

CHAPTER 5

Sample Implementation in TIMSS 2015

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Overview

Rigorous sampling of schools and students was a key component of the TIMSS 2015 project. Implementing the sampling plan was the responsibility of the National Research Coordinator (NRC) in each participating country. NRCs were supported in this endeavor by the TIMSS 2015 sampling consultants, Statistics Canada, and the Sampling Unit of the IEA Data Processing and Research Center (DPC). Sampling consultants conducted the school sampling for most countries and trained NRCs using the Windows® Within-school Sampling Software (WinW3S) provided by the IEA DPC to implement within-school sampling. As an essential part of their sampling activities, NRCs were responsible for providing detailed documentation describing their national sampling plans (sampling data, school sampling frames, and school sample selections). The documentation for each TIMSS participant was reviewed and completed by the sampling consultants, including detailed information on coverage and exclusion levels, stratification variables, sampling, participation rates, and variance estimates. The TIMSS & PIRLS International Study Center and the TIMSS 2015 Sampling Referee, Dr. Keith Rust of Westat, Inc., used this information to evaluate the quality of the samples.

This chapter gives a summary of the major characteristics of the national samples for TIMSS 2015. More detailed summaries of the sample design for each country, including details of population coverage and exclusions, stratification variables, and schools' sampling allocations, are provided in Appendix 5A Characteristics of National Samples.

Target Population

As described in [Chapter 3](#) (Sample Design), the international target populations for the TIMSS 2015 fourth and eighth grade assessments were defined as the grades that represented 4 and 8 years of formal schooling, respectively, counting from the first year of primary or elementary schooling.

As a new initiative for the TIMSS 2015 cycle, countries could participate in TIMSS Numeracy—a new, less difficult mathematics assessment at the fourth grade. TIMSS Numeracy was designed for countries where students found the TIMSS fourth grade mathematics assessment too difficult. Countries considering TIMSS Numeracy had the option of participating in both TIMSS Numeracy and the TIMSS fourth grade assessment or in TIMSS Numeracy only. For countries who participated in both assessments, the student sample size was doubled and the TIMSS and TIMSS Numeracy booklets were rotated within the sampled classes. Thus, students within sampled classes in these countries were given either a TIMSS booklet or a Numeracy booklet.

Bahrain, Indonesia, the Islamic Republic of Iran, Kuwait, and Morocco, along with the benchmarking participant Buenos Aires, administered both TIMSS and TIMSS Numeracy to their fourth grade students. Jordan administered TIMSS Numeracy only at the fourth grade while South Africa administered the TIMSS Numeracy test at the fifth grade.

Exhibits 5.1 and 5.2 present the grades identified as the target grades for sampling by each country, and include the number of years of formal schooling that the grades represent and the average age of students in the target grades at the time of testing.

For most countries, the target grades did indeed turn out to be the grades with 4 and 8 years of schooling, i.e., fourth and eighth grades, respectively. However, in England, Northern Ireland, and New Zealand, children begin primary school at an early age.¹ Therefore, these countries administered the TIMSS fourth grade assessment in the fifth year of schooling. The TIMSS eighth grade assessment for England and New Zealand was administered in the ninth year of schooling. Norway chose to assess its fifth and ninth grades to obtain better comparisons with Sweden and Finland.

To provide a better match with the demands of the assessments, Botswana and South Africa availed themselves of the option to assess students at a higher grade. South Africa administered the TIMSS Numeracy fourth grade assessment at the fifth grade, and Botswana and South Africa administered the eighth grade assessment at the ninth grade.

1 Given the cognitive demands of the assessments, TIMSS wants to avoid assessing very young students. Thus, TIMSS recommends assessing the next higher grade (i.e., fifth grade for fourth grade TIMSS and ninth grade for eighth grade TIMSS) if, for fourth grade students, the average age at the time of testing would be less than 9.5 years and, for eighth grade students, less than 13.5 years.

Exhibit 5.1: National Grade Definition – TIMSS 2015 – Fourth Grade

Country	Country's Name for Grade Tested	Years of Formal Schooling	Average Age at Time of Testing
Australia	Year 4	4	10.0
Bahrain	Grade 4	4	9.9
Belgium (Flemish)	Grade 4	4	10.1
Bulgaria	Grade 4	4	10.8
Canada	Grade 4	4	9.9
Chile	Basic 4	4	10.2
Chinese Taipei	Grade 4	4	10.2
Croatia	Grade 4	4	10.6
Cyprus	Grade 4	4	9.8
Czech Republic	Grade 4	4	10.4
Denmark	Grade 4	4	10.9
England	Year 5	5	10.1
Finland	Grade 4	4	10.8
France	CM1	4	9.9
Georgia	Grade 4	4	9.7
Germany	Grade 4	4	10.4
Hong Kong SAR	Primary 4	4	10.1
Hungary	Grade 4	4	10.7
Indonesia	Grade 4	4	10.4
Iran, Islamic Rep. of	Grade 4	4	10.2
Ireland	Fourth Class	4	10.4
Italy	Primary Grade 4	4	9.7
Japan	Grade 4	4	10.5
Jordan	Grade 4	4	9.8
Kazakhstan	Grade 4	4	10.3
Korea, Rep. of	Elementary School Grade 4	4	10.5
Kuwait	Grade 4	4	9.7
Lithuania	Grade 4	4	10.7
Morocco	Grade 4	4	10.3
Netherlands	Group 6	4	10.0
New Zealand	Year 5	4	10.0
Northern Ireland	Year 6	4	10.4
Norway (5)	Grade 5	5	10.7
Oman	Grade 4	4	9.6

Exhibit 5.1: National Grade Definition – TIMSS 2015 – Fourth Grade (Continued)

Country	Country's Name for Grade Tested	Years of Formal Schooling	Average Age at Time of Testing
Poland	Grade 4	4	10.7
Portugal	Grade 4	4	9.9
Qatar	Grade 4	4	10.1
Russian Federation	Grade 4	4	10.8
Saudi Arabia	Grade 4	4	10.0
Serbia	Grade 4	4	10.7
Singapore	Primary 4	4	10.4
Slovak Republic	Grade 4	4	10.4
Slovenia	Grade 4	4	9.8
South Africa (5)	Grade 5	5	11.5
Spain	Grade 4	4	9.9
Sweden	Grade 4	4	10.8
Turkey	Grade 4	4	9.9
United Arab Emirates	Grade 4	4	9.8
United States	Grade 4	4	10.2
Benchmarking Participants			
Buenos Aires, Argentina	Grade 4	4	9.8
Ontario, Canada	Grade 4	4	9.8
Quebec, Canada	Grade 4	4	10.1
Norway (4)	Grade 4	4	9.7
Abu Dhabi, UAE	Grade 4	4	9.8
Dubai, UAE	Grade 4	4	9.8
Florida, US	Grade 4	4	10.4

Exhibit 5.2: National Grade Definition – TIMSS 2015 – Eighth Grade

Country	Country's Name for Grade Tested	Years of Formal Schooling	Average Age at Time of Testing
Australia	Year 8	8	14.0
Bahrain	Grade 8	8	14.0
Botswana (9)	Grade 9	9	15.6
Canada	Grade 8	8	14.0
Chile	Basic 8	8	14.3
Chinese Taipei	Grade 8	8	14.3
Egypt	Second Preparatory	8	14.1
England	Year 9	9	14.1
Georgia	Grade 8	8	13.7
Hong Kong SAR	Secondary 2	8	14.2
Hungary	Grade 8	8	14.7
Iran, Islamic Rep. of	Grade 8	8	14.2
Ireland	Second Year	8	14.4
Israel	Grade 8	8	14.0
Italy	Lower Secondary Grade 3	8	13.8
Japan	Grade 8	8	14.5
Jordan	Grade 8	8	13.8
Kazakhstan	Grade 8	8	14.3
Korea, Rep. of	Middle School Grade 2	8	14.4
Kuwait	Grade 8	8	13.7
Lebanon	Grade 8	8	14.2
Lithuania	Grade 8	8	14.7
Malaysia	Form 2	8	14.3
Malta	Year 9	8	13.8
Morocco	Middle School Year 2	8	14.5
New Zealand	Year 9	8	14.1
Norway (9)	Grade 9	9	14.7
Oman	Grade 8	8	14.0
Qatar	Grade 8	8	14.1
Russian Federation	Grade 8	8	14.7
Saudi Arabia	Grade 8	8	14.1
Singapore	Secondary 2	8	14.4
Slovenia	Grade 8	8	13.8
South Africa (9)	Grade 9	9	15.7

Exhibit 5.2: National Grade Definition – TIMSS 2015 – Eighth Grade (Continued)

Country	Country’s Name for Grade Tested	Years of Formal Schooling	Average Age at Time of Testing
Sweden	Grade 8	8	14.7
Thailand	Grade 8	8	14.4
Turkey	Grade 8	8	13.9
United Arab Emirates	Grade 8	8	13.9
United States	Grade 8	8	14.2
Benchmarking Participants			
Buenos Aires, Argentina	Secondary 1	8	14.1
Ontario, Canada	Grade 8	8	13.8
Quebec, Canada	Secondary 2	8	14.3
Norway (8)	Grade 8	8	13.7
Abu Dhabi, UAE	Grade 8	8	13.9
Dubai, UAE	Grade 8	8	13.9
Florida, US	Grade 8	8	14.4

National Coverage and Exclusions

Exhibits 5.3 and 5.4 summarize population coverage and exclusions for the TIMSS 2015 target populations.

Coverage

National coverage of the international target population was generally comprehensive, with some exceptions. At the fourth grade, these exceptions included Canada (assessed students only from the provinces of Alberta, Manitoba, Newfoundland, Ontario and Quebec) and Georgia (assessed only students taught in Georgian), together with the benchmarking state of Florida from the United States (assessed students only in public schools). These participants chose a national target population that was less than the international target population. At the eighth grade, all countries except Canada (assessed students only from the provinces of Manitoba, Newfoundland, Ontario and Quebec) and Georgia (assessed only students taught in Georgian), as well as the benchmarking state of Florida (only students from public schools) sampled from 100 percent of their international desired population. For the exceptions where coverage was below 100 percent, the results were footnoted in the TIMSS 2015 international reports.

School-Level and Student-Level Exclusions

Within the national target population, it was possible to exclude certain types of schools and students. For the most part, school-level exclusions consisted of schools for students with disabilities and very small or remote schools. Occasionally, schools were excluded for other reasons, as documented in Appendix 5A Characteristics of National Samples.

Student-level, or within-school, exclusions generally consisted of students with disabilities or students who could not be assessed in the language of the test. For most participants, the overall percentage of excluded students (combining school and within-school levels) was 5 percent or less after rounding. However, at the fourth grade, Bahrain, Canada, Denmark, Italy, Lithuania, Portugal, Singapore, Spain, Sweden, United States, and Abu Dhabi had exclusions accounting for between 5 and 10 percent of the desired population, and only Serbia had exclusions exceeding 10 percent. At the eighth grade, Georgia, Italy, Lithuania, and Singapore had exclusions accounting for between 5 and 10 percent of the national target population. Only Israel had exclusions exceeding 10 percent.

Results for participants with an exclusion rate of more than 5 percent were annotated in the international reports. Note that some TIMSS 2015 participants had no within-school exclusions.

Exhibit 5.3: Coverage of TIMSS 2015 – Fourth Grade Target Population

Country	Coverage	Notes on Coverage	Exclusions from National Target Population		
			School-Level Exclusions	Within-Sample Exclusions	Overall Exclusions
Australia	100%		2.1%	2.1%	4.2%
² Bahrain	100%		0.4%	5.1%	5.6%
Belgium (Flemish)	100%		0.2%	1.2%	1.4%
Bulgaria	100%		1.2%	1.7%	2.9%
^{1,2} Canada	79%	Students from the provinces of Alberta, Manitoba, Newfoundland, Ontario, and Quebec	2.5%	3.6%	6.1%
Chile	100%		1.9%	1.8%	3.7%
Chinese Taipei	100%		0.1%	2.3%	2.4%
Croatia	100%		1.5%	2.9%	4.4%
Cyprus	100%		1.0%	3.6%	4.6%
Czech Republic	100%		3.5%	0.7%	4.2%
² Denmark	100%		0.9%	6.6%	7.5%
England	100%		2.1%	0.2%	2.3%
Finland	100%		1.3%	0.7%	2.0%
France	100%		4.7%	0.6%	5.3%
¹ Georgia	90%	Students taught in Georgian	2.1%	2.7%	4.9%
Germany	100%		1.4%	1.3%	2.7%
Hong Kong SAR	100%		1.1%	1.1%	2.2%
Hungary	100%		2.3%	2.5%	4.8%
Indonesia	100%		0.2%	0.0%	0.2%
Iran, Islamic Rep. of	100%		3.9%	0.0%	4.0%
Ireland	100%		1.7%	1.0%	2.7%
² Italy	100%		0.9%	5.3%	6.2%
Japan	100%		0.6%	2.4%	2.9%
Jordan	100%		0.0%	1.2%	1.2%
Kazakhstan	100%		3.5%	0.4%	3.9%
Korea, Rep. of	100%		1.2%	1.3%	2.5%
Kuwait	100%		2.5%	0.5%	3.0%
Lithuania	100%		2.5%	3.6%	6.1%
Morocco	100%		1.5%	0.0%	1.5%
Netherlands	100%		2.4%	0.8%	3.2%

1 National Target Population does not include all of the International Target Population.

2 National Defined Population covers 90% to 95% of the National Target Population.

3 National Defined Population covers less than 90% of the National Target population (but at least 77%).

Exhibit 5.3: Coverage of TIMSS 2015 – Fourth Grade Target Population (Continued)

Country	Coverage	Notes on Coverage	Exclusions from National Target Population		
			School-Level Exclusions	Within-Sample Exclusions	Overall Exclusions
New Zealand	100%		2.8%	2.1%	4.8%
Northern Ireland	100%		2.6%	0.1%	2.7%
Norway (5)	100%		1.1%	3.6%	4.7%
Oman	100%		0.1%	0.7%	0.8%
Poland	100%		1.4%	2.6%	4.0%
² Portugal	100%		1.0%	5.5%	6.5%
Qatar	100%		1.6%	2.2%	3.8%
Russian Federation	100%		1.9%	2.0%	4.0%
Saudi Arabia	100%		1.9%	0.0%	1.9%
³ Serbia	100%		5.0%	6.3%	11.3%
² Singapore	100%		10.1%	0.0%	10.1%
Slovak Republic	100%		3.2%	1.0%	4.2%
Slovenia	100%		2.9%	1.6%	4.5%
South Africa (5)	100%		1.6%	0.6%	2.2%
² Spain	100%		1.6%	4.1%	5.6%
² Sweden	100%		1.7%	4.0%	5.7%
Turkey	100%		2.2%	1.4%	3.6%
United Arab Emirates	100%		2.0%	2.7%	4.7%
² United States	100%		0.0%	6.8%	6.8%
Benchmarking Participants					
Buenos Aires, Argentina	100%		1.7%	0.2%	1.9%
Ontario, Canada	100%		2.2%	1.3%	3.4%
Quebec, Canada	100%		3.2%	2.2%	5.4%
Norway (4)	100%		1.5%	3.5%	5.0%
² Abu Dhabi, UAE	100%		1.5%	4.3%	5.8%
Dubai, UAE	100%		3.3%	2.0%	5.3%
¹ Florida, US	90%	Students from public schools	0.0%	4.7%	4.7%

Exhibit 5.4: Coverage of TIMSS 2015 – Eighth Grade Target Population

Country	Coverage	Notes on Coverage	Exclusions from National Target Population		
			School-Level Exclusions	Within-Sample Exclusions	Overall Exclusions
Australia	100%		1.3%	2.2%	3.5%
Bahrain	100%		0.3%	3.5%	3.8%
Botswana (9)	100%		0.0%	0.3%	0.3%
¹ Canada	67%	Students from the provinces of Manitoba, Newfoundland, Ontario, and Quebec	2.5%	2.4%	4.8%
Chile	100%		1.4%	0.5%	1.9%
Chinese Taipei	100%		0.1%	1.6%	1.7%
Egypt	100%		0.1%	0.0%	0.1%
England	100%		2.3%	0.0%	2.3%
^{1,2} Georgia	90%	Students taught in Georgian	2.3%	3.7%	6.0%
Hong Kong SAR	100%		1.3%	0.4%	1.6%
Hungary	100%		2.6%	2.9%	5.4%
Iran, Islamic Rep. of	100%		0.5%	1.7%	2.2%
Ireland	100%		0.3%	0.9%	1.2%
³ Israel	100%		17.6%	5.3%	22.8%
² Italy	100%		0.8%	5.3%	6.1%
Japan	100%		0.8%	1.5%	2.3%
Jordan	100%		0.0%	1.0%	1.0%
Kazakhstan	100%		3.0%	0.8%	3.8%
Korea, Rep. of	100%		1.2%	0.9%	2.1%
Kuwait	100%		2.8%	0.5%	3.3%
Lebanon	100%		1.3%	0.0%	1.3%
² Lithuania	100%		3.9%	3.0%	7.0%
Malaysia	100%		1.1%	3.2%	4.3%
Malta	100%		1.9%	1.6%	3.5%
Morocco	100%		0.0%	0.0%	0.0%
New Zealand	100%		1.6%	1.5%	3.1%
Norway (9)	100%		1.0%	2.7%	3.7%
Oman	100%		0.1%	0.3%	0.4%
Qatar	100%		1.7%	1.5%	3.2%
Russian Federation	100%		2.3%	1.4%	3.7%

1 National Target Population does not include all of the International Target Population.

2 National Defined Population covers 90% to 95% of the National Target Population.

3 National Defined Population covers less than 90% of the National Target population (but at least 77%).

Exhibit 5.4: Coverage of TIMSS 2015 – Eighth Grade Target Population (Continued)

Country	Coverage	Notes on Coverage	Exclusions from National Target Population		
			School-Level Exclusions	Within-Sample Exclusions	Overall Exclusions
Saudi Arabia	100%		1.9%	0.2%	2.1%
² Singapore	100%		7.0%	0.0%	7.0%
Slovenia	100%		2.1%	1.7%	3.8%
South Africa (9)	100%		1.5%	0.0%	1.5%
Sweden	100%		1.8%	3.6%	5.5%
Thailand	100%		0.2%	0.0%	0.2%
Turkey	100%		0.2%	1.1%	1.3%
United Arab Emirates	100%		2.2%	1.5%	3.6%
United States	100%		0.0%	5.1%	5.1%
Benchmarking Participants					
Buenos Aires, Argentina	100%		2.7%	0.0%	2.7%
Ontario, Canada	100%		1.8%	0.8%	2.5%
Quebec, Canada	100%		3.6%	1.7%	5.3%
Norway (8)	100%		1.4%	2.7%	4.1%
Abu Dhabi, UAE	100%		1.8%	2.3%	4.1%
Dubai, UAE	100%		3.6%	1.6%	5.2%
¹ Florida, US	90%	Students from public schools	0.0%	2.8%	2.8%

Target Population Size

Exhibits 5.5 and 5.6 show the number of schools and students in each participant's target population² and sample, as well as an estimate of the student population size based on the sample data. The target population figures are derived from the sampling frame used to select the TIMSS 2015 samples, while the sample figures are based on the number of sampled schools and students that participated in the assessments. The sample figures were computed using sampling weights, which are explained in more detail in [Chapter 3](#). The student population size based on the sampling frame did not take into account the portion of the population excluded within sampled schools and made no adjustment for changes in the population between the date when the information in the sampling frame was collected and the date of the TIMSS 2015 data collection—usually a 2-year interval. Nevertheless, a comparison of the two estimates of population size can be seen as a validity check on the sampling procedure. In most cases, the population size estimated from the sample closely matched the population size from the sampling frame.

