

PIRLS 2011

The PIRLS 2011 Instruction Affected by Reading Resource Shortages Scale

The Instruction Affected by Reading Resource Shortages (RRS) scale was created based on principals' responses concerning eleven school and classroom resources 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 PIRLS 2011 Instruction Affected by Reading Resource Shortages Scale

How much is your school's capacity to provide instruction affected by a shortage or inadequacy of the following?

	Not at all	A little	Some	A lot
A. General School Resources				
ACBG10AA 1) Instructional materials (e.g., textbooks) -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ACBG10AB 2) Supplies (e.g., papers, pencils) -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ACBG10AC 3) School buildings and grounds -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ACBG10AD 4) Heating/cooling and lighting systems -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ACBG10AE 5) Instructional space (e.g., classrooms) -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ACBG10AF 6) Technologically competent staff -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ACBG10AG 7) Computers for instruction -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
B. Resources for Reading Instruction				
ACBG10BA 1) Teachers with a specialization in reading -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ACBG10BB 2) Computer software for reading instruction -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ACBG10BC 3) Library books -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ACBG10BD 4) Audio-visual resources for reading instruction -----	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Not Affected Somewhat Affected Affected A Lot

11.2 6.7

Exhibit 2: Item Parameters for the PIRLS 2011 Instruction Affected by Reading Resource Shortages Scale

Item	delta	tau_1	tau_2	tau_3
ACBG10AA	-0.76049	-0.37439	0.03202	0.34237
ACBG10AB	-1.14356	-0.45566	0.26336	0.19230
ACBG10AC	-0.54714	-0.72076	0.16710	0.55366
ACBG10AD	-0.94571	-0.53726	0.16806	0.36920
ACBG10AE	-0.50634	-0.54574	0.09023	0.45551
ACBG10AF	-0.52945	-1.12573	-0.01643	1.14216
ACBG10AG	-0.34669	-0.96830	0.04618	0.92212
ACBG10BA	-0.79357	-0.66972	-0.06089	0.73061
ACBG10BB	-0.38535	-1.28721	-0.07166	1.35887
ACBG10BC	-0.76633	-1.03400	0.19782	0.83618
ACBG10BD	-0.40942	-1.37929	-0.07054	1.44983

Exhibit 3: Scale Transformation Constants

Scale Transformation Constants

A = 9.98396

B = 1.58000

Transformed Scale Score = 9.98396 + 1.58000 • 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	2.70722		17	9.00895	
1	4.47834		18	9.16996	
2	5.31807		19	9.33353	
3	5.87995		20	9.50119	
4	6.30769		21	9.67540	
5	6.65200	6.7	22	9.85572	
6	6.94500		23	10.04627	
7	7.20129		24	10.25000	
8	7.43094		25	10.47050	
9	7.64081		26	10.71137	
10	7.83579		27	10.98121	
11	8.01946		28	11.28973	11.2
12	8.19462		29	11.65309	
13	8.36346		30	12.09869	
14	8.52781		31	12.68337	
15	8.68922		32	13.54874	
16	8.84915		33	15.34999	

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the PIRLS 2011 Instruction Affected by Reading Resource Shortages Scale

