

Exhibit 6: Relationship Between the TIMSS 2011 Students Value Chemistry 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	-0.08	0.01	0.01
Finland	0.25	0.06	0.04
Georgia	-	-	-
Hungary	-0.04	0.00	0.00
Indonesia	-0.07	0.00	0.01
Kazakhstan	-0.07	0.00	0.01
Lebanon	0.04	0.00	0.00
Lithuania	0.06	0.00	0.00
Macedonia, Rep. of	-0.19	0.04	0.04
Morocco	-0.03	0.00	0.00
Romania	-0.01	0.00	0.00
Russian Federation	0.02	0.00	0.00
Slovenia	0.17	0.03	0.03
Sweden	0.09	0.01	0.00
Syrian Arab Republic	-0.01	0.00	0.00
Ukraine	-0.01	0.00	0.00
International Median	-0.01	0.00	0.00

A dash (-) indicates that the item was not administered or comparable data was not available.