2 After school-level exclusions.

Exhibit 5.5: Population and Sample Sizes – TIMSS 2015 – Fourth Grade

Country	Population		Sample		
	Schools	Students	Schools	Students	Student Population Size Estimated From Sample
Australia	6,521	266,439	287	6,057	279,017
Bahrain (Combined)	182	17,585	182	8,575	17,060
Numeracy	182	17,585	182	4,429	17,060
TIMSS	182	17,585	182	4,146	17,060
Belgium (Flemish)	2,428	68,710	153	5,404	70,742
Bulgaria	1,746	60,944	149	4,228	60,747
Canada	9,668	274,226	441	12,283	282,798
Chile	6,034	230,143	179	4,756	224,998
Chinese Taipei	2,665	208,837	150	4,291	206,440
Croatia	1,677	39,944	163	3,985	38,857
Cyprus	273	8,254	148	4,125	8,096
Czech Republic	3,315	90,924	159	5,202	91,936
Denmark	1,716	64,407	193	3,710	62,667
England	15,226	593,519	147	4,006	586,515
Finland	2,327	57,292	158	5,015	58,038
France	31,577	776,184	164	4,873	749,763
Georgia	1,867	45,262	153	3,919	44,177
Germany	17,901	719,596	204	3,948	690,264
Hong Kong SAR	556	50,321	132	3,600	53,297
Hungary	2,913	91,463	144	5,036	87,402
Indonesia (Combined)	163,956	4,581,758	230	8,319	4,650,483
Numeracy	163,956	4,581,758	230	4,294	4,650,483
TIMSS	163,956	4,581,758	230	4,025	4,650,483
Iran, Islamic Rep. of (Combined)	36,817	1,120,197	248	7,928	1,100,939
Numeracy	36,817	1,120,197	248	4,105	1,100,939
TIMSS	36,817	1,120,197	248	3,823	1,100,939
Ireland	2,615	63,188	149	4,344	60,649
Italy	6,776	538,762	164	4,373	533,803
Japan	19,247	1,072,994	148	4,383	1,086,905
Jordan	3,108	145,847	254	7,861	149,855
Kazakhstan	6,149	248,263	171	4,702	254,335
Korea, Rep. of	5,366	468,264	149	4,669	433,071
Kuwait (Combined)	375	48,346	166	7,296	49,926
Numeracy	375	48,346	166	3,703	49,926
TIMSS	375	48,346	166	3,593	49,926
Lithuania	843	26,375	225	4,529	25,271

Exhibit 5.5: Population and Sample Sizes – TIMSS 2015 – Fourth Grade (Continued)

Country	Population		Sample		
	Schools	Students	Schools	Students	Student Population Size Estimated From Sample
Morocco (Combined)	19,016	654,179	358	10,428	616,709
Numeracy	19,016	654,179	358	5,360	616,709
TIMSS	19,016	654,179	358	5,068	616,709
Netherlands	6,361	179,849	129	4,515	173,514
New Zealand	1,706	54,981	174	6,322	55,399
Northern Ireland	765	21,908	118	3,116	21,901
Norway (5)	2,096	57,969	140	4,329	62,765
Oman	669	55,181	300	9,105	55,015
Poland	11,473	368,742	150	4,747	371,667
Portugal	1,228	101,911	217	4,693	98,922
Qatar	193	17,058	211	5,194	19,332
Russian Federation	34,223	1,323,268	208	4,921	1,487,552
Saudi Arabia	11,999	417,369	189	4,337	425,052
Serbia	2,128	69,012	160	4,036	68,773
Singapore	179	38,907	179	6,517	38,900
Slovak Republic	2,008	50,328	198	5,773	48,639
Slovenia	445	18,106	148	4,445	18,116
South Africa (5)	16,194	924,392	297	10,932	879,295
Spain	12,721	472,772	358	7,764	450,806
Sweden	3,318	100,313	144	4,142	106,407
Turkey	21,154	1,189,025	242	6,456	1,125,123
United Arab Emirates	696	74,930	558	21,177	73,524
United States	70,852	4,090,015	250	10,029	4,030,600
Benchmarking Participants					
Buenos Aires, Argentina (Combined)	875	38,808	136	6,435	40,944
Numeracy	875	38,808	136	3,331	40,944
TIMSS	875	38,808	136	3,104	40,944
Ontario, Canada	3,632	138,410	151	4,574	136,030
Quebec, Canada	1,711	75,049	121	2,798	73,815
Norway (4)	2,092	59,991	139	4,164	61,621
Abu Dhabi, UAE	274	28,732	163	5,001	25,666
Dubai, UAE	150	18,999	168	7,453	20,478
Florida, US	2,185	204,187	53	2,025	182,105

Exhibit 5.6: Population and Sample Sizes – TIMSS 2015 – Eighth Grade

Country	Population		Sample		
	Schools	Students	Schools	Students	Student Population Size Estimated From Sample
Australia	2,436	272,115	285	10,338	272,398
Bahrain	105	15,336	105	4,918	14,998
Botswana (9)	224	42,095	159	5,964	41,380
Canada	5,859	245,268	276	8,757	234,893
Chile	5,390	240,740	171	4,849	243,113
Chinese Taipei	931	285,714	190	5,711	271,222
Egypt	9,900	1,300,305	211	7,822	1,341,003
England	3,757	576,504	143	4,814	560,156
Georgia	1,875	41,438	153	4,035	40,519
Hong Kong SAR	477	63,863	133	4,155	59,469
Hungary	2,754	88,395	144	4,893	87,594
Iran, Islamic Rep. of	22,165	997,271	250	6,130	977,286
Ireland	676	60,164	149	4,704	59,081
Israel	918	106,703	200	5,512	102,333
Italy	5,718	554,401	161	4,481	558,617
Japan	10,406	1,162,528	147	4,745	1,162,235
Jordan	2,268	127,653	252	7,865	125,836
Kazakhstan	5,940	221,282	172	4,887	233,323
Korea, Rep. of	3,007	587,190	150	5,309	572,724
Kuwait	327	39,997	168	4,503	39,075
Lebanon	1,635	62,121	138	3,873	59,458
Lithuania	756	31,591	208	4,347	28,149
Malaysia	2,517	440,173	207	9,726	461,892
Malta	48	4,004	48	3,817	4,048
Morocco	2,692	542,288	345	13,035	450,200
New Zealand	435	58,060	145	8,142	56,774
Norway (9)	1,006	61,397	143	4,697	61,140
Oman	764	49,193	301	8,883	46,615
Qatar	124	13,899	131	5,403	15,895
Russian Federation	33,201	1,200,240	204	4,780	1,275,748
Saudi Arabia	7,343	402,639	143	3,759	369,233
Singapore	167	47,626	167	6,116	47,596
Slovenia	445	17,499	148	4,257	17,362
South Africa (9)	9,214	1,081,982	292	12,514	869,406

Exhibit 5.6: Population and Sample Sizes – TIMSS 2015 – Eighth Grade (Continued)

Country	Population		Sample		
	Schools	Students	Schools	Students	Student Population Size Estimated From Sample
Sweden	1,616	95,438	150	4,090	100,540
Thailand	11,242	793,160	204	6,482	672,730
Turkey	15,583	1,298,955	218	6,079	1,201,185
United Arab Emirates	590	57,085	477	18,012	58,200
United States	46,207	4,032,863	246	10,221	3,852,939
Benchmarking Participants					
Buenos Aires, Argentina	481	44,480	128	3,253	42,018
Ontario, Canada	2,877	145,721	138	4,520	139,780
Quebec, Canada	557	80,197	122	3,950	74,422
Norway (8)	1,000	61,174	142	4,795	60,115
Abu Dhabi, UAE	237	22,018	156	4,838	21,677
Dubai, UAE	137	14,628	135	6,149	16,440
Florida, US	1,175	202,092	53	2,074	193,681

Meeting TIMSS 2015 Standards for Sampling Participation

TIMSS 2015 participants understood that the goal for sampling participation was 100 percent for all sampled schools, classrooms, and students. Guidelines for reporting achievement data for participants securing less than full participation were modeled after IEA’s previous TIMSS assessment cycles. As summarized below in Exhibit 5.7, countries were assigned to one of three categories on the basis of their sampling participation. Countries in Category 1 were considered to have met all TIMSS 2015 sampling requirements and to have acceptable participation rates. Countries in Category 2 met the participation requirements only after including replacement schools. Countries that failed to meet the participation requirements even with the use of replacement schools were assigned to Category 3. One of the main goals for quality data in TIMSS 2015 was to have as many countries as possible achieve Category 1 status.

Exhibit 5.7: Categories of Sampling Participation

Category 1	<p>Acceptable sampling participation rate without the use of replacement schools.</p> <p>In order to be placed in this category, a country had to have:</p> <ul style="list-style-type: none"> • An unweighted school response rate without replacement of at least 85% (after rounding to nearest whole percent) AND an unweighted student response rate (after rounding) of at least 85% <p>OR</p> <ul style="list-style-type: none"> • A weighted school response rate without replacement of at least 85% (after rounding to nearest whole percent) AND a weighted student response rate (after rounding) of at least 85% <p>OR</p> <ul style="list-style-type: none"> • The product of the (unrounded) weighted school response rate without replacement and the (unrounded) weighted student response rate of at least 75% (after rounding to the nearest whole percent). <p>Countries in this category would appear in the tables and figures in international reports without annotation, and will be ordered by achievement as appropriate.</p>
Category 2	<p>Acceptable sampling participation rate only when replacement schools are included. A country would be placed in this category 2 if:</p> <ul style="list-style-type: none"> • It failed to meet the requirements for Category 1 but had a weighted school response rate without replacement of at least 50% (after rounding to the nearest percent) <p>AND HAD EITHER</p> <ul style="list-style-type: none"> • A weighted school response rate with replacement of at least 85% (after rounding to nearest whole percent) AND a weighted student response rate (after rounding) of at least 85% <p>OR</p> <ul style="list-style-type: none"> • The product of the (unrounded) weighted school response rate with replacement and the (unrounded) weighted student response rate of at least 75% (after rounding to the nearest whole percent). <p>Countries in this category would be annotated with a “+” in the tables and figures in international reports, and ordered by achievement as appropriate.</p>
Category 3	<p>Unacceptable sampling response rate even when replacement schools are included. Countries that could provide documentation to show that they complied with TIMSS sampling procedures and requirements but did not meet the requirements for Category 1 or Category 2 would be placed in Category 3.</p> <p>Countries in this category would be annotated with a “‡” if they nearly met the requirements for Category 2. Countries would be annotated with a “‡” if they failed to meet the participation requirements but had a school participation rate of at least 50% before the use of replacement schools. At last, if none of these conditions are met, countries would appear in a separate section of the achievement tables, below the other countries, in international reports. These countries would be presented in alphabetical order.</p>

Exhibits 5.8 through 5.11 present the school, classroom, student, and overall weighted and unweighted participation rates for each of the participants in the TIMSS 2015 fourth and eighth grade assessments, respectively. Almost all participants had excellent participation rates and belonged in Category 1. At the fourth grade, Belgium (Flemish), Canada, Denmark, Hong Kong, The Netherlands, and the United States achieved the minimum acceptable participation rate only after including replacement schools, and therefore their results were annotated with a dagger (†)

in the achievement exhibits of the international reports (Category 2). Despite efforts to secure full participation, Northern Ireland's overall participation at 71 percent fell below the minimum requirement of 75 percent, even after using replacement schools. Results for Northern Ireland in the international reports were annotated with a double-dagger (‡), indicating that they nearly satisfied the guidelines for sample participation.

At the eighth grade, Canada, New Zealand, the United States, and the benchmarking participant of Buenos Aires, Argentina, achieved the minimum acceptable participation rates only after including replacement schools, and therefore their results were annotated with a dagger (†) in the achievement exhibits of the international reports (Category 2).

Finally, the benchmarking participant of Quebec, Canada, did not meet the required sampling participation rate at the fourth and eighth grades, even with the use of replacement schools and were annotated with a triple-dagger (‡) in the achievement exhibits of the international reports (Category 3).

Exhibit 5.8: Participation Rates (Weighted) – TIMSS 2015 - Fourth Grade

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Australia	98%	99%	100%	95%	94%	94%
Bahrain (Combined)	100%	100%	100%	99%	99%	99%
Numeracy	100%	100%	100%	99%	99%	99%
TIMSS	100%	100%	100%	99%	99%	99%
[†] Belgium (Flemish)	74%	97%	100%	98%	73%	95%
Bulgaria	97%	97%	100%	96%	93%	93%
[†] Canada	80%	86%	99%	94%	74%	80%
Chile	87%	94%	100%	94%	82%	88%
Chinese Taipei	99%	100%	100%	99%	98%	99%
Croatia	99%	100%	99%	95%	93%	94%
Cyprus	100%	100%	100%	98%	98%	98%
Czech Republic	100%	100%	100%	95%	95%	95%
[†] Denmark	53%	91%	100%	95%	50%	86%
England	95%	98%	100%	98%	92%	96%
Finland	99%	100%	100%	97%	95%	97%
France	96%	99%	100%	98%	93%	97%
Georgia	99%	100%	100%	98%	97%	98%
Germany	97%	99%	100%	96%	93%	95%
[†] Hong Kong SAR	76%	82%	100%	93%	70%	76%
Hungary	99%	99%	100%	97%	96%	96%
Indonesia (Combined)	100%	100%	100%	99%	99%	99%
Numeracy	100%	100%	100%	99%	99%	99%
TIMSS	100%	100%	100%	99%	99%	99%
Iran, Islamic Rep. of (Combined)	100%	100%	100%	99%	99%	99%
Numeracy	100%	100%	100%	99%	99%	99%
TIMSS	100%	100%	100%	99%	99%	99%
Ireland	100%	100%	100%	96%	96%	96%
Italy	80%	99%	99%	95%	75%	94%
Japan	96%	99%	100%	98%	94%	97%
Jordan	100%	100%	100%	96%	96%	96%
Kazakhstan	97%	99%	100%	98%	95%	97%
Korea, Rep. of	100%	100%	100%	97%	97%	97%

TIMSS guidelines for sampling participation: The minimum acceptable participation rates were 85 percent of both schools and students, or a combined rate (the product of school and student participation) of 75 percent. Participants not meeting these guidelines were annotated as follows:

[†] Met guidelines for sample participation rates only after replacement schools were included.

[‡] Nearly satisfied guidelines for sample participation rates after replacement schools were included.

[§] Did not satisfy guidelines for sample participation rates.