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item										
			ACBG10AA	ACBG10AB	ACBG10AC	ACBG10AD	ACBG10AE	ACBG10AF	ACBG10AG	ACBG10BA	ACBG10BB	ACBG10BC	ACBG10BD
Australia	0.91	53	0.80	0.72	0.74	0.72	0.72	0.66	0.69	0.73	0.71	0.78	0.71
Austria	0.83	38	0.58	0.66	0.70	0.59	0.64	0.64	0.63	0.53	0.61	0.50	0.65
Azerbaijan	0.83	42	0.80	0.72	0.72	0.67	0.80	0.78	0.43	0.79	0.08	0.64	0.00
Belgium (French)	0.72	27	0.53	0.59	0.62	0.63	0.55	0.32	0.48	0.30	0.46	0.59	0.57
Bulgaria	0.74	35	0.71	0.69	0.67	0.77	0.68	0.56	0.59	–	0.01	0.46	0.29
Canada	0.85	41	0.69	0.65	0.63	0.59	0.60	0.65	0.68	0.60	0.65	0.63	0.66
Chinese Taipei	0.93	61	0.78	0.76	0.82	0.82	0.85	0.76	0.82	0.71	0.63	0.81	0.79
Colombia	0.85	41	0.59	0.61	0.55	0.56	0.59	0.74	0.74	0.58	0.71	0.64	0.69
Croatia	0.89	51	0.86	0.84	0.71	0.83	0.85	0.82	0.61	0.65	0.19	0.71	0.50
Czech Republic	0.83	38	0.61	0.68	0.68	0.70	0.69	0.69	0.54	0.72	0.39	0.51	0.52
Denmark	0.87	43	0.72	0.57	0.69	0.63	0.64	0.56	0.64	0.62	0.77	0.68	0.70
England	0.87	45	0.73	0.74	0.65	0.56	0.54	0.69	0.75	0.64	0.65	0.74	0.70
Finland	0.90	51	0.66	0.72	0.78	0.68	0.82	0.76	0.70	0.77	0.65	0.56	0.67
France	0.77	31	0.59	0.56	0.60	0.65	0.63	0.48	0.51	0.48	0.57	0.57	0.45
Georgia	0.84	39	0.53	0.61	0.58	0.62	0.64	0.63	0.66	0.62	0.62	0.69	0.64
Germany	0.82	37	0.59	0.59	0.64	0.59	0.69	0.65	0.63	0.44	0.65	0.41	0.72
Hong Kong SAR	0.82	37	0.59	0.47	0.69	0.64	0.71	0.70	0.66	0.40	0.63	0.55	0.53
Hungary	0.89	49	0.82	0.80	0.78	0.75	0.82	0.56	0.70	0.73	0.35	0.69	0.55
Indonesia	0.83	38	0.62	0.49	0.56	0.67	0.66	0.64	0.68	0.49	0.66	0.65	0.59
Iran, Islamic Rep. of	0.85	44	0.82	0.84	0.79	0.85	0.83	0.56	0.00	0.74	0.12	0.61	0.44
Ireland	0.84	39	0.52	0.46	0.59	0.55	0.52	0.74	0.70	0.67	0.70	0.69	0.68
Israel	0.92	57	0.87	0.85	0.71	0.85	0.71	0.82	0.66	0.83	0.60	0.76	0.62
Italy	0.83	38	0.54	0.65	0.61	0.62	0.59	0.59	0.64	0.54	0.65	0.65	0.65
Lithuania	0.78	32	0.67	0.64	0.52	0.54	0.57	0.56	0.56	0.31	0.52	0.60	0.65
Malta	0.89	48	0.81	0.81	0.71	0.74	0.67	0.73	0.76	0.52	0.55	0.69	0.51
Morocco	0.79	38	–0.06	0.32	0.45	0.61	–0.03	0.79	0.79	0.56	0.81	0.74	0.83
Netherlands	0.73	28	0.48	0.53	0.68	0.61	0.70	0.38	0.64	0.31	0.45	0.44	0.48
New Zealand	0.86	43	0.62	0.55	0.62	0.58	0.66	0.68	0.71	0.65	0.63	0.66	0.77
Northern Ireland	0.83	39	0.65	0.55	0.60	0.63	0.52	0.67	0.70	0.50	0.64	0.70	0.65
Norway	0.82	37	0.70	0.41	0.64	0.64	0.68	0.53	0.68	0.42	0.73	0.56	0.61
Oman	0.90	49	0.75	0.70	0.67	0.75	0.77	0.78	0.61	0.77	0.51	0.67	0.67
Poland	0.84	40	0.73	0.72	0.67	0.65	0.58	0.64	0.61	0.51	0.56	0.67	0.62
Portugal	0.86	43	0.76	0.70	0.73	0.67	0.64	0.66	0.55	0.51	0.58	0.68	0.68
Qatar	0.97	75	0.89	0.91	0.80	0.92	0.92	0.88	0.88	0.91	0.71	0.84	0.84
Romania	0.87	45	0.77	0.65	0.74	0.80	0.74	0.67	0.60	0.70	0.34	0.73	0.50
Russian Federation	0.90	50	0.79	0.70	0.71	0.74	0.73	0.73	0.70	0.70	0.61	0.78	0.58
Saudi Arabia	0.81	35	0.66	0.64	0.67	0.82	0.75	0.48	0.40	0.73	0.38	0.45	0.30