Exhibit 5.8: Participation Rates (Weighted) – TIMSS 2015 - Fourth Grade (Continued)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Kuwait (Combined)	94%	94%	100%	96%	90%	90%
Numeracy	94%	94%	100%	95%	89%	89%
TIMSS	94%	94%	100%	97%	90%	90%
Lithuania	99%	100%	100%	94%	93%	94%
Morocco (Combined)	100%	100%	100%	99%	99%	99%
Numeracy	100%	100%	100%	98%	98%	98%
TIMSS	100%	100%	100%	99%	99%	99%
[†] Netherlands	48%	87%	100%	96%	46%	83%
New Zealand	81%	96%	100%	94%	76%	90%
[‡] Northern Ireland	65%	76%	100%	93%	60%	71%
Norway (5)	93%	93%	100%	95%	89%	89%
Oman	97%	98%	100%	99%	96%	97%
Poland	91%	100%	100%	92%	84%	92%
Portugal	89%	99%	100%	93%	83%	92%
Qatar	100%	100%	100%	99%	99%	99%
Russian Federation	100%	100%	100%	98%	98%	98%
Saudi Arabia	95%	100%	100%	93%	88%	93%
Serbia	99%	100%	100%	96%	95%	96%
Singapore	100%	100%	100%	96%	96%	96%
Slovak Republic	98%	100%	100%	97%	95%	97%
Slovenia	96%	99%	100%	95%	91%	93%
South Africa (5)	99%	100%	100%	98%	98%	98%
Spain	98%	99%	100%	96%	95%	95%
Sweden	100%	100%	100%	95%	95%	95%
Turkey	100%	100%	100%	98%	98%	98%
United Arab Emirates	100%	100%	100%	97%	97%	97%
[†] United States	77%	85%	100%	96%	74%	81%
Benchmarking Participants						
Buenos Aires, Argentina (Combined)	86%	91%	93%	93%	74%	79%
Numeracy	86%	91%	93%	93%	74%	79%
TIMSS	86%	91%	93%	93%	75%	79%
Ontario, Canada	95%	95%	100%	95%	90%	90%
[‡] Quebec, Canada	48%	62%	100%	95%	46%	59%
Norway (4)	94%	94%	100%	95%	89%	89%
Abu Dhabi, UAE	100%	100%	100%	97%	97%	97%
Dubai, UAE	100%	100%	100%	97%	97%	97%
Florida, US	100%	100%	100%	95%	95%	95%

Exhibit 5.9: Participation Rates (Weighted) – TIMSS 2015 – Eighth Grade

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Australia	99%	99%	99%	91%	90%	90%
Bahrain	100%	100%	100%	97%	97%	97%
Botswana (9)	100%	100%	100%	98%	98%	98%
† Canada	80%	85%	99%	93%	73%	78%
Chile	85%	92%	100%	93%	79%	85%
Chinese Taipei	100%	100%	100%	98%	98%	98%
Egypt	95%	100%	100%	91%	87%	91%
England	91%	97%	100%	95%	87%	92%
Georgia	99%	100%	100%	98%	97%	98%
Hong Kong SAR	78%	84%	100%	96%	74%	81%
Hungary	96%	99%	100%	97%	93%	96%
Iran, Islamic Rep. of	100%	100%	100%	98%	98%	98%
Ireland	99%	99%	100%	92%	91%	91%
Israel	91%	100%	100%	93%	84%	93%
Italy	78%	98%	100%	95%	74%	93%
Japan	95%	99%	100%	95%	90%	93%
Jordan	100%	100%	100%	96%	96%	96%
Kazakhstan	97%	99%	100%	98%	95%	97%
Korea, Rep. of	100%	100%	100%	98%	98%	98%
Kuwait	94%	94%	100%	90%	85%	85%
Lebanon	77%	92%	100%	96%	74%	88%
Lithuania	99%	100%	100%	93%	92%	93%
Malaysia	100%	100%	100%	98%	98%	98%
Malta	100%	100%	100%	96%	96%	96%
Morocco	100%	100%	100%	95%	95%	95%
† New Zealand	76%	90%	100%	90%	68%	81%
Norway (9)	96%	96%	100%	91%	87%	87%
Oman	97%	97%	100%	99%	96%	96%
Qatar	98%	98%	100%	98%	96%	96%
Russian Federation	100%	100%	100%	97%	97%	97%
Saudi Arabia	98%	100%	100%	97%	95%	97%
Singapore	100%	100%	100%	97%	97%	97%

TIMSS guidelines for sampling participation: The minimum acceptable participation rates were 85 percent of both schools and students, or a combined rate (the product of school and student participation) of 75 percent. Participants not meeting these guidelines were annotated as follows:

† Met guidelines for sample participation rates only after replacement schools were included.

‡ Nearly satisfied guidelines for sample participation rates after replacement schools were included.

‡ Did not satisfy guidelines for sample participation rates.

Exhibit 5.9: Participation Rates (Weighted) – TIMSS 2015 – Eighth Grade (Continued)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Slovenia	96%	99%	100%	94%	89%	92%
South Africa (9)	98%	100%	100%	96%	94%	96%
Sweden	97%	100%	100%	94%	91%	94%
Thailand	98%	100%	100%	99%	96%	99%
Turkey	100%	100%	100%	98%	98%	98%
United Arab Emirates	100%	100%	100%	97%	97%	97%
[†] United States	78%	84%	99%	94%	73%	78%
Benchmarking Participants						
[†] Buenos Aires, Argentina	81%	85%	98%	85%	68%	71%
Ontario, Canada	93%	94%	99%	93%	85%	87%
[‡] Quebec, Canada	50%	63%	99%	92%	46%	58%
Norway (8)	95%	95%	100%	93%	87%	87%
Abu Dhabi, UAE	100%	100%	100%	98%	98%	98%
Dubai, UAE	100%	100%	100%	97%	97%	97%
Florida, US	98%	98%	99%	93%	90%	90%

Exhibit 5.10: Participation Rates (Unweighted) – TIMSS 2015 – Fourth Grade

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Australia	99%	99%	99%	94%	92%	92%
Bahrain (Combined)	100%	100%	100%	98%	98%	98%
Numeracy	100%	100%	100%	98%	98%	98%
TIMSS	100%	100%	100%	98%	98%	98%
Belgium (Flemish)	75%	97%	100%	98%	73%	95%
Bulgaria	97%	97%	100%	96%	93%	93%
Canada	79%	86%	99%	93%	73%	79%
Chile	85%	95%	100%	94%	80%	89%
Chinese Taipei	99%	100%	100%	99%	98%	99%
Croatia	99%	100%	99%	94%	92%	93%
Cyprus	100%	100%	100%	98%	98%	98%
Czech Republic	100%	100%	100%	95%	95%	95%
Denmark	53%	91%	100%	95%	51%	86%
England	95%	98%	100%	97%	92%	95%
Finland	99%	100%	100%	96%	96%	96%
France	96%	99%	100%	97%	93%	96%
Georgia	99%	100%	100%	98%	97%	98%
Germany	96%	98%	100%	96%	92%	94%
Hong Kong SAR	77%	83%	100%	93%	71%	77%
Hungary	99%	99%	100%	97%	95%	96%
Indonesia (Combined)	100%	100%	100%	98%	98%	98%
Numeracy	100%	100%	100%	98%	98%	98%
TIMSS	100%	100%	100%	98%	98%	98%
Iran, Islamic Rep. of (Combined)	100%	100%	100%	99%	99%	99%
Numeracy	100%	100%	100%	99%	99%	99%
TIMSS	100%	100%	100%	99%	99%	99%
Ireland	100%	100%	100%	96%	96%	96%
Italy	82%	99%	99%	96%	77%	93%
Japan	96%	99%	100%	98%	94%	97%
Jordan	100%	100%	100%	95%	95%	95%
Kazakhstan	94%	98%	100%	98%	93%	96%
Korea, Rep. of	100%	100%	100%	97%	97%	97%
Kuwait (Combined)	95%	95%	100%	92%	87%	87%
Numeracy	95%	95%	100%	91%	86%	86%
TIMSS	95%	95%	100%	94%	89%	89%

Exhibit 5.10: Participation Rates (Unweighted) – TIMSS 2015 – Fourth Grade (Continued)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Lithuania	99%	100%	100%	93%	93%	93%
Morocco (Combined)	100%	100%	100%	97%	97%	97%
Numeracy	100%	100%	100%	97%	97%	97%
TIMSS	100%	100%	100%	98%	97%	97%
Netherlands	50%	87%	100%	96%	48%	83%
New Zealand	81%	96%	100%	94%	76%	90%
Northern Ireland	65%	77%	100%	92%	60%	71%
Norway (5)	93%	93%	100%	95%	88%	88%
Oman	97%	98%	100%	98%	95%	97%
Poland	91%	100%	100%	92%	84%	92%
Portugal	87%	98%	100%	93%	81%	91%
Qatar	100%	100%	100%	99%	99%	99%
Russian Federation	100%	100%	100%	98%	98%	98%
Saudi Arabia	94%	100%	100%	93%	87%	93%
Serbia	99%	100%	100%	96%	95%	96%
Singapore	100%	100%	100%	96%	96%	96%
Slovak Republic	97%	100%	100%	97%	94%	96%
Slovenia	96%	99%	100%	95%	90%	93%
South Africa (5)	99%	100%	100%	98%	97%	98%
Spain	98%	99%	100%	97%	95%	96%
Sweden	100%	100%	100%	95%	95%	95%
Turkey	100%	100%	100%	98%	98%	98%
United Arab Emirates	100%	100%	100%	97%	97%	97%
United States	77%	85%	100%	96%	74%	81%

Benchmarking Participants

Buenos Aires, Argentina (Combined)	85%	91%	92%	87%	67%	72%
Numeracy	85%	91%	92%	87%	68%	72%
TIMSS	85%	91%	92%	87%	67%	72%
Ontario, Canada	96%	96%	100%	95%	90%	90%
Quebec, Canada	58%	70%	100%	95%	55%	66%
Norway (4)	94%	94%	100%	94%	89%	89%
Abu Dhabi, UAE	100%	100%	100%	96%	96%	96%
Dubai, UAE	100%	100%	100%	97%	97%	97%
Florida, US	100%	100%	100%	95%	95%	95%

Exhibit 5.11: Participation Rates (Unweighted) – TIMSS 2015 – Eighth Grade

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Australia	99%	99%	96%	89%	85%	85%
Bahrain	100%	100%	100%	97%	97%	97%
Botswana (9)	100%	100%	100%	98%	98%	98%
Canada	75%	82%	99%	93%	69%	76%
Chile	84%	93%	100%	93%	78%	87%
Chinese Taipei	100%	100%	100%	98%	98%	98%
Egypt	92%	99%	100%	91%	84%	89%
England	91%	97%	100%	95%	86%	91%
Georgia	99%	100%	100%	97%	96%	97%
Hong Kong SAR	78%	84%	100%	96%	75%	81%
Hungary	97%	99%	100%	97%	93%	96%
Iran, Islamic Rep. of	100%	100%	100%	98%	98%	98%
Ireland	99%	99%	100%	92%	91%	91%
Israel	91%	100%	100%	93%	85%	93%
Italy	81%	98%	100%	95%	76%	93%
Japan	95%	99%	100%	95%	90%	93%
Jordan	100%	100%	100%	96%	96%	96%
Kazakhstan	95%	98%	100%	98%	94%	96%
Korea, Rep. of	100%	100%	100%	98%	98%	98%
Kuwait	95%	95%	100%	91%	86%	86%
Lebanon	77%	92%	100%	96%	75%	89%
Lithuania	98%	100%	100%	93%	91%	93%
Malaysia	100%	100%	100%	98%	98%	98%
Malta	100%	100%	100%	96%	96%	96%
Morocco	100%	100%	100%	95%	95%	95%
New Zealand	74%	90%	100%	91%	67%	81%
Norway (9)	95%	95%	100%	91%	86%	86%
Oman	97%	98%	100%	98%	96%	96%
Qatar	98%	98%	100%	98%	96%	96%
Russian Federation	100%	100%	100%	97%	97%	97%
Saudi Arabia	98%	100%	100%	97%	95%	97%
Singapore	100%	100%	100%	97%	97%	97%
Slovenia	96%	99%	100%	93%	89%	92%
South Africa (9)	97%	100%	100%	95%	92%	95%

Exhibit 5.11: Participation Rates (Unweighted) – TIMSS 2015 – Eighth Grade (Continued)

Country	School Participation		Class Participation	Student Participation	Overall Participation	
	Before Replacement	After Replacement			Before Replacement	After Replacement
Sweden	99%	100%	100%	93%	92%	93%
Thailand	98%	100%	100%	98%	97%	98%
Turkey	100%	100%	100%	98%	98%	98%
United Arab Emirates	100%	100%	100%	97%	97%	97%
United States	78%	84%	99%	94%	73%	79%
Benchmarking Participants						
Buenos Aires, Argentina	81%	85%	97%	87%	68%	72%
Ontario, Canada	92%	94%	99%	93%	85%	87%
Quebec, Canada	59%	70%	99%	93%	54%	65%
Norway (8)	95%	95%	100%	93%	88%	88%
Abu Dhabi, UAE	100%	100%	100%	97%	97%	97%
Dubai, UAE	100%	100%	100%	97%	97%	97%
Florida, US	98%	98%	99%	92%	90%	90%

Exhibits 5.12 through 5.15 show the achieved sample sizes in terms of schools and students for each of the participants in the TIMSS 2015 fourth and eighth grade assessments, respectively.

Exhibit 5.12: School Sample Sizes – TIMSS 2015 – Fourth Grade

Country	Number of Schools in Original Sample	Number of Eligible Schools in Original Sample	Number of Schools in Original Sample that Participated	Number of Replacement Schools that Participated	Total Number of Schools that Participated
Australia	290	289	285	2	287
Bahrain	182	182	182	0	182
Belgium (Flemish)	160	157	117	36	153
Bulgaria	154	153	148	1	149
Canada	520	513	403	38	441
Chile	190	189	161	18	179
Chinese Taipei	150	150	149	1	150
Croatia	168	163	161	2	163
Cyprus	150	148	148	0	148
Czech Republic	160	159	159	0	159
Denmark	220	212	113	80	193
England	150	150	142	5	147
Finland	160	158	157	1	158
France	166	165	159	5	164
Georgia	162	153	151	2	153
Germany	210	208	199	5	204
Hong Kong SAR	160	160	123	9	132
Hungary	150	145	143	1	144
Indonesia	230	230	230	0	230
Iran, Islamic Rep. of	250	248	248	0	248
Ireland	149	149	149	0	149
Italy	166	166	136	28	164
Japan	150	149	143	5	148
Jordan	257	254	254	0	254
Kazakhstan	176	175	165	6	171
Korea, Rep. of	150	149	149	0	149
Kuwait	176	175	166	0	166
Lithuania	231	225	223	2	225
Morocco	361	359	358	0	358
Netherlands	150	148	74	55	129
New Zealand	182	182	147	27	174
Northern Ireland	154	154	100	18	118
Norway (5)	150	150	140	0	140
Oman	308	305	296	4	300

Exhibit 5.12: School Sample Sizes –TIMSS 2015 – Fourth Grade (Continued)

Country	Number of Schools in Original Sample	Number of Eligible Schools in Original Sample	Number of Schools in Original Sample that Participated	Number of Replacement Schools that Participated	Total Number of Schools that Participated
Poland	150	150	137	13	150
Portugal	222	221	193	24	217
Qatar	220	211	211	0	211
Russian Federation	208	208	208	0	208
Saudi Arabia	198	189	178	11	189
Serbia	160	160	158	2	160
Singapore	179	179	179	0	179
Slovak Republic	200	199	193	5	198
Slovenia	150	150	144	4	148
South Africa (5)	300	297	293	4	297
Spain	364	363	357	1	358
Sweden	150	144	144	0	144
Turkey	260	242	242	0	242
United Arab Emirates	573	558	558	0	558
United States	300	295	228	22	250
Benchmarking Participants					
Buenos Aires, Argentina	150	150	127	9	136
Ontario, Canada	160	158	151	0	151
Quebec, Canada	176	174	101	20	121
Norway (4)	152	148	139	0	139
Abu Dhabi, UAE	173	163	163	0	163
Dubai, UAE	170	168	168	0	168
Florida, US	54	53	53	0	53

Exhibit 5.13: School Sample Sizes – TIMSS 2015 – Eighth Grade

Country	Number of Schools in Original Sample	Number of Eligible Schools in Original Sample	Number of Schools in Original Sample that Participated	Number of Replacement Schools that Participated	Total Number of Schools that Participated
Australia	290	287	285	0	285
Bahrain	105	105	105	0	105
Botswana (9)	159	159	159	0	159
Canada	344	337	253	23	276
Chile	184	184	154	17	171
Chinese Taipei	190	190	190	0	190
Egypt	214	214	197	14	211
England	150	148	135	8	143
Georgia	162	153	151	2	153
Hong Kong SAR	158	158	123	10	133
Hungary	150	145	140	4	144
Iran, Islamic Rep. of	250	250	250	0	250
Ireland	150	150	149	0	149
Israel	200	200	182	18	200
Italy	165	165	133	28	161
Japan	150	149	142	5	147
Jordan	260	252	252	0	252
Kazakhstan	176	176	168	4	172
Korea, Rep. of	150	150	150	0	150
Kuwait	178	177	168	0	168
Lebanon	150	150	116	22	138
Lithuania	211	208	204	4	208
Malaysia	212	207	207	0	207
Malta	48	48	48	0	48
Morocco	353	345	345	0	345
New Zealand	162	162	120	25	145
Norway (9)	150	150	143	0	143
Oman	310	308	300	1	301
Qatar	136	134	131	0	131
Russian Federation	204	204	204	0	204
Saudi Arabia	154	143	140	3	143
Singapore	167	167	167	0	167
Slovenia	150	150	144	4	148
South Africa (9)	300	292	282	10	292

Exhibit 5.13: School Sample Sizes – TIMSS 2015 – Eighth Grade (Continued)

Country	Number of Schools in Original Sample	Number of Eligible Schools in Original Sample	Number of Schools in Original Sample that Participated	Number of Replacement Schools that Participated	Total Number of Schools that Participated
Sweden	154	150	149	1	150
Thailand	204	204	200	4	204
Turkey	240	218	218	0	218
United Arab Emirates	489	477	477	0	477
United States	300	293	229	17	246
Benchmarking Participants					
Buenos Aires, Argentina	150	150	122	6	128
Ontario, Canada	152	147	135	3	138
Quebec, Canada	176	174	102	20	122
Norway (8)	150	150	142	0	142
Abu Dhabi, UAE	165	156	156	0	156
Dubai, UAE	137	135	135	0	135
Florida, US	54	54	53	0	53

Exhibit 5.14: Student Sample Sizes – TIMSS 2015 – Fourth Grade

Country	Within-School Student Participation (Weighted Percentage)	Number of Sampled Students in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Eligible Students	Number of Students Absent	Number of Students Assessed
Australia	95%	6,705	149	129	6,427	370	6,057
Bahrain (Combined)	99%	9,335	63	540	8,732	157	8,575
Numeracy	99%	4,825	38	277	4,510	81	4,429
TIMSS	99%	4,510	25	263	4,222	76	4,146
Belgium (Flemish)	98%	5,580	24	32	5,524	120	5,404
Bulgaria	96%	4,563	78	80	4,405	177	4,228
Canada	94%	13,583	118	294	13,171	888	12,283
Chile	94%	5,196	68	64	5,064	308	4,756
Chinese Taipei	99%	4,461	37	84	4,340	49	4,291
Croatia	95%	4,354	25	109	4,220	235	3,985
Cyprus	98%	4,343	12	132	4,199	74	4,125
Czech Republic	95%	5,562	41	31	5,490	288	5,202
Denmark	95%	4,213	57	241	3,915	205	3,710
England	98%	4,232	117	0	4,115	109	4,006
Finland	97%	5,251	17	34	5,200	185	5,015
France	98%	5,110	66	35	5,009	136	4,873
Georgia	98%	4,091	30	59	4,002	83	3,919
Germany	96%	4,202	44	45	4,113	165	3,948
Hong Kong SAR	93%	3,936	17	45	3,874	274	3,600
Hungary	97%	5,329	24	102	5,203	167	5,036
Indonesia (Combined)	99%	8,730	207	0	8,523	204	8,319
Numeracy	99%	4,522	118	0	4,404	110	4,294
TIMSS	99%	4,208	89	0	4,119	94	4,025
Iran, Islamic Rep. of (Combined)	99%	8,115	77	3	8,035	107	7,928
Numeracy	99%	4,203	35	2	4,166	61	4,105
TIMSS	99%	3,912	42	1	3,869	46	3,823
Ireland	96%	4,624	31	52	4,541	197	4,344
Italy	95%	4,859	18	264	4,577	204	4,373
Japan	98%	4,511	7	35	4,469	86	4,383
Jordan	96%	8,514	276	0	8,238	377	7,861
Kazakhstan	98%	4,830	51	0	4,779	77	4,702
Korea, Rep. of	97%	4,903	54	54	4,795	126	4,669
Kuwait (Combined)	96%	7,991	79	4	7,908	612	7,296
Numeracy	95%	4,128	38	2	4,088	385	3,703
TIMSS	97%	3,863	41	2	3,820	227	3,593

Students attending a sampled class at the time the sample was chosen but leaving the class before the assessment was administered were classified as “withdrawn.”