Exhibit 5: Cronbach's Alpha Reliability Coefficient and Principal Components Analysis of the Items in the PIRLS 2011 Instruction Affected by Reading Resource Shortages Scale (Continued)

Country	Cronbach's Alpha Reliability Coefficient	Percent of Variance Explained	Factor Loadings for Each Item										
			ACBG10AA	ACBG10AB	ACBG10AC	ACBG10AD	ACBG10AE	ACBG10AF	ACBG10AG	ACBG10BA	ACBG10BB	ACBG10BC	ACBG10BD
Singapore	0.95	66	0.88	0.85	0.84	0.86	0.81	0.80	0.86	0.64	0.73	0.82	0.79
Slovak Republic	0.79	33	0.65	0.52	0.65	0.63	0.67	0.57	0.63	0.54	0.35	0.50	0.50
Slovenia	0.79	33	0.51	0.59	0.47	0.63	0.58	0.59	0.63	0.46	0.65	0.55	0.66
Spain	0.86	42	0.74	0.74	0.66	0.63	0.73	0.61	0.61	0.69	0.42	0.71	0.54
Sweden	0.85	42	0.67	0.67	0.69	0.58	0.65	0.71	0.63	0.67	0.71	0.47	0.64
Trinidad and Tobago	0.79	33	0.45	0.43	0.73	0.67	0.64	0.55	0.56	0.49	0.45	0.66	0.56
United Arab Emirates	0.94	63	0.84	0.87	0.79	0.90	0.88	0.81	0.83	0.82	0.50	0.82	0.57
United States	0.91	54	0.79	0.70	0.74	0.68	0.71	0.73	0.74	0.66	0.72	0.80	0.78
Sixth Grade Participants													
Botswana	0.80	36	0.36	0.48	0.28	0.54	0.04	0.70	0.78	0.79	0.81	0.55	0.73
Honduras	0.91	52	0.71	0.71	0.47	0.70	0.61	0.80	0.80	0.65	0.79	0.81	0.80
Kuwait	0.82	39	0.63	0.71	0.53	0.66	0.73	0.67	0.78	0.63	0.27	0.64	0.44
Morocco	0.79	38	-0.03	0.36	0.45	0.61	-0.02	0.78	0.80	0.56	0.80	0.75	0.83
Benchmarking Participants													
Alberta, Canada	0.85	41	0.64	0.61	0.61	0.54	0.53	0.72	0.66	0.59	0.70	0.66	0.74
Ontario, Canada	0.84	40	0.63	0.64	0.53	0.52	0.59	0.67	0.70	0.59	0.67	0.62	0.72
Quebec, Canada	0.87	45	0.73	0.72	0.75	0.68	0.66	0.68	0.71	0.55	0.52	0.74	0.55
Maltese - Malta	0.89	48	0.81	0.81	0.71	0.75	0.70	0.74	0.76	0.52	0.55	0.68	0.51
Eng/Afr (5) - RSA [◇]	0.87	46	0.64	0.50	0.68	0.78	0.57	0.88	0.66	0.64	0.55	0.77	0.68
Andalusia, Spain	0.84	40	0.67	0.67	0.68	0.67	0.76	0.66	0.58	0.60	0.40	0.69	0.49
Abu Dhabi, UAE	0.94	63	0.82	0.86	0.75	0.88	0.87	0.81	0.82	0.86	0.53	0.85	0.56
Dubai, UAE	0.95	66	0.87	0.89	0.85	0.92	0.87	0.84	0.84	0.78	0.52	0.82	0.65
Florida, US	0.91	55	0.82	0.75	0.75	0.68	0.70	0.74	0.65	0.64	0.72	0.79	0.88
prePIRLS Participants													
Botswana	0.79	35	0.22	0.36	0.13	0.62	-0.03	0.64	0.83	0.81	0.85	0.39	0.81
Colombia	0.85	41	0.59	0.61	0.55	0.56	0.59	0.74	0.74	0.58	0.71	0.64	0.69
South Africa	0.81	40	0.02	-0.19	0.39	0.62	0.16	0.75	0.82	0.64	0.85	0.81	0.86

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

◇ Republic of South Africa (RSA) tested 5th grade students receiving instruction in English (ENG) or Afrikaans (AFR).

Exhibit 6: Relationship Between the PIRLS 2011 Instruction Affected by Reading Resource Shortages Scale and PIRLS 2011 Achievement

Country	Pearson's Correlation with Reading Achievement		Variance in Reading Achievement Accounted for by Difference Between Regions of the Scale (η^2)
	(r)	(r ²)	
Australia	0.12	0.01	0.00
Austria	-0.01	0.00	0.00
Azerbaijan	0.05	0.00	0.02
Belgium (French)	0.07	0.00	0.01
Bulgaria	-0.11	0.01	0.00
Canada	0.02	0.00	0.00
Chinese Taipei	0.08	0.01	0.01
Colombia	0.05	0.00	0.00
Croatia	-0.03	0.00	0.00
Czech Republic	-0.03	0.00	0.00
Denmark	-0.01	0.00	0.00
England	0.04	0.00	0.00
Finland	0.04	0.00	0.00
France	0.04	0.00	0.00
Georgia	-0.03	0.00	0.00
Germany	0.04	0.00	0.01
Hong Kong SAR	-0.01	0.00	0.00
Hungary	0.07	0.01	0.01
Indonesia	-0.15	0.02	0.00
Iran, Islamic Rep. of	0.04	0.00	0.00
Ireland	0.07	0.01	0.01
Israel	0.28	0.08	0.05
Italy	0.11	0.01	0.00
Lithuania	0.01	0.00	0.00
Malta	0.06	0.00	0.00
Morocco	-0.06	0.00	0.02
Netherlands	-0.01	0.00	0.00
New Zealand	0.09	0.01	0.00
Northern Ireland	-0.01	0.00	0.00
Norway	-0.04	0.00	0.00
Oman	0.03	0.00	0.01
Poland	0.06	0.00	0.00
Portugal	0.01	0.00	0.00
Qatar	0.19	0.04	0.03
Romania	0.08	0.01	0.01
Russian Federation	0.04	0.00	0.01
Saudi Arabia	0.06	0.00	0.01

Exhibit 6: Relationship Between the PIRLS 2011 Instruction Affected by Reading Resource Shortages Scale and PIRLS 2011 Achievement (Continued)

Country	Pearson's Correlation with Reading Achievement		Variance in Reading Achievement Accounted for by Difference Between Regions of the Scale (η^2)
	(r)	(r ²)	
Singapore	-0.02	0.00	0.00
Slovak Republic	0.03	0.00	0.00
Slovenia	0.00	0.00	0.00
Spain	0.03	0.00	0.00
Sweden	0.09	0.01	0.00
Trinidad and Tobago	0.15	0.02	0.01
United Arab Emirates	0.18	0.03	0.03
United States	0.10	0.01	0.00
International Median	0.04	0.00	0.00
Sixth Grade Participants			
Botswana	-0.02	0.00	0.08
Honduras	0.15	0.02	0.04
Kuwait	-0.04	0.00	0.00
Morocco	-0.01	0.00	0.02
Benchmarking Participants			
Alberta, Canada	0.01	0.00	0.00
Ontario, Canada	0.04	0.00	0.00
Quebec, Canada	0.02	0.00	0.00
Maltese - Malta	-0.04	0.00	0.01
Eng/Afr (5) - RSA [◇]	0.29	0.09	0.05
Andalusia, Spain	0.05	0.00	0.00
Abu Dhabi, UAE	0.12	0.02	0.02
Dubai, UAE	0.23	0.05	0.04
Florida, US	0.02	0.00	0.00
prePIRLS Participants			
Botswana	0.04	0.00	0.06
Colombia	0.08	0.01	0.01
South Africa	0.12	0.02	0.02

◇ Republic of South Africa (RSA) tested 5th grade students receiving instruction in English (ENG) or Afrikaans (AFR).