Students with a disability or language barrier that prevented them from participating in the assessment were classified as “excluded.”

Students not present when the assessment was administered, and not subsequently assessed in a make-up session, were classified as “absent.”

Exhibit 5.14: Student Sample Sizes – TIMSS 2015 – Fourth Grade (Continued)

Country	Within-School Student Participation (Weighted Percentage)	Number of Sampled Students in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Eligible Students	Number of Students Absent	Number of Students Assessed
Lithuania	94%	5,034	12	175	4,847	318	4,529
Morocco (Combined)	99%	10,795	84	0	10,711	283	10,428
Numeracy	98%	5,581	43	0	5,538	178	5,360
TIMSS	99%	5,214	41	0	5,173	105	5,068
Netherlands	96%	4,791	77	20	4,694	179	4,515
New Zealand	94%	6,920	118	77	6,725	403	6,322
Northern Ireland	93%	3,388	17	2	3,369	253	3,116
Norway (5)	95%	4,764	27	166	4,571	242	4,329
Oman	99%	9,490	131	84	9,275	170	9,105
Poland	92%	5,346	49	118	5,179	432	4,747
Portugal	93%	5,391	33	295	5,063	370	4,693
Qatar	99%	5,484	116	113	5,255	61	5,194
Russian Federation	98%	5,145	24	87	5,034	113	4,921
Saudi Arabia	93%	4,759	74	2	4,683	346	4,337
Serbia	96%	4,310	21	80	4,209	173	4,036
Singapore	96%	6,800	26	0	6,774	257	6,517
Slovak Republic	97%	6,235	208	50	5,977	204	5,773
Slovenia	95%	4,790	13	77	4,700	255	4,445
South Africa (5)	98%	11,305	151	0	11,154	222	10,932
Spain	96%	8,353	40	302	8,011	247	7,764
Sweden	95%	4,505	29	126	4,350	208	4,142
Turkey	98%	6,892	217	90	6,585	129	6,456
United Arab Emirates	97%	22,249	110	275	21,864	687	21,177
United States	96%	11,267	147	648	10,472	443	10,029
Benchmarking Participants							
Buenos Aires, Argentina (Combined)	93%	7,464	54	16	7,180	745	6,435
Numeracy	93%	3,852	27	8	3,697	366	3,331
TIMSS	93%	3,612	27	8	3,483	379	3,104
Ontario, Canada	95%	4,938	52	59	4,827	253	4,574
Quebec, Canada	95%	3,012	13	54	2,945	147	2,798
Norway (4)	95%	4,583	27	149	4,407	243	4,164
Abu Dhabi, UAE	97%	5,281	32	64	5,185	184	5,001
Dubai, UAE	97%	7,906	35	153	7,718	265	7,453
Florida, US	95%	2,269	55	76	2,138	113	2,025

Exhibit 5.15: Student Sample Sizes – TIMSS 2015 – Eighth Grade

Country	Within-School Student Participation (Weighted Percentage)	Number of Sampled Students in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Eligible Students	Number of Students Absent	Number of Students Assessed
Australia	91%	11,968	312	88	11,568	1,230	10,338
Bahrain	97%	5,334	66	201	5,067	149	4,918
Botswana (9)	98%	6,192	66	12	6,114	150	5,964
Canada	93%	9,618	70	139	9,409	652	8,757
Chile	93%	5,285	67	21	5,197	348	4,849
Chinese Taipei	98%	5,915	53	50	5,812	101	5,711
Egypt	91%	8,897	273	0	8,624	802	7,822
England	95%	5,252	185	0	5,067	253	4,814
Georgia	98%	4,215	28	46	4,141	106	4,035
Hong Kong SAR	96%	4,363	24	13	4,326	171	4,155
Hungary	97%	5,190	20	112	5,058	165	4,893
Iran, Islamic Rep. of	98%	6,482	80	177	6,225	95	6,130
Ireland	92%	5,214	44	47	5,123	419	4,704
Israel	93%	6,079	41	102	5,936	424	5,512
Italy	95%	5,021	16	282	4,723	242	4,481
Japan	95%	5,037	8	12	5,017	272	4,745
Jordan	96%	8,617	441	0	8,176	311	7,865
Kazakhstan	98%	5,040	61	0	4,979	92	4,887
Korea, Rep. of	98%	5,526	35	55	5,436	127	5,309
Kuwait	90%	5,081	113	0	4,968	465	4,503
Lebanon	96%	4,044	24	0	4,020	147	3,873
Lithuania	93%	4,864	27	148	4,689	342	4,347
Malaysia	98%	10,092	171	41	9,880	154	9,726
Malta	96%	4,063	15	67	3,981	164	3,817
Morocco	95%	13,979	229	0	13,750	715	13,035
New Zealand	90%	9,119	93	47	8,979	837	8,142
Norway (9)	91%	5,354	37	128	5,189	492	4,697
Oman	99%	9,218	161	21	9,036	153	8,883
Qatar	98%	5,691	115	73	5,503	100	5,403
Russian Federation	97%	5,025	52	59	4,914	134	4,780
Saudi Arabia	97%	3,962	72	5	3,885	126	3,759
Singapore	97%	6,341	15	0	6,326	210	6,116
Slovenia	94%	4,654	17	76	4,561	304	4,257
South Africa (9)	96%	13,708	574	0	13,134	620	12,514

Students attending a sampled class at the time the sample was chosen but leaving the class before the assessment was administered were classified as “withdrawn.”
 Students with a disability or language barrier that prevented them from participating in the assessment were classified as “excluded.”
 Students not present when the assessment was administered, and not subsequently assessed in a make-up session, were classified as “absent.”

Exhibit 5.15: Student Sample Sizes – TIMSS 2015 – Eighth Grade (Continued)

Country	Within-School Student Participation (Weighted Percentage)	Number of Sampled Students in Participating Schools	Number of Students Withdrawn from Class/School	Number of Students Excluded	Number of Eligible Students	Number of Students Absent	Number of Students Assessed
Sweden	94%	4,561	43	121	4,397	307	4,090
Thailand	99%	6,761	179	0	6,582	100	6,482
Turkey	98%	6,537	232	71	6,234	155	6,079
United Arab Emirates	97%	18,740	78	106	18,556	544	18,012
United States	94%	11,489	198	439	10,852	631	10,221
Benchmarking Participants							
Buenos Aires, Argentina	85%	3,839	81	0	3,758	505	3,253
Ontario, Canada	93%	4,883	18	24	4,841	321	4,520
Quebec, Canada	92%	4,403	48	92	4,263	313	3,950
Norway (8)	93%	5,339	17	143	5,179	384	4,795
Abu Dhabi, UAE	98%	5,021	26	20	4,975	137	4,838
Dubai, UAE	97%	6,435	24	67	6,344	195	6,149
Florida, US	93%	2,336	38	47	2,251	177	2,074

TIMSS 2015 Trends in Student Populations

Because an important goal of the TIMSS 2015 assessment was to measure changes in students’ mathematics and science achievement across assessment cycles, it was important to track any changes over time in population composition and coverage that might be related to student achievement. Exhibits 5.16 and 5.17 present, for each country, trends across cycles (2015, 2011, 2007, 2003, 1995 at the fourth grade and 2015, 2011, 2007, 2003, 1999, and 1995 at the eighth grade) in four important characteristics of the assessment populations: number of years of formal schooling, average student age, percent of students in the national target population excluded from the assessment, and overall participation rates after using replacements. Most countries and benchmarking participants were very similar with regard to these characteristics across the four assessment cycles at the fourth grade and five cycles at the eighth grade, although there have been changes in some countries in the age and grade structure of the assessed populations, in the target population coverage and in the exclusion rate.

The Russian Federation and Slovenia have undergone structural changes in the age at which children enter schools that are reflected in their samples. In 2003, the Russian fourth grade sample contained third grade students from some regions and fourth grade students from others, whereas all students were in the fourth grade by 2007. At the eighth grade, there was still a mixture of seventh and eighth grade students in 2007, but by 2011 the sample was all eighth grade students,

with correspondingly a higher average age. By 2007, Slovenia had completed the transition towards having all children begin school at an earlier age so that they all would have four years of primary schooling at the fourth grade instead of three years, as was the case in 2003.

National coverage of the international target population was generally comprehensive for most countries and has not changed across assessments, with some exceptions. At the fourth grade, Kuwait assessed only students in public schools in 2011 but also tested students from the private schools in 2015. Therefore the 2015 trend population for Kuwait included only students from the public schools, which represents 60 percent of the 2015 target population. At the fourth and eighth grades, Lithuania tested students in Lithuanian, Russian, and Polish in 2015, while Lithuanian was the only test language used for the assessment in 2011. As a result, the 2015 trend population for Lithuania included only students taught in Lithuanian, which represent 91 percent and 93 percent, at the fourth and eighth grades, respectively.

In general, the exclusion rates do not exceed the TIMSS 2015 guidelines of 5 percent, and have not changed very much across assessments for most countries. A few countries saw a decrease in their overall exclusion rate. At the fourth grade, Belgium (Flemish) reduced their overall exclusion rate of 3.6 percent between 2011 and 2015 by assessing eligible students from special needs schools. From 2011 to 2015, Hong Kong SAR decreased its overall exclusion rate, at the fourth and eighth grades, by over 6 and close to 4 percentage points, respectively, by assessing students from their international schools. Finally, Florida decreased their exclusion rate at the fourth and eighth grades by more than 7 and 4 percentage points, respectively, by providing more precise guidelines on within-school exclusions of special needs students. On the other hand, the student exclusion rate was higher in 2015 than in 2011 at the fourth grade in Bahrain, Italy, Kuwait, Portugal, Serbia, Singapore, Slovenia, Sweden, and the benchmarking participants of Quebec, Canada, and Abu Dhabi, United Arab Emirates. At the eighth grade, those with higher exclusions since 2011 included Bahrain, Georgia, Hungary, Italy, Lithuania, Malaysia, Slovenia, Norway (eighth grade), and the benchmarking participants of and Abu Dhabi and Dubai of the United Arab Emirates.

Exhibit 5.16: Trends in Student Populations – TIMSS 2015 – Fourth Grade

Country	Years of Formal Schooling*					Average Age at Time of Testing				
	2015	2011	2007	2003	1995	2015	2011	2007	2003	1995
Australia	4	4	4	4	4	10.0	10.0	9.9	9.9	9.9
Bahrain	4	4				9.9	10.4			
Belgium (Flemish)	4	4		4		10.1	10.0		10.0	
Chile	4	4				10.2	10.1			
Chinese Taipei	4	4	4	4		10.2	10.2	10.2	10.2	
Croatia	4	4				10.6	10.7			
Cyprus	4			4	4	9.8			9.9	9.8
Czech Republic	4	4	4		4	10.4	10.4	10.3		10.4
Denmark	4	4	4			10.9	11.0	11.0		
England	5	5	5	5	5	10.1	10.2	10.2	10.3	10.0
Finland	4	4				10.8	10.8			
Georgia	4	4	4			9.7	10.0	10.1		
Germany	4	4	4			10.4	10.4	10.4		
Hong Kong SAR	4	4	4	4	4	10.1	10.1	10.2	10.2	10.1
Hungary	4	4	4	4	4	10.7	10.7	10.7	10.5	10.4
Iran, Islamic Rep. of	4	4	4	4	4	10.2	10.2	10.2	10.4	10.5
Ireland	4	4			4	10.4	10.3			10.3
Italy	4	4	4	4		9.7	9.7	9.8	9.8	
Japan	4	4	4	4	4	10.5	10.5	10.5	10.4	10.4
Kazakhstan	4	4				10.3	10.4			
Korea, Rep. of	4	4			4	10.5	10.4			10.3
Kuwait	4	4				9.7	9.7			
Lithuania	4	4	4	4		10.7	10.7	10.8	10.9	
Morocco	4	4				10.3	10.5			
Netherlands	4	4	4	4	4	10.0	10.2	10.2	10.2	10.3
New Zealand	4	4.5–5.5	4.5–5.5	4.5–5.5	4.5–5.5	10.0	9.9	10.0	10.0	10.0
Northern Ireland	4	4				10.4	10.4			
Oman	4	4				9.6	9.9			
Portugal	4	4			4	9.9	10.0			10.4
Qatar	4	4				10.1	10.0			
Russian Federation	4	4	4	3 or 4		10.8	10.8	10.8	10.6	
Saudi Arabia	4	4				10.0	10.0			

* Represents years of schooling counting from the first year of ISCED Level 1.

Georgian schools in South Ossetia and Abkhazia were excluded in 2011 due to lack of access and absence of official statistics. Abkhazia refugee schools in other territories of Georgia were included in the sample frame.

Bahrain in 2011, Korea in 2003, Lithuania in 1999, and Dubai (UAE) in 2007 tested the same cohort of students as other countries, but later in the assessment year. South Africa (9) tested one year later.

Trend results for Kuwait do not include private schools. Trend results for Lithuania do not include students taught in Polish or in Russian.

An empty cell indicates a country did not participate in that year's assessment. A dash (-) indicates comparable data not available.

Exhibit 5.16: Trends in Student Populations – TIMSS 2015 – Fourth Grade (Continued)

Country	Years of Formal Schooling*					Average Age at Time of Testing				
	2015	2011	2007	2003	1995	2015	2011	2007	2003	1995
Serbia	4	4				10.7	10.8			
Singapore	4	4	4	4	4	10.4	10.4	10.4	10.3	10.3
Slovak Republic	4	4	4			10.4	10.4	10.4		
Slovenia	4	4	4	3 or 4	3	9.8	9.9	9.8	9.8	9.9
Spain	4	4				9.9	9.8			
Sweden	4	4	4			10.8	10.7	10.8		
Turkey	4	4				9.9	10.1			
United Arab Emirates	4	4				9.8	9.8			
United States	4	4	4	4	4	10.2	10.2	10.3	10.2	10.2
Benchmarking Participants										
Ontario, Canada	4	4	4	4	4	9.8	9.8	9.8	9.9	9.8
Quebec, Canada	4	4	4	4	4	10.1	10.1	10.1	10.1	10.3
Norway (4)	4	4	4	3	3	9.7	9.7	9.8	9.8	9.9
Abu Dhabi, UAE	4	4				9.8	9.7			
Dubai, UAE	4	4	4			9.8	9.9	10.0		
Florida, US	4	4				10.4	10.4			

Exhibit 5.16: Trends in Student Populations – TIMSS 2015 – Fourth Grade (Continued)

Country	Overall Exclusions					Overall Participation (After Replacement)				
	2015	2011	2007	2003	1995	2015	2011	2007	2003	1995
Australia	4.2%	4.4%	4.0%	2.7%	2.0%	94%	93%	95%	85%	66%
Bahrain	5.6%	1.1%				99%	90%			
Belgium (Flemish)	1.4%	5.0%		6.3%		95%	92%		97%	
Chile	3.7%	3.7%				88%	95%			
Chinese Taipei	2.4%	1.4%	2.8%	3.1%		99%	99%	100%	99%	
Croatia	4.4%	7.9%				94%	95%			
Cyprus	4.6%			2.9%	3.0%	98%			97%	83%
Czech Republic	4.2%	5.1%	4.9%		4.0%	95%	94%	92%		86%
Denmark	7.5%	6.3%	4.1%			86%	87%	85%		
England	2.3%	2.0%	2.1%	1.9%	12.0%	96%	78%	84%	76%	83%
Finland	2.0%	3.1%				97%	96%			
Georgia	4.9%	4.9%	4.8%			98%	96%	98%		
Germany	2.7%	1.9%	1.3%			95%	95%	96%		
Hong Kong SAR	2.2%	8.6%	5.4%	3.8%	3.0%	76%	82%	81%	83%	83%
Hungary	4.8%	4.2%	4.4%	8.1%	4.0%	96%	96%	96%	93%	92%
Iran, Islamic Rep. of	4.0%	4.5%	3.0%	5.7%	1.0%	99%	99%	99%	98%	97%
Ireland	2.7%	2.5%			7.0%	96%	95%			90%
Italy	6.2%	3.7%	5.3%	4.2%		94%	95%	97%	97%	
Japan	2.9%	3.2%	1.1%	0.8%	3.0%	97%	96%	95%	97%	92%
Kazakhstan	3.9%	6.3%				97%	99%			
Korea, Rep. of	2.5%	2.5%			7.0%	97%	98%			95%
Kuwait	3.0%	0.3%				90%	91%			
Lithuania	6.1%	5.6%	5.4%	4.6%		94%	94%	94%	87%	
Morocco	1.5%	2.0%				99%	96%			
Netherlands	3.2%	4.0%	4.8%	5.2%	4.0%	83%	79%	91%	84%	59%
New Zealand	4.8%	4.9%	5.4%	4.0%	1.0%	90%	90%	96%	93%	95%
Northern Ireland	2.7%	3.5%				71%	79%			
Oman	0.8%	1.5%				97%	96%			
Portugal	6.5%	2.5%			7.0%	92%	92%			92%
Qatar	3.8%	6.2%				99%	99%			
Russian Federation	4.0%	5.3%	3.6%	6.8%		98%	98%	98%	97%	
Saudi Arabia	1.9%	1.6%				93%	99%			
Serbia	11.3%	9.4%				96%	97%			
Singapore	10.1%	6.3%	1.5%	0.0%	0.0%	96%	96%	96%	98%	98%
Slovak Republic	4.2%	4.6%	3.3%			97%	96%	97%		

Exhibit 5.16: Trends in Student Populations – TIMSS 2015 – Fourth Grade (Continued)

Country	Overall Exclusions					Overall Participation (After Replacement)				
	2015	2011	2007	2003	1995	2015	2011	2007	2003	1995
Slovenia	4.5%	2.6%	2.1%	1.3%	2.0%	93%	94%	93%	91%	76%
Spain	5.6%	5.3%				95%	97%			
Sweden	5.7%	4.1%	3.1%			95%	91%	97%		
Turkey	3.6%	2.5%				98%	98%			
United Arab Emirates	4.7%	3.3%				97%	97%			
United States	6.8%	7.0%	9.2%	5.1%	5.0%	81%	80%	84%	78%	80%
Benchmarking Participants										
Ontario, Canada	3.4%	5.3%	6.3%	4.8%	–	90%	94%	92%	90%	92%
Quebec, Canada	5.4%	3.7%	6.4%	3.6%	–	59%	91%	84%	91%	81%
Norway (4)	5.0%	4.3%	5.1%	4.4%	3.0%	89%	70%	92%	88%	91%
Abu Dhabi, UAE	5.8%	2.7%				97%	97%			
Dubai, UAE	5.3%	5.1%	5.4%			97%	96%	67%		
Florida, US	4.7%	12.1%				95%	91%			

Exhibit 5.17: Trends in Student Populations – TIMSS 2015 – Eighth Grade

Country	Years of Formal Schooling*						Average Age at Time of Testing					
	2015	2011	2007	2003	1999	1995	2015	2011	2007	2003	1999	1995
Australia	8	8	8	8		8	14.0	14.0	13.9	13.9		13.9
Bahrain	8	8	8	8			14.0	14.4	14.1	14.1		
Botswana (9)	9	9					15.6	15.8				
Chile	8	8		8	8		14.3	14.2		14.2	14.4	
Chinese Taipei	8	8	8	8	8		14.3	14.2	14.2	14.2	14.2	
Egypt	8		8	8			14.1		14.1	14.4		
England	9	9	9	9	9	9	14.1	14.2	14.2	14.3	14.2	14.0
Georgia	8	8	8				13.7	14.2	14.2			
Hong Kong SAR	8	8	8	8	8	8	14.2	14.2	14.4	14.4	14.2	14.2
Hungary	8	8	8	8	8	8	14.7	14.7	14.6	14.5	14.4	14.3
Iran, Islamic Rep. of	8	8	8	8	8	8	14.2	14.3	14.2	14.4	14.6	14.6
Ireland	8					8	14.4					14.4
Israel	8	8					14.0	14.0				
Italy	8	8	8	8	8		13.8	13.8	13.9	13.9	14.0	
Japan	8	8	8	8	8	8	14.5	14.5	14.5	14.4	14.4	14.4
Jordan	8	8	8	8	8		13.8	13.9	14.0	13.9	14.0	
Kazakhstan	8	8					14.3	14.6				
Korea, Rep. of	8	8	8	8	8	8	14.4	14.3	14.3	14.6	14.4	14.2
Kuwait	8		8				13.7		14.4			
Lebanon	8	8	8	8			14.2	14.3	14.4	14.6		
Lithuania	8	8	8	8	8.5	8	14.7	14.7	14.9	14.9	15.2	14.3
Malaysia	8	8	8	8	8		14.3	14.4	14.3	14.3	14.4	
Malta	8		9				13.8		14.0			
Morocco	8	8					14.5	14.7				
New Zealand	8	8.5–9.5		8.5–9.5	8.5–9.5	8.5–9.5	14.1	14.1		14.1	14.0	14.0
Oman	8	8	8				14.0	14.1	14.3			
Qatar	8	8					14.1	14.0				
Russian Federation	8	8	7 or 8	7 or 8	7 or 8	7 or 8	14.7	14.7	14.6	14.2	14.1	14.0
Saudi Arabia	8	8					14.1	14.1				
Singapore	8	8	8	8	8	8	14.4	14.4	14.4	14.3	14.4	14.5
Slovenia	8	8	7 or 8	7 or 8		7	13.8	13.9	13.8	13.8		13.8
South Africa (9)	9	9					15.7	16.0				

* Represents years of schooling counting from the first year of ISCED Level 1.

Georgian schools in South Ossetia and Abkhazia were excluded in 2011 due to lack of access and absence of official statistics. Abkhazia refugee schools in other territories of Georgia were included in the sample frame.

Bahrain in 2011, Korea in 2003, Lithuania in 1999, and Dubai (UAE) in 2007 tested the same cohort of students as other countries, but later in the assessment year. South Africa (9) tested one year later.

Trend results for Kuwait do not include private schools. Trend results for Lithuania do not include students taught in Polish or in Russian.

An empty cell indicates a country did not participate in that year's assessment. A dash (-) indicates comparable data not available.

Exhibit 5.17: Trends in Student Populations – TIMSS 2015 – Eighth Grade (Continued)

Country	Years of Formal Schooling*						Average Age at Time of Testing					
	2015	2011	2007	2003	1999	1995	2015	2011	2007	2003	1999	1995
Sweden	8	8	8	8		7	14.7	14.8	14.8	14.9		14.9
Thailand	8	8	8		8		14.4	14.3	14.3		14.5	
Turkey	8	8					13.9	14.0				
United Arab Emirates	8	8					13.9	13.9				
United States	8	8	8	8	8	8	14.2	14.2	14.3	14.2	14.2	14.2
Benchmarking Participants												
Ontario, Canada	8	8	8	8	8	8	13.8	13.8	13.8	13.8	13.9	14.0
Quebec, Canada	8	8	8	8	8	8	14.3	14.2	14.2	14.2	14.3	14.5
Norway (8)	8	8	8	7		7	13.7	13.7	13.8	13.8		13.9
Abu Dhabi, UAE	8	8					13.9	13.8				
Dubai, UAE	8	8	8				13.9	13.9	14.2			
Florida, US	8	8					14.4	14.4				

Exhibit 5.17: Trends in Student Populations – TIMSS 2015 – Eighth Grade (Continued)

Country	Overall Exclusions						Overall Participation (After Replacement)					
	2015	2011	2007	2003	1999	1995	2015	2011	2007	2003	1999	1995
Australia	3.5%	3.2%	1.9%	1.3%		1.0%	90%	88%	93%	83%		70%
Bahrain	3.8%	1.6%	1.5%	0.0%			97%	97%	97%	98%		
Botswana (9)	0.3%	0.0%					98%	98%				
Chile	1.9%	2.8%		2.2%	2.8%		85%	95%		99%	96%	
Chinese Taipei	1.7%	1.3%	3.3%	4.8%	1.6%		98%	99%	99%	99%	99%	
Egypt	0.1%		0.5%	3.4%			91%		98%	97%		
England	2.3%	2.2%	2.3%	2.1%	5.0%	11.0%	92%	70%	75%	46%	77%	77%
Georgia	6.0%	4.5%	3.9%				98%	97%	97%			
Hong Kong SAR	1.6%	5.3%	3.8%	3.4%	0.8%	2.0%	81%	75%	75%	80%	74%	81%
Hungary	5.4%	4.4%	3.9%	8.5%	4.3%	4.0%	96%	95%	96%	94%	93%	87%
Iran, Islamic Rep. of	2.2%	2.2%	0.5%	6.5%	4.4%	0.0%	98%	99%	98%	98%	98%	98%
Ireland	1.2%					0.0%	91%					81%
Israel	22.8%	22.6%					93%	92%				
Italy	6.1%	4.7%	5.0%	3.6%	6.7%		93%	93%	96%	97%	97%	
Japan	2.3%	2.8%	3.5%	0.6%	1.3%	1.0%	93%	87%	91%	93%	89%	90%
Jordan	1.0%	0.4%	2.0%	1.3%	3.0%		96%	96%	96%	96%	99%	
Kazakhstan	3.8%	5.1%					97%	98%				
Korea, Rep. of	2.1%	1.9%	1.6%	4.9%	4.0%	4.0%	98%	99%	99%	98%	100%	95%
Kuwait	3.3%		0.3%				85%		84%			
Lebanon	1.3%	1.4%	1.4%	1.4%			88%	94%	85%	91%		
Lithuania	7.0%	4.8%	4.2%	2.6%	4.5%	7.0%	93%	92%	90%	84%	89%	83%
Malaysia	4.3%	0.1%	3.3%	4.0%	4.6%		98%	98%	98%	98%	99%	
Malta	3.5%		2.9%				96%		94%			
Morocco	0.0%	0.1%					95%	94%				
New Zealand	3.1%	3.2%		4.4%	2.4%	2.0%	81%	88%		90%	91%	94%
Oman	0.4%	1.2%	1.2%				96%	97%	99%			
Qatar	3.2%	4.5%					96%	99%				
Russian Federation	3.7%	6.0%	2.3%	5.5%	1.7%	6.0%	97%	98%	97%	96%	97%	95%
Saudi Arabia	2.1%	1.2%					97%	98%				
Singapore	7.0%	6.0%	1.8%	0.0%	0.0%	5.0%	97%	95%	95%	97%	98%	95%
Slovenia	3.8%	2.3%	1.9%	1.4%		3.0%	92%	92%	92%	91%		77%
South Africa (9)	1.5%	1.4%					96%	95%				
Sweden	5.5%	5.1%	3.6%	2.8%		1.0%	94%	92%	94%	87%		90%
Thailand	0.2%	1.5%	3.4%		3.3%		99%	99%	99%		99%	

Exhibit 5.17: Trends in Student Populations – TIMSS 2015 – Eighth Grade (Continued)

Country	Overall Exclusions						Overall Participation (After Replacement)					
	2015	2011	2007	2003	1999	1995	2015	2011	2007	2003	1999	1995
Turkey	1.3%	1.5%					98%	97%				
United Arab Emirates	3.6%	2.8%					97%	97%				
United States	5.1%	7.2%	7.9%	4.9%	3.9%	2.0%	78%	81%	77%	73%	85%	78%
Benchmarking Participants												
Ontario, Canada	2.5%	5.6%	6.2%	6.0%	5.1%	–	87%	93%	89%	89%	93%	90%
Quebec, Canada	5.3%	4.9%	13.6%	4.8%	1.3%	–	58%	88%	77%	85%	92%	89%
Norway (8)	4.1%	1.9%	2.6%	2.3%		2.0%	87%	84%	86%	85%		93%
Abu Dhabi, UAE	4.1%	1.7%					98%	96%				
Dubai, UAE	5.2%	4.0%	5.0%				97%	95%	69%			
Florida, US	2.8%	6.9%					90%	84%				

Appendix 5A: Characteristics of National Samples

Australia

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), non-mainstream schools, and very remote schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by state or territory (8)
- Implicit stratification by geographic location (metropolitan, provincial, remote), school type (catholic, government, independent), and socioeconomic index (low socioeconomic status, high socioeconomic status)
- Prior to class sampling within schools, all indigenous students were grouped into a single classroom and were selected with certainty. Other classroom was sampled using the standard procedure.
- No overlap between Grade 4 and Grade 8 school samples
- Schools were oversampled at the state/territory level

Allocation of School Sample in Australia, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Australian Capital Territory	30	0	30	0	0	0	0
New South Wales	45	0	45	0	0	0	0
Northern Territory	15	0	15	0	0	0	0
Queensland	45	1	43	0	0	1	0
South Australia	40	0	39	0	0	1	0
Tasmania	30	0	30	0	0	0	0
Victoria	45	0	43	1	1	0	0
Western Australia	40	0	40	0	0	0	0
Total	290	1	285	1	1	2	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), non-mainstream schools, and very remote schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by state or territory (8)
- Implicit stratification by geographic location (metropolitan, provincial, remote), school type (catholic, government, independent), and socioeconomic index (low socioeconomic status, high socioeconomic status)
- Within sampled schools, all indigenous students were regrouped into a single classroom that was sampled with certainty. When appropriate, classrooms were grouped according to the ability level of students prior to sampling and one classroom was sampled per class group.
- No overlap between Grade 4 and Grade 8 school samples
- Schools were oversampled at the state/territory level

Allocation of School Sample in Australia, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Australian Capital Territory	30	2	28	0	0	0	0
New South Wales	45	0	45	0	0	0	0
Northern Territory	15	1	13	0	0	1	0
Queensland	45	0	44	0	0	1	0
South Australia	40	0	40	0	0	0	0
Tasmania	30	0	30	0	0	0	0
Victoria	45	0	45	0	0	0	0
Western Australia	40	0	40	0	0	0	0
Total	290	3	285	0	0	2	0

Bahrain

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 1), special needs schools, students taught in French, and students taught in Japanese
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by governorate (5), and gender (girls, boys) within public schools
- No implicit stratification
- Sampled two classrooms per school
- No overlap between Grade 4 and Grade 8 school samples
- All schools were selected
- Schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates

Allocation of School Sample in Bahrain, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Public Muharraq - Girls	10	0	10	0	0	0	0
Public Muharraq - Boys	10	0	10	0	0	0	0
Public Capital - Girls	19	0	19	0	0	0	0
Public Capital - Boys	21	0	21	0	0	0	0
Public Northern - Girls	21	0	21	0	0	0	0
Public Northern - Boys	17	0	17	0	0	0	0
Public Southern - Girls	11	0	11	0	0	0	0
Public Southern - Boys	11	0	11	0	0	0	0
Private	62	0	62	0	0	0	0
Total	182	0	182	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 1), students taught in French, and students taught in Japanese
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by governorate (5), and gender (girls, boys) within public schools
- No implicit stratification
- Sampled two classrooms per school
- No overlap between Grade 4 and Grade 8 school samples.
- All schools were selected
- Schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates

Allocation of School Sample in Bahrain, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Public Muharraq - Girls	6	0	6	0	0	0	0
Public Muharraq - Boys	6	0	6	0	0	0	0
Public Capital - Girls	8	0	8	0	0	0	0
Public Capital - Boys	8	0	8	0	0	0	0
Public Northern - Girls	8	0	8	0	0	0	0
Public Northern - Boys	9	0	9	0	0	0	0
Public Southern - Girls	6	0	6	0	0	0	0
Public Southern - Boys	8	0	8	0	0	0	0
Private	46	0	46	0	0	0	0
Total	105	0	105	0	0	0	0

Belgium (Flemish)

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5)
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by region (6), socioeconomic status (2), school type (official, private), and a stratum of eligible special education schools
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 35)
- TIMSS 2015 Main Data Collection and PIRLS 2016 Field Test school samples were selected simultaneously to avoid overlap

Allocation of School Sample in Belgium (Flemish), Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Antwerpen - High SES	16	0	12	2	1	1	0
Antwerpen - Low SES	24	0	14	7	2	1	0
Brussels Hoofdstedelijk Gewest - All SES	8	0	6	1	1	0	0
Limburg - High SES	10	0	6	3	1	0	0
Limburg - Low SES	10	0	8	2	0	0	0
Oost-Vlaanderen - High SES	16	0	13	1	1	1	0
Oost-Vlaanderen - Low SES	18	0	14	2	1	1	0
Vlaams-Brabant - High SES	11	0	9	2	0	0	1
Vlaams-Brabant - Low SES	12	0	8	1	3	0	0
West-Vlaanderen - High SES	16	0	14	0	2	0	0
West-Vlaanderen - Low SES	8	0	7	0	1	0	0
Special Education Schools	10	2	6	2	0	0	0
Total	159	2	117	23	13	4	1

Botswana

Ninth Grade

Coverage and Exclusions

- Coverage is 100 percent
- No school level exclusions
- Within-school exclusions consisted of students with intellectual disabilities, and students with functional disabilities

Sample Design

- Explicit stratification by school type (public, private), region (6), and socioeconomic status (medium to high socioeconomic status, low socioeconomic status)
- No implicit stratification
- Sampled one classroom except in private schools where two classrooms were sampled
- Census for private schools
- In census stratum, schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates

Allocation of School Sample in Botswana, Ninth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Central - Medium to High Mean SES	32	0	32	0	0	0	0
Central - Low Mean SES	18	0	18	0	0	0	0
Kweneng - Medium to High Mean SES	10	0	10	0	0	0	0
Kweneng - Low Mean SES	10	0	10	0	0	0	0
North East	10	0	10	0	0	0	0
North West - Medium to High Mean SES	8	0	8	0	0	0	0
North West - Low Mean SES	8	0	8	0	0	0	0
South - Medium to High Mean SES	8	0	8	0	0	0	0
South - Low Mean SES	14	0	14	0	0	0	0
South East	24	0	24	0	0	0	0
Private	17	0	17	0	0	0	0
Total	159	0	159	0	0	0	0

Bulgaria

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5) and special needs schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school type (elementary, basic, general) and urbanization (capital, large cities, other)
- Implicit stratification by urbanization (city, village) within the basic schools found outside the larger cities
- Sampled two classrooms per school

Allocation of School Sample in Bulgaria, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Elementary School - Capital and Large Cities	8	0	8	0	0	0	0
Elementary School - Other	8	0	8	0	0	0	0
Basic School - Capital	10	0	10	0	0	0	0
Basic School - Large Cities	28	0	26	0	0	2	0
Basic School - Other	44	0	42	0	0	2	0
General School - Capital	14	1	12	0	1	0	0
General School - Large Cities	18	0	18	0	0	0	0
General School - Other	24	0	24	0	0	0	0
Total	154	1	148	0	1	4	0

Canada

Fourth Grade

Coverage and Exclusions

- Coverage is 78.9 percent. Coverage in Canada is restricted to students from the provinces of Alberta, Manitoba, Newfoundland, Ontario, and Quebec.
- School-level exclusions consisted of very small schools (measure of size < 10 in Quebec and measure of size < 6 in Ontario, Alberta, Manitoba, and Newfoundland), special needs schools, international schools (in Quebec), federal schools (in Quebec), school boards with special status (in Quebec), band-operated schools (First Nation and Native schools), French schools (in Newfoundland), public special needs schools (in Manitoba), as well as private and home schools (in Manitoba)
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by provinces (5). Within the province of Alberta, explicit stratification was done by school system (French, English), and school type (immersion, regular). Within the province of Ontario, explicit stratification was done by 'Grade 4'/'Grade 4 and Grade 8', language (English, French) and school type (private, Catholic, public). Within Quebec, explicit stratification was done by school type (public, private) and language (French, English).
- Implicit stratification by region (4) in public and Catholic explicit strata within Ontario. Postal code (6) in English school system strata within Alberta.
- Sampled two classrooms in large schools for Quebec, two classroom per school for Ontario and Alberta, and one classroom per school for the rest of Canada
- Grade 4 and Grade 8 school samples were selected separately, with the exception of Ontario where Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap
- All Alberta French schools were selected
- In Alberta French schools classes were used as variance estimation strata and half classes were used as jackknife replicates

Allocation of School Sample in Canada, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Manitoba - Grade 4 & Grade 8	7	0	7	0	0	0	1
Newfoundland - Grade 4 & Grade 8	8	0	8	0	0	0	0
Ontario - Grade 4 - Private	8	0	3	0	0	5	0
Ontario - Grade 4 - English - Catholic	8	0	8	0	0	0	0
Ontario - Grade 4 - English - Public	40	0	39	0	0	1	0
Ontario - Grade 4 - French - Catholic & Public	8	0	8	0	0	0	0
Ontario - Grade 4 & Grade 8 - English - Catholic	36	1	35	0	0	0	0
Ontario - Grade 4 & Grade 8 - English - Public	59	0	58	0	0	1	1
Quebec - Grade 4 - Private - English	8	0	8	0	0	0	0
Quebec - Grade 4 - Private - French	8	0	8	0	0	0	0
Quebec - Grade 4 - Public - English	40	0	38	1	0	1	2
Quebec - Grade 4 - Public - French	118	0	47	16	3	52	0
Alberta - Grade 4 - French System	27	0	26	0	0	1	0
Alberta - Grade 4 - English System - Immersion Schools	21	1	16	2	0	2	0
Alberta - Grade 4 - English System - Regular Schools	120	1	94	13	3	9	0
Total	516	3	403	32	6	72	4

Eighth Grade

Coverage and Exclusions

- Coverage is 67.3 percent. Coverage in Canada is restricted to students from the provinces of Manitoba, Newfoundland, Ontario, and Quebec.
- School-level exclusions consisted of very small schools (measure of size < 10 in Quebec and measure of size < 6 in Ontario, Manitoba, and Newfoundland), special needs schools, international schools (in Quebec), federal schools (in Quebec), school boards with special status (in Quebec), band-operated schools (First Nation and Native schools), and French schools (in Newfoundland)
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by Provinces (4). Within the province of Ontario, explicit stratification was done by 'Grade 8'/'Grade 4 and Grade 8', language (English, French) and school type (private, Catholic, public). Within the province of Quebec, explicit stratification was done by school type (public, private) and language (French, English).
- Implicit stratification by region (4) in public and Catholic explicit strata within Ontario. Achievement within Quebec (Used in all strata with the exception of private -English stratum).
- Sampled two classrooms in large schools for Quebec and Ontario, one classroom per school for the rest of Canada
- Grade 4 and Grade 8 school samples were selected separately, with the exception of Ontario where Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap

Allocation of School Sample in Canada, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Manitoba - Grade 4 & Grade 8	8	0	8	0	0	0	0
Newfoundland - Grade 4 & Grade 8	8	0	8	0	0	0	0
Ontario - Grade 8 - Private	8	0	0	2	1	5	0
Ontario - Grade 8 - English - Catholic	8	1	7	0	0	0	0
Ontario - Grade 8 - English - Public	32	0	30	0	0	2	0
Ontario - Grade 8 - French - Catholic & Public	8	0	7	0	0	1	0
Ontario - Grade 4 & Grade 8 - English - Catholic	36	1	34	0	0	1	0
Ontario - Grade 4 & Grade 8 - English - Public	59	2	57	0	0	0	1
Quebec - Grade 8 - Private - English	12	0	11	0	0	1	0
Quebec - Grade 8 - Private - French	26	1	25	0	0	0	0
Quebec - Grade 8 - Public - English	38	0	36	1	0	1	0
Quebec - Grade 8 - Public - French	100	1	30	19	0	50	0
Total	343	6	253	22	1	61	1

Chile

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), special needs schools, and geographically inaccessible schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4'/'Grade 4 and Grade 8' schools, school type (public, private subsidized, private paid), and urbanization (rural, urban)
- Sampled one classroom
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap
- Private paid schools were oversampled

Allocation of School Sample in Chile, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4 - Rural	8	0	7	1	0	0	0
Grade 4 - Urban	8	0	7	0	1	0	0
Grade 4 & Grade 8 - Public - Rural	10	0	8	1	0	1	0
Grade 4 & Grade 8 - Public - Urban	48	1	38	1	0	8	0
Grade 4 & Grade 8 - Private Subsidized - Rural	8	0	7	1	0	0	0
Grade 4 & Grade 8 - Private Subsidized - Urban	68	0	63	5	0	0	0
Grade 4 & Grade 8 - Private Paid	40	0	31	7	1	1	0
Total	190	1	161	16	2	10	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 9), special needs schools, and geographically inaccessible schools
- Within-school exclusions consisted of students with intellectual disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 8'/'Grade 4 and Grade 8' schools, school type (public, private subsidized, private paid), and urbanization (rural, urban)
- Sampled one classroom
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap.
- Private paid schools were oversampled

Allocation of School Sample in Chile, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8	10	0	9	1	0	0	0
Grade 4 & Grade 8 - Public - Rural	10	0	8	1	0	1	0
Grade 4 & Grade 8 - Public - Urban	48	0	36	1	0	11	0
Grade 4 & Grade 8 - Private Subsidized - Rural	8	0	7	1	0	0	0
Grade 4 & Grade 8 - Private Subsidized - Urban	68	0	63	5	0	0	0
Grade 4 & Grade 8 - Private Paid	40	0	31	7	1	1	0
Total	184	0	154	16	1	13	0

Chinese Taipei

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and newly founded schools without student information
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by urbanization (rural, city, metropolitan)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 300)
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in Chinese Taipei, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Rural	26	0	26	0	0	0	0
City	74	0	74	0	0	0	0
Metropolitan	50	0	49	1	0	0	0
Total	150	0	149	1	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and newly founded schools without student information
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by urbanization (rural, city, metropolitan), and school academic performance on Basic Competence Test (6)
- No implicit stratification
- Sampled one classroom per school
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in Chinese Taipei, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Rural - Category D	8	0	8	0	0	0	0
Rural - Category T	24	0	24	0	0	0	0
Rural - Category Y	12	0	12	0	0	0	0
Rural - Other Categories	10	0	10	0	0	0	0
City - Category A	10	0	10	0	0	0	0
City - Category B	16	0	16	0	0	0	0
City - Category D	16	0	16	0	0	0	0
City - Category T	12	0	12	0	0	0	0
City - Category Y	16	0	16	0	0	0	0
City - Category Z	8	0	8	0	0	0	0
Metropolitan - Category A	20	0	20	0	0	0	0
Metropolitan - Category B	12	0	12	0	0	0	0
Metropolitan - Category D	10	0	10	0	0	0	0
Metropolitan - Category T	8	0	8	0	0	0	0
Metropolitan - Category Y	8	0	8	0	0	0	0
Total	190	0	190	0	0	0	0

Croatia

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 3), special needs schools, and private schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school type (single, mother, satellite), urbanization (urban, rural), and grouped regions (6)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size >60)

Allocation of School Sample in Croatia, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Single Building School - Urban - Central and East	12	0	12	0	0	0	0
Single Building School - Urban - South	10	0	10	0	0	0	0
Single Building School - Urban - North and West	10	0	10	0	0	0	0
Single Building School - Urban - City of Zagreb	24	0	24	0	0	0	0
Single Building School - Rural - Central and East	8	0	8	0	0	0	0
Single Building School - Rural - South, North and West	8	0	8	0	0	0	0
Mother School - Urban - Central and East	18	0	17	1	0	0	0
Mother School - Urban - South	10	0	10	0	0	0	0
Mother School - Urban - North, West and Zagreb	8	0	8	0	0	0	0
Mother School - Rural - Central and East	10	0	10	0	0	0	0
Mother School - Rural - South, North and West	12	0	12	0	0	0	0
Satellites - Urban - Central and East	8	1	7	0	0	0	0
Satellites - Urban - South, North, West and Zagreb	8	1	7	0	0	0	0
Satellites - Rural - Central and East	12	1	10	1	0	0	0
Satellites - Rural - South, North and West	10	2	8	0	0	0	0
Total	168	5	161	2	0	0	0

Cyprus

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), special needs schools, French language, and Turkish Occupied Area
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by districts (4)
- Implicit stratification by urbanization (urban, rural)
- Sampled three classrooms whenever possible in large schools (measure of size > 46)

Allocation of School Sample in Cyprus, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Famagusta-Larnaca	37	0	37	0	0	0	0
Limassol	40	0	40	0	0	0	1
Nicosia	54	0	54	0	0	0	1
Paphos	17	0	17	0	0	0	0
Total	148	0	148	0	0	0	2

Czech Republic

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4), special needs schools, and Polish language schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by region (14)
- No implicit stratification
- Sampled two classrooms per school

Allocation of School Sample in Czech Republic, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Praha	16	0	16	0	0	0	0
Stredočeský	18	0	18	0	0	0	0
Plzeňský	8	1	7	0	0	0	0
Karlovarský	8	0	8	0	0	0	0
Ústecký	12	0	12	0	0	0	0
Jihočeský	8	0	8	0	0	0	0
Liberecký	10	0	10	0	0	0	0
Královéhradecký	8	0	8	0	0	0	0
Pardubický	10	0	10	0	0	0	0
Vysočina	8	0	8	0	0	0	0
Jihomoravský	20	0	20	0	0	0	0
Olomoucký	8	0	8	0	0	0	0
Moravskoslezský	16	0	16	0	0	0	0
Zlínský	10	0	10	0	0	0	0
Total	160	1	159	0	0	0	0

Denmark

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), and special needs schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school type (public, private)
- No implicit stratification
- Sampled one classroom per school

Allocation of School Sample in Denmark, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Private	30	0	11	9	4	6	0
Public	190	8	102	56	11	13	0
Total	220	8	113	65	15	19	0

Egypt

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 12)
- No within-school exclusions

Sample Design

- Explicit stratification by region (Capital, North, South), school type (5), urbanization (urban, rural) and school gender (boys, girls, mixed)
- No implicit stratification
- Sampled one classroom per school

Allocation of School Sample in Egypt, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Capital - Government - Boys	18	0	16	2	0	0	0
Capital - Government - Girls	18	0	16	2	0	0	0
Capital - Government - Mixed	14	0	13	1	0	0	0
North - Government - Urban - Boys	8	0	8	0	0	0	0
North - Government - Urban - Girls	8	0	8	0	0	0	0
North - Government - Urban - Mixed	8	0	6	2	0	0	0
North - Government - Rural - Boys/Girls	8	0	8	0	0	0	0
North - Government - Rural - Mixed	36	0	35	1	0	0	0
South - Government - Urban	12	0	11	1	0	0	0
South - Government - Rural - Boys/Girls	8	0	8	0	0	0	0
South - Government - Rural - Mixed	28	0	28	0	0	0	0
Private Funded (without fees)	8	0	7	1	0	0	0
Private (with fees)	20	0	20	0	0	0	0
Private Language Schools	20	0	13	4	0	3	0
Total	214	0	197	14	0	3	0

England

Fifth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 9), special needs schools, and international schools
- Within-school exclusions consisted of students with intellectual disabilities

Sample Design

- Explicit stratification by school type (state-funded, private), and attainment level (5)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 90)
- Samples for Grade 4 and Grade 8 were drawn separately and no overlap between the two samples

Allocation of School Sample in England, Fifth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
State-Funded - Low	28	0	26	2	0	0	0
State-Funded - Low/Mid	28	0	26	2	0	0	0
State-Funded - Mid	28	0	27	0	0	1	0
State-Funded - Mid/High	28	0	27	0	0	1	0
State-Funded - High	30	0	28	1	0	1	0
Private	8	0	8	0	0	0	0
Total	150	0	142	5	0	3	0

Ninth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 9), special needs schools, and international schools
- Within-school exclusions consisted of students with intellectual disabilities

Sample Design

- Explicit stratification by school type (state-funded, private), and attainment level (5)

- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 200)
- Samples for Grade 4 and Grade 8 were drawn separately and no overlap between the two samples

Allocation of School Sample in England, Ninth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
State-Funded - Low	24	0	21	1	1	1	0
State-Funded - Low/Mid	28	0	24	3	0	1	0
State-Funded - Mid	28	0	25	1	0	2	0
State-Funded - Mid/High	30	0	28	1	0	1	0
State-Funded - High	30	0	30	0	0	0	0
Private	10	2	7	1	0	0	0
Total	150	2	135	7	1	5	0

Finland

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools, and instructional language other than Finnish or Sweden
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by region (6), and urbanization (urban and semi-urban, rural)
- No implicit stratification
- Sampled two classrooms per school

Allocation of School Sample in Finland, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Uusimaa	38	0	38	0	0	0	0
Southern Urban & Semi-Urban	22	0	21	1	0	0	0
Southern Rural	8	0	8	0	0	0	0
Western Urban & Semi-Urban	30	0	30	0	0	0	0
Western Rural	8	1	7	0	0	0	0
Eastern Urban & Semi-Urban	12	0	12	0	0	0	0
Eastern Rural	8	1	7	0	0	0	0
Northern Urban & Semi-Urban	16	0	16	0	0	0	0
Northern Rural	8	0	8	0	0	0	0
Swedish Schools	10	0	10	0	0	0	0
Total	160	2	157	1	0	0	0

France

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 3), overseas territories, Reunion and Mayotte Islands, Guyana (Southern Hemisphere), private schools without contract, specialized schools, and French schools in foreign countries
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school type (public–priority education zone, public–other, private)
- No implicit stratification
- Sampled two classrooms per school
- TIMSS 2015 samples and PIRLS 2016 samples were selected simultaneously to avoid overlap between the two studies

Allocation of School Sample in France, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Public-priority education zone	44	0	43	1	0	0	0
Public-other	100	1	97	2	0	0	0
Private	22	0	19	2	0	1	0
Total	166	1	159	5	0	1	0

Georgia

Fourth Grade

Coverage and Exclusions

- Coverage is 90.4 percent. Coverage in Georgia is restricted to students taught in Georgian.
- School-level exclusions consisted of very small schools (measure of size < 5)
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4'/'Grade 4 and Grade 8' schools, region (4), and Mathematics average score (low, medium, high)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 90)
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap

Allocation of School Sample in Georgia, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4	8	1	7	0	0	0	0
Grade 4 & Grade 8 - aWara - Low Average Math Score	8	2	6	0	0	0	0
Grade 4 & Grade 8 - aWara - Medium Average Math Score	8	0	8	0	0	0	0
Grade 4 & Grade 8 - aWara - High Average Math Score	8	0	7	1	0	0	0
Grade 4 & Grade 8 - dasavleTi - Low Average Math Score	12	0	12	0	0	0	0
Grade 4 & Grade 8 - dasavleTi - Medium Average Math Score	14	0	14	0	0	0	0
Grade 4 & Grade 8 - dasavleTi - High Average Math Score	12	0	12	0	0	0	0
Grade 4 & Grade 8 - aRmosavleTi - Low Average Math Score	12	2	10	0	0	0	0
Grade 4 & Grade 8 - aRmosavleTi - Medium Average Math Score	14	2	12	0	0	0	0
Grade 4 & Grade 8 - aRmosavleTi - High Average Math Score	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Tbilisi - Low Average Math Score	14	0	14	0	0	0	0
Grade 4 & Grade 8 - Tbilisi - Medium Average Math Score	18	0	18	0	0	0	0
Grade 4 & Grade 8 - Tbilisi - High Average Math Score	14	0	13	1	0	0	0
Grade 4 & Grade 8 - All but aRmosavleTi - Missing Math Score	7	1	6	0	0	0	1
Total	161	8	151	2	0	0	1

Eighth Grade

Coverage and Exclusions

- Coverage is 89.6 percent. Coverage in Georgia is restricted to students taught in Georgian.
- School-level exclusions consisted of very small schools (measure of size < 5)
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 8'/'Grade 4 and Grade 8' schools, region (4), and Mathematics average score (low, medium, high)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 80)
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap



Allocation of School Sample in Georgia, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8	7	1	6	0	0	0	1
Grade 4 & Grade 8 - aWara - Low Average Math Score	8	1	7	0	0	0	0
Grade 4 & Grade 8 - aWara - Medium Average Math Score	8	0	8	0	0	0	0
Grade 4 & Grade 8 - aWara - High Average Math Score	8	0	7	1	0	0	0
Grade 4 & Grade 8 - dasavleTi - Low Average Math Score	12	0	12	0	0	0	0
Grade 4 & Grade 8 - dasavleTi - Medium Average Math Score	14	0	14	0	0	0	0
Grade 4 & Grade 8 - dasavleTi - High Average Math Score	12	0	12	0	0	0	0
Grade 4 & Grade 8 - aRmosavleTi - Low Average Math Score	12	2	10	0	0	0	0
Grade 4 & Grade 8 - aRmosavleTi - Medium Average Math Score	14	2	12	0	0	0	0
Grade 4 & Grade 8 - aRmosavleTi - High Average Math Score	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Tbilisi - Low Average Math Score	14	0	14	0	0	0	0
Grade 4 & Grade 8 - Tbilisi - Medium Average Math Score	18	0	18	0	0	0	0
Grade 4 & Grade 8 - Tbilisi - High Average Math Score	14	0	13	1	0	0	0
Grade 4 & Grade 8 - All but aRmosavleTi - Missing Math Score	7	1	6	0	0	0	1
Total	160	7	151	2	0	0	2

Germany

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by immigration status (4) and school type (regular, special education needs)
- No implicit stratification
- Sampled one classroom per school

Allocation of School Sample in Germany, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Regular Schools - Very low percentage of immigrants	62	0	58	3	0	1	0
Regular Schools - Low percentage of immigrants	94	2	90	2	0	0	0
Regular Schools - Medium percentage of immigrants	28	0	28	0	0	0	0
Regular Schools - High percentage of immigrants	16	0	16	0	0	0	0
SEN Schools - None	10	0	7	0	0	3	0
Total	210	2	199	5	0	4	0

Hong Kong

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and schools teaching in Japanese
- Within-school exclusions consisted of students with intellectual disabilities and students with functional disabilities

Sample Design

- Explicit stratification by school finance type (5)
- No implicit stratification
- Sampled one classroom per school
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in Hong Kong, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Aided	122	0	97	5	4	16	0
Direct Subsidy	8	0	8	0	0	0	0
Government	10	0	9	0	0	1	0
Non-Local	10	0	3	0	0	7	0
Private	10	0	6	0	0	4	0
Total	160	0	123	5	4	28	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and schools teaching in Japanese
- Within-school exclusions consisted of students with intellectual disabilities and students with functional disabilities

Sample Design

- Explicit stratification by school finance type (4)
- Implicit stratification by other school characteristic (3)
- Sampled one classroom per school
- No overlap between Grade 4 and Grade 8 school samples
- Systematic sampling selection with equal probabilities is used for sampling

Allocation of School Sample in Hong Kong, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Aided	118	0	96	6	1	15	0
Direct Subsidy	22	0	13	0	2	7	0
Government	10	0	9	0	0	1	0
Non-Local	8	0	5	0	1	2	0
Total	158	0	123	6	4	25	0

Hungary

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and students taught in foreign language
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4'/'Grade 4 and Grade 8' schools, national assessment score (below or above average performance), and type of community (capital and county town, town, rural area) within 'Grade 4 and Grade 8' stratum
- No implicit stratification
- Sampled two classrooms per school
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap

Allocation of School Sample in Hungary, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4	22	1	21	0	0	0	0
Grade 4 & Grade 8 - Above Average Performance - Capital & County Town	36	2	34	0	0	0	0
Grade 4 & Grade 8 - Above Average Performance - Town	25	0	25	0	0	0	0
Grade 4 & Grade 8 - Above Average Performance - Rural Area	14	0	13	0	1	0	0
Grade 4 & Grade 8 - Below Average or Unknown Performance - Capital & County Town	9	1	7	0	0	1	0
Grade 4 & Grade 8 - Below Average or Unknown Performance - Town	21	1	20	0	0	0	0
Grade 4 & Grade 8 - Below Average or Unknown Performance - Rural Area	23	0	23	0	0	0	0
Total	150	5	143	0	1	1	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and students taught in foreign language
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 8'/'Grade 4 and Grade 8', national assessment score (below or above average performance), and type of community (capital and county town, town, rural area) within 'Grade 4 and Grade 8' stratum
- No implicit stratification
- Sampled two classrooms per school
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap

Allocation of School Sample in Hungary, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8 - Above Average Performance	15	0	13	2	0	0	0
Grade 8 - Below Average or Unknown Performance	7	0	6	1	0	0	0
Grade 4 & Grade 8 - Above Average Performance - Capital & County Town	36	2	34	0	0	0	0
Grade 4 & Grade 8 - Above Average Performance - Town	25	0	25	0	0	0	0
Grade 4 & Grade 8 - Above Average Performance - Rural Area	14	0	13	0	1	0	0
Grade 4 & Grade 8 - Below Average or Unknown Performance - Capital & County Town	9	1	7	0	0	1	0
Grade 4 & Grade 8 - Below Average or Unknown Performance - Town	21	1	20	0	0	0	0
Grade 4 & Grade 8 - Below Average or Unknown Performance - Rural Area	23	1	22	0	0	0	0
Total	150	5	140	3	1	1	0

Indonesia

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4) and remote areas
- No within-school exclusions

Sample Design

- Explicit stratification by performance (good, moderate, poor), school type (general, Madrasah) and school status (private, public)
- No implicit stratification
- Sampled two classrooms per school

Allocation of School Sample in Indonesia, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Good - General - Private	8	0	8	0	0	0	0
Good - General - Public	44	0	44	0	0	0	0
Good - Madrasah	8	0	8	0	0	0	0
Moderate - General - Private	8	0	8	0	0	0	0
Moderate - General - Public	86	0	86	0	0	0	0
Moderate - Madrasah	12	0	12	0	0	0	0
Poor - General - Private	8	0	8	0	0	0	0
Poor - General - Public	48	0	48	0	0	0	0
Poor - Madrasah	8	0	8	0	0	0	0
Total	230	0	230	0	0	0	0

Iran

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), special needs schools, and geographically inaccessible schools
- Within-school exclusions consisted of students with functional disabilities

Sample Design

- Explicit stratification by school type (public, private), gender (mixed, girls, boys), region group (1, 2, 3), province or grouped provinces (6), and gender (boys, girls) within 'other' gender public schools
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 108)
- Grade 4 and Grade 8 school samples were selected simultaneously with no overlap
- TIMSS and TIMSS Numeracy booklets were rotated within classes

Allocation of School Sample in Iran, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Private	16	0	16	0	0	0	0
Public - Mixed - Region group 1	10	0	10	0	0	0	0
Public - Mixed - Region group 2	8	0	8	0	0	0	0
Public - Mixed - Region group 3	8	0	8	0	0	0	0
Public - Girls - Region group 1 - Khozestan	12	1	11	0	0	0	0
Public - Girls - Region group 1 - All Others	12	0	12	0	0	0	0
Public - Girls - Region group 2 - Razavi Khorasan	12	0	12	0	0	0	0
Public - Girls - Region group 2 - Tehran Province	12	0	12	0	0	0	0
Public - Girls - Region group 2 - All Others	10	0	10	0	0	0	0

Allocation of School Sample in Iran, Fourth Grade (Continued)

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Public - Girls - Region group 3 - Esfahan	12	0	12	0	0	0	0
Public - Girls - Region group 3 - Fars	12	0	12	0	0	0	0
Public - Girls - Region group 3 - Tehran City	12	0	12	0	0	0	0
Public - Girls - Region group 3 - All Others	10	0	10	0	0	0	0
Public - Boys - Region group 1 - Khozestan	12	0	12	0	0	0	0
Public - Boys - Region group 1 - All Others	12	0	12	0	0	0	0
Public - Boys - Region group 2 - Razavi Khorasan	12	0	12	0	0	0	0
Public - Boys - Region group 2 - Tehran Province	12	0	12	0	0	0	0
Public - Boys - Region group 2 - All Others	10	0	10	0	0	0	0
Public - Boys - Region group 3 - Esfahan	12	0	12	0	0	0	0
Public - Boys - Region group 3 - Fars	12	0	12	0	0	0	0
Public - Boys - Region group 3 - Tehran City	12	0	12	0	0	0	0
Public - Boys - Region group 3 - All Others	10	1	9	0	0	0	0
Total	250	2	248	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), special needs schools, and geographically inaccessible schools
- Within-school exclusions consisted of students with functional disabilities and non-native language speakers

Sample Design

- Explicit stratification by school type (public, private), gender (mixed, girls, boys), region group (1, 2, 3), province or grouped provinces (6), and gender (boys, girls) within 'other' gender public schools
- No implicit stratification
- Sampled one classroom per school
- Grade 4 and Grade 8 school samples were selected simultaneously with no overlap

Allocation of School Sample in Iran, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Private	14	0	14	0	0	0	0
Public - Mixed	8	0	8	0	0	0	0
Public - Girls - Region group 1 - Khozestan	12	0	12	0	0	0	0
Public - Girls - Region group 1 - All Others	16	0	16	0	0	0	0
Public - Girls - Region group 2 - Razavi Khorasan	12	0	12	0	0	0	0
Public - Girls - Region group 2 - Tehran Province	12	0	12	0	0	0	0
Public - Girls - Region group 2 - All Others	12	0	12	0	0	0	0
Public - Girls - Region group 3 - Esfahan	12	0	12	0	0	0	0

Allocation of School Sample in Iran, Eighth Grade (Continued)

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Public - Girls - Region group 3 - Fars	12	0	12	0	0	0	0
Public - Girls - Region group 3 - Tehran City	12	0	12	0	0	0	0
Public - Girls - Region group 3 - All Others	14	0	14	0	0	0	0
Public - Boys - Region group 1 - Khozestan	12	0	12	0	0	0	0
Public - Boys - Region group 1 - All Others	16	0	16	0	0	0	0
Public - Boys - Region group 2 - Razavi Khorasan	12	0	12	0	0	0	0
Public - Boys - Region group 2 - Tehran Province	12	0	12	0	0	0	0
Public - Boys - Region group 2 - All Others	12	0	12	0	0	0	0
Public - Boys - Region group 3 - Esfahan	12	0	12	0	0	0	0
Public - Boys - Region group 3 - Fars	12	0	12	0	0	0	0
Public - Boys - Region group 3 - Tehran City	12	0	12	0	0	0	0
Public - Boys - Region group 3 - All Others	14	0	14	0	0	0	0
Total	250	0	250	0	0	0	0

Ireland

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5)
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school level socioeconomic status DEIS (urban band 1, urban band 2, rural), language of instruction (Gaelscoil, Gaeltacht, ordinary), and gender (boys, girls, mixed)
- Implicit stratification by location (cities, rural)
- Sampled two classrooms per school
- The school sample for TIMSS at Grade 4 was selected by controlling for the overlap with another National Study sample using the Chowdhury approach. No overlap between Grade 4 and Grade 8 samples.

Allocation of School Sample in Ireland, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Gaelscoil	10	0	10	0	0	0	0
Gaeltacht Schools	8	0	8	0	0	0	0
Non-DEIS - Ordinary - Boys	12	0	12	0	0	0	0
Non-DEIS - Ordinary - Girls	10	0	10	0	0	0	0
Non-DEIS - Ordinary - Mixed	77	0	77	0	0	0	0
DEIS Rural - Ordinary	10	0	10	0	0	0	0
DEIS Urban Band 1 - Ordinary	12	0	12	0	0	0	0
DEIS Urban Band 2 - Ordinary	10	0	10	0	0	0	0
Total	149	0	149	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 15)

- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school sector (community/comprehensive, secondary, vocational), socioeconomic status (high, medium, low) and gender (boys, girls, mixed)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 147)
- No overlap between Grade 4 and Grade 8 samples

Allocation of School Sample in Ireland, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Community/comprehensive – High SES	8	0	8	0	0	0	0
Community/comprehensive - Low SES	8	0	8	0	0	0	0
Community/comprehensive - Med SES	10	0	10	0	0	0	0
Secondary - High SES - Boys	12	0	11	0	0	1	0
Secondary - High SES - Girls	16	0	16	0	0	0	0
Secondary - High SES - Mixed	12	0	12	0	0	0	0
Secondary - Low SES	12	0	12	0	0	0	0
Secondary - Med SES - Boys	10	0	10	0	0	0	0
Secondary - Med SES - Girls	12	0	12	0	0	0	0
Secondary - Med SES - Mixed	10	0	10	0	0	0	0
Vocational - High SES	10	0	10	0	0	0	0
Vocational - Low SES	18	0	18	0	0	0	0
Vocational - Med SES	12	0	12	0	0	0	0
Total	150	0	149	0	0	1	0

Israel

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), special needs schools, English or French schools, and Ultra-Orthodox schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school sector (4), socioeconomic status (high, medium, low) and subgroups within Arab sector (Arab/Druze, Bedouin)
- No implicit stratification
- Sampled one classroom per school

Allocation of School Sample in Israel, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Hebrew-Secular - High SES	52	0	48	2	2	0	0
Hebrew-Secular - Medium SES	42	0	35	5	2	0	0
Hebrew-Secular - Low SES	12	0	10	2	0	0	0
Hebrew-Religious - High SES	10	0	9	0	1	0	0
Hebrew-Religious - Medium SES	16	0	15	1	0	0	0
Hebrew-Religious - Low SES	10	0	9	1	0	0	0
Arabic-Arab/Druze-Medium SES	14	0	14	0	0	0	0
Arabic-Arab/Druze-Low SES	30	0	28	1	1	0	0
Arabic - Bedouin	14	0	14	0	0	0	0
Total	200	0	182	12	6	0	0

Italy

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), Slovenian language schools, Ladin language schools, and German language schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school type (private, public), region (6) within public schools. A census of schools was taken in Bolzano.
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 110)
- The school sample for TIMSS at Grade 8 was selected by controlling for the overlap with the sample at Grade 4 using the Chowdhury approach
- In Bolzano schools or class were used as variance estimation strata and classes or half classes were used to build jackknife replicates. Two classrooms selected within these schools whenever possible.

Allocation of School Sample in Italy, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Private	10	0	8	1	1	1	0
Public - Center	26	0	20	4	1	1	0
Public - South and Islands	22	0	17	5	0	0	0
Public - North East (without Bolzano)	26	0	21	5	0	0	0
Public - North West	36	0	30	5	1	0	0
Public - South	28	0	23	5	0	0	0
Bolzano	18	0	17	0	0	1	0
Total	166	0	136	25	3	2	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), Slovenian language schools, Ladin language schools, and German language schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school type (private, public), region (6) within public schools. A census of schools was taken in Bolzano.
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 130)
- The school sample for TIMSS at Grade 8 was selected by controlling for the overlap with the sample at Grade 4 using the Chowdhury approach
- In Bolzano schools or class were used as variance estimation strata and classes or half classes were used to build jackknife replicates. Two classrooms selected within these schools whenever possible.

Allocation of School Sample in Italy, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Private	8	0	8	0	0	0	0
Public - Center	22	0	15	6	0	1	0
Public - South and Islands	23	0	16	4	1	2	0
Public - North East (without Bolzano)	26	0	21	5	0	0	0
Public - North West	34	0	29	4	1	0	0
Public - South	34	0	27	7	0	0	0
Bolzano	18	0	17	0	0	1	0
Total	165	0	133	26	2	4	0

Japan

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by urbanization (4)
- No implicit stratification
- Sampled one classroom per school
- No overlap between grade 4 and grade 8 school samples

Allocation of School Sample in Japan, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Very Large City	37	0	35	1	0	1	0
Large City	25	0	23	2	0	0	0
Small City	72	1	70	1	0	0	0
Non-City Area	16	0	15	1	0	0	0
Total	150	1	143	5	0	1	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by urbanization (4) and school type (public junior high school, other)
- No implicit stratification
- Sampled one classroom per school
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in Japan, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Public Junior High School - Very Large City	31	0	30	1	0	0	0
Public Junior High School - Large City	24	0	23	1	0	0	0
Public Junior High School - Small City	67	1	66	0	0	0	0
Public Junior High School - Non-City Area	14	0	13	1	0	0	0
National School, Private School or Public Combined Junior and Senior High School	14	0	10	2	0	2	0
Total	150	1	142	5	0	2	0

Jordan

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- No school level exclusions
- Within-school exclusions consisted of students with functional disabilities, and students with intellectual disabilities

Sample Design

- Explicit stratification by school type (6) and achievement (6)
- Implicit stratification by gender
- Sampled two classrooms in the strata where all schools were taken
- The school sample for TIMSS Numeracy at Grade 4 was selected by controlling for the overlap with the sample at Grade 8 using the Chowdhury approach
- In census strata, schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates

Allocation of School Sample in Jordan, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Madrasiti	41	0	41	0	0	0	0
Public	73	1	72	0	0	0	0
Discovery	38	2	36	0	0	0	0
ERSP	44	0	44	0	0	0	0
UNRWA	24	0	24	0	0	0	0
Private	37	0	37	0	0	0	0
Total	257	3	254	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- No school level exclusions
- Within-school exclusions consisted of students with functional disabilities and students with intellectual disabilities

Sample Design

- Explicit stratification by school type (6) and achievement (6)
- Implicit stratification by region or grouped regions
- Sampled two classrooms in the strata where all schools were taken
- The school sample for TIMSS Numeracy at Grade 4 was selected by controlling for the overlap with the sample at Grade 8 using the Chowdhury approach
- In census strata, schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates

Allocation of School Sample in Jordan, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Madrasiti	47	1	46	0	0	0	0
Public	80	4	76	0	0	0	0
Discovery	36	2	34	0	0	0	0
ERSP	43	1	42	0	0	0	0
UNRWA	26	0	26	0	0	0	0
Private	28	0	28	0	0	0	0
Total	260	8	252	0	0	0	0

Kazakhstan

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4), special needs schools, and Uzbek, Uighur, Tadjik only schools
- No within-school exclusions

Sample Design

- Explicit stratification by 'Grade 4'/'Grade 4 and Grade 8' schools, region (4), urbanization (urban, rural), and language (Kazakh, Russian, both languages, other languages)
- No implicit stratification
- Sampled two classrooms in certain strata
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap

Allocation of School Sample in Kazakhstan, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4	8	1	5	1	1	0	0
Grade 4 & Grade 8 - Region A - Urban - Kazakh and Russian	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region A - Rural - Kazakh	16	0	14	1	1	0	0
Grade 4 & Grade 8 - Region B - Urban - Kazakh and Russian	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region B - Rural - Kazakh	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region C - Urban - Kazakh	10	0	10	0	0	0	0
Grade 4 & Grade 8 - Region C - Urban - Kazakh and Russian	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Region C - Rural - Kazakh	8	0	7	1	0	0	0

Allocation of School Sample in Kazakhstan, Fourth Grade (Continued)

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4 & Grade 8 - Region C - Rural - Kazakh and Russian	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region D - Urban - Kazakh	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region D - Urban - Kazakh and Russian	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region D - Rural - Kazakh	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region D - Rural - Kazakh and Russian	8	0	7	0	1	0	0
Grade 4 & Grade 8 - All Regions - Urban - Russian	16	0	16	0	0	0	0
Grade 4 & Grade 8 - All Regions - Rural - Russian	8	0	8	0	0	0	0
Grade 4 & Grade 8 - All Regions - Other Languages	8	0	4	0	0	4	0
Grade 4 & Grade 8 - Regions A and B - Urban - Kazakh	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Regions A and B - Rural - Kazakh and Russian	14	0	14	0	0	0	0
Total	176	1	165	3	3	4	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4), special needs schools, and Uzbek, Uighur, Tadjik only schools
- No within-school exclusions

Sample Design

- Explicit stratification by 'Grade 8'/'Grade 4 and Grade 8' schools, region (4), urbanization (urban, rural), and language (Kazakh, Russian, both languages, other languages)
- No implicit stratification
- Sampled two classrooms in certain strata
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap

Allocation of School Sample in Kazakhstan, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region A - Urban - Kazakh and Russian	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region A - Rural - Kazakh	16	0	14	1	1	0	0
Grade 4 & Grade 8 - Region B - Urban - Kazakh and Russian	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region B - Rural - Kazakh	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region C - Urban - Kazakh	10	0	10	0	0	0	0
Grade 4 & Grade 8 - Region C - Urban - Kazakh and Russian	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Region C - Rural - Kazakh	8	0	7	1	0	0	0
Grade 4 & Grade 8 - Region C - Rural - Kazakh and Russian	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region D - Urban - Kazakh	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region D - Urban - Kazakh and Russian	8	0	8	0	0	0	0

Allocation of School Sample in Kazakhstan, Eighth Grade (Continued)

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4 & Grade 8 - Region D - Rural - Kazakh	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Region D - Rural - Kazakh and Russian	8	0	7	0	1	0	0
Grade 4 & Grade 8 - All Regions - Urban - Russian	16	0	16	0	0	0	0
Grade 4 & Grade 8 - All Regions - Rural - Russian	8	0	8	0	0	0	0
Grade 4 & Grade 8 - All Regions - Other Languages	8	0	4	0	0	4	0
Grade 4 & Grade 8 - Regions A and B - Urban - Kazakh	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Regions A and B - Rural - Kazakh and Russian	14	0	14	0	0	0	0
Total	176	0	168	2	2	4	0

Korea

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), remote schools, and special needs schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by urbanization (urban, suburban, rural)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 180)
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in Korea, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Urban	62	0	62	0	0	0	0
Suburban	64	0	64	0	0	0	0
Rural	24	1	23	0	0	0	0
Total	150	1	149	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), remote schools, special needs schools, and physical education middle school
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by urbanization (urban, suburban, rural), and school gender (boys, girls, mixed)
- No implicit stratification
- Sampled one classroom per school
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in Korea, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Urban - Boys	10	0	10	0	0	0	0
Urban - Girls	10	0	10	0	0	0	0
Urban - Mixed	35	0	35	0	0	0	0
Suburban - Boys	10	0	10	0	0	0	0
Suburban - Girls	10	0	10	0	0	0	0
Suburban - Mixed	35	0	35	0	0	0	0
Rural - Boys	10	0	10	0	0	0	0
Rural - Girls	10	0	10	0	0	0	0
Rural - Mixed	20	0	20	0	0	0	0
Total	150	0	150	0	0	0	0

Kuwait

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and minority language schools
- Within-school exclusions consisted of students with intellectual disabilities

Sample Design

- Explicit stratification by school type (public, private), region (6), and gender (girls, boys) within public schools, and language (Arabic, foreign, bilingual) within private schools
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 80)
- Samples for TIMSS Main Data Collection and samples for PIRLS Field Test and Main Data Collection were drawn simultaneously to avoid overlap

Allocation of School Sample in Kuwait, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Public - Asema - Girls	10	0	10	0	0	0	0
Public - Asema - Boys	11	0	11	0	0	0	0
Public - Hawally - Girls	8	0	8	0	0	0	0
Public - Hawally - Boys	8	0	8	0	0	0	0
Public - Farwaniya - Girls	11	0	11	0	0	0	0
Public - Farwaniya - Boys	12	0	12	0	0	0	0
Public - Ahmadi - Girls	12	0	12	0	0	0	0
Public - Ahmadi - Boys	13	0	13	0	0	0	0
Public - Jahra - Girls	10	0	10	0	0	0	0
Public - Jahra - Boys	10	0	10	0	0	0	0
Public - Mubarak Alkabeer - Girls	8	0	8	0	0	0	0
Public - Mubarak Alkabeer - Boys	7	0	7	0	0	0	0
Private - Arabic	18	1	17	0	0	0	0
Private - Foreign	29	0	20	0	0	9	0
Private - Bilingual	9	0	9	0	0	0	0
Total	176	1	166	0	0	9	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and minority language schools
- No within-school exclusions

Sample Design

- Explicit stratification by school type (public, private), region (6), and gender (girls, boys) within public schools and language (Arabic, foreign and bilingual) within private schools
- No implicit stratification
- Sampled one classroom per school except for the census strata where two classrooms were selected
- No overlap between Grade 4 and Grade 8 school samples
- Census in public Mubarek Alkabeer schools (girls and boys)
- In census strata, classes were used to build jackknife replicates for variance estimation. Two classrooms selected within these schools

Allocation of School Sample in Kuwait, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Public - Asema - Girls	10	0	10	0	0	0	0
Public - Asema - Boys	10	0	10	0	0	0	0
Public - Hawally - Girls	10	0	10	0	0	0	0
Public - Hawally - Boys	10	0	10	0	0	0	0
Public - Farwaniya - Girls	10	0	10	0	0	0	0
Public - Farwaniya - Boys	10	0	10	0	0	0	0
Public - Ahmadi - Girls	12	0	12	0	0	0	0
Public - Ahmadi - Boys	12	0	12	0	0	0	0
Public - Jahra - Girls	10	0	10	0	0	0	0
Public - Jahra - Boys	10	0	10	0	0	0	0
Private - Arabic	30	1	29	0	0	0	0
Public - Mubarek Alkabeer - Male	11	0	11	0	0	0	0
Public - Mubarek Alkabeer - BoysGirls	11	0	11	0	0	0	0
Private - Foreign and Bilingual	22	0	13	0	0	9	0
Total	178	1	168	0	0	9	0

Lebanon

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 8)
- No within-school exclusions

Sample Design

- Explicit stratification school type (public, private, unknown) and by performance level (higher, lower)
- Implicit stratification by region (7)
- Sampled two classrooms in large schools (measure of size > 90)

Allocation of School Sample in Lebanon, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Public	44	0	44	0	0	0	0
Private	94	0	62	18	3	11	0
Unknown	12	0	10	1	0	1	0
Total	150	0	116	19	3	12	0

Lithuania

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), special needs schools, and language of instruction other than Lithuanian, Russian, or Polish
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4' / 'Grade 4 and Grade 8' schools, and language (5)
- Implicit stratification by urbanization (Capital, other major cities, cities, small cities, and villages)
- Sampled two classrooms whenever possible
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap
- Census in Russian, Polish, and bilingual schools
- In census strata, schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates. Class group option was used in bilingual schools.

Allocation of School Sample in Lithuania, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4 - Lithuanian	30	0	30	0	0	0	0
Grade 4 - Russian	5	0	5	0	0	0	0
Grade 4 - Polish	8	1	7	0	0	0	0
Grade 4 - Bilingual with Lithuanian	3	1	2	0	0	0	0
Grade 4 - Bilingual with Russian and Polish	1	0	1	0	0	0	0
Grade 4 & Grade 8 - Lithuanian	120	1	117	2	0	0	0
Grade 4 & Grade 8 - Russian	23	1	22	0	0	0	0
Grade 4 & Grade 8 - Polish	23	1	22	0	0	0	1
Grade 4 & Grade 8 - Bilingual with Lithuanian	6	0	6	0	0	0	0
Grade 4 & Grade 8 - Bilingual with Russian and Polish	11	0	11	0	0	0	0
Total	230	5	223	2	0	0	1

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 7), special needs schools, and language of instruction other than Lithuanian, Russian, or Polish
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 8' / 'Grade 4 and Grade 8' schools, and language (5)
- Implicit stratification by urbanization (Capital, other major cities, cities, small cities, and villages)
- Sampled two classrooms whenever possible
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap.
- Census in Russian, Polish, and bilingual schools
- In census strata, schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates. Class group option was used in bilingual schools.

Allocation of School Sample in Lithuania, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8 - Lithuanian	16	0	14	2	0	0	0
Grade 8 - Russian	3	0	3	0	0	0	0
Grade 8 - Polish	7	2	5	0	0	0	0
Grade 8 - Bilingual with Lithuanian	1	0	1	0	0	0	0
Grade 4 & Grade 8 - Lithuanian	120	0	118	2	0	0	0
Grade 4 & Grade 8 - Russian	23	1	22	0	0	0	0
Grade 4 & Grade 8 - Polish	24	0	24	0	0	0	0
Grade 4 & Grade 8 - Bilingual with Lithuanian	6	0	6	0	0	0	0
Grade 4 & Grade 8 - Bilingual with Russian and Polish	11	0	11	0	0	0	0
Total	211	3	204	4	0	0	0

Malaysia

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 15), special needs schools, schools located in remote area, and schools that do not follow national curriculum
- Within-school exclusions consisted of students with intellectual disabilities and students with functional disabilities

Sample Design

- Explicit stratification by school type (6), score level (6), and urbanization (rural, urban)
- No implicit stratification
- Sampled two classrooms in Ministry of Education daily schools
- Ministry of Education fully residential schools were oversampled

Allocation of School Sample in Malaysia, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
MOE Daily School - Very Low	1	0	1	0	0	0	0
MOE Daily School - Low - Rural	18	0	18	0	0	0	0
MOE Daily School - Low - Urban	12	0	12	0	0	0	0
MOE Daily School - Mid-Low - Rural	14	0	14	0	0	0	0
MOE Daily School - Mid-Low - Urban	12	0	12	0	0	0	0
MOE Daily School - Mid-High - Rural	12	0	12	0	0	0	0
MOE Daily School - Mid-High - Urban	16	0	16	0	0	0	0
MOE Daily School - High	14	0	14	0	0	0	0
MOE Daily School - Very High	20	0	20	0	0	0	0
MOE Fully Residential School - Mid-High	8	0	8	0	0	0	0
MOE Fully Residential School - High	53	0	53	0	0	0	0
MOE Religious School	8	0	8	0	0	0	0
MARA Junior Science College	8	0	8	0	0	0	0
Non-Moe Religious School	8	0	8	0	0	0	0
Private School	3	0	3	0	0	0	5
Total	207	0	207	0	0	0	5

Malta

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 8), special needs schools, and language schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- No explicit stratification
- Implicit stratification by school type (state, church, independent) and gender (male, female, co-educational)
- All classrooms were sampled
- All schools and all students at Grade 8 (Year 9) were selected
- Classes were used as variance estimation strata and half classes were used to build jackknife replicates. All classrooms selected within schools.

Allocation of School Sample in Malta, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
None	48	0	48	0	0	0	0
Total	48	0	48	0	0	0	0

Morocco

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 6)
- No within-school exclusions

Sample Design

- Explicit stratification by school type (private, public) and region (16)
- Implicit stratification by urbanization (urban, rural) within public sector
- Sampled two classrooms in public schools from the region of Oued eddhab Lagouira
- No overlap between Grade 4 and Grade 8 school samples
- Schools at the regional level were oversampled. Census in the region of Oued eddhab Lagouira.
- In census strata, schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates

Allocation of School Sample in Morocco, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Private - Grand Casablanca	12	0	12	0	0	0	0
Private - All Other Regions	28	0	28	0	0	0	0
Public - Chaouia Ouardigha	20	1	19	0	0	0	0
Public - Doukkala Abda	20	0	20	0	0	0	0
Public - Fes Boulmane	20	0	20	0	0	0	0
Public - Gharb Chrarda Beni Hssein	20	0	20	0	0	0	0
Public - Goulmim Smara	20	0	20	0	0	0	0
Public - Grand Casablanca	20	0	20	0	0	0	0
Public - Laayoune Boujdour Sakia Hamra	20	0	20	0	0	0	0
Public - Marrakech Tansift Haouz	20	0	20	0	0	0	0
Public - Meknes Tafilalt	20	0	20	0	0	0	0
Public - Oued Eddahab Lagouira	21	0	20	0	0	1	0
Public - Rabat Salé Zemmour Zaer	20	0	20	0	0	0	0
Public - Région Est	20	0	20	0	0	0	0
Public - Souss Massa Draa	20	0	20	0	0	0	0
Public - Tadla Azilal	20	0	20	0	0	0	0
Public - Tanger Tetouan	20	0	20	0	0	0	0
Public - Taza Hoceima Taounate	20	1	19	0	0	0	0
Total	361	2	358	0	0	1	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 10)
- No within-school exclusions

Sample Design

- Explicit stratification by school type (private, public) and region (16)
- Implicit stratification by urbanization (urban, rural) within public sector
- Sampled two classrooms in public schools from the region of Oued eddhab Lagouira and Laayoune Boujdour Sakia Hamra
- No overlap between Grade 4 and Grade 8 school samples
- Schools at the regional level were oversampled. Census in the region of Oued eddhab Lagouira and Laayoune Boujdour Sakia Hamra.
- In census strata, schools or classes were used as variance estimation strata, and classes or half classes were used to build jackknife replicates

Allocation of School Sample in Morocco, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Private - Grand Casablanca	12	2	10	0	0	0	0
Private - All Other Regions	28	4	24	0	0	0	0
Public - Chaouia Ouardigha	20	0	20	0	0	0	0
Public - Doukkala Abda	20	1	19	0	0	0	0
Public - Fes Boulmane	20	0	20	0	0	0	0
Public - Gharb Chrarda Beni Hssein	20	0	20	0	0	0	0
Public - Goulmim Smara	20	0	20	0	0	0	0
Public - Grand Casablanca	20	0	20	0	0	0	0
Public - Laayoune Boujdour Sakia Hamra	24	0	24	0	0	0	0
Public - Marrakech Tansift Haouz	20	0	20	0	0	0	0
Public - Meknes Tafilalt	20	0	20	0	0	0	0
Public - Oued Eddahab Lagouira	9	0	9	0	0	0	0
Public - Rabat Salé Zemmour Zaer	20	0	20	0	0	0	0
Public - Région Est	20	1	19	0	0	0	0
Public - Souss Massa Draa	20	0	20	0	0	0	0
Public - Tadla Azilal	20	0	20	0	0	0	0
Public - Tanger Tetouan	20	0	20	0	0	0	0
Public - Taza Hoceima Taounate	20	0	20	0	0	0	0
Total	353	8	345	0	0	0	0

Netherlands

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 6) and special needs schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by Combinations of TIMSS and PIRLS socioeconomic status (5), and urbanization (5)
- No implicit stratification
- All classrooms were sampled
- TIMSS 2015 samples and PIRLS 2016 samples were selected simultaneously to avoid overlap

Allocation of School Sample in Netherlands, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
TIMSS & PIRLS High Mean SES - Very High Population Density	8	0	6	0	1	1	0
TIMSS & PIRLS High Mean SES - High Population Density	14	0	5	4	1	4	0
TIMSS & PIRLS High Mean SES - Moderate Population Density	16	0	11	3	1	1	0
TIMSS & PIRLS High Mean SES - Low Population Density	16	0	7	5	2	2	0
TIMSS & PIRLS High Mean SES - Very Low Population Density	16	0	10	3	2	1	0
TIMSS High & PIRLS Medium Mean SES - High to Very High Population Density	10	0	3	2	2	3	0
TIMSS High & PIRLS Medium Mean SES - Low to Moderate Population Density	14	0	8	6	0	0	0
TIMSS & PIRLS Medium Mean SES - High to Very High Population Density	10	0	4	0	3	3	0
TIMSS & PIRLS Medium Mean SES - Low to Moderate Population Density	12	0	8	3	0	1	0
TIMSS Medium & PIRLS Low Mean SES - High to Very High Population Density	14	1	4	7	1	1	0
TIMSS Medium & PIRLS Low Mean SES - Low to Moderate Population Density	10	0	4	4	2	0	0
TIMSS & PIRLS Low Mean SES	10	1	4	1	2	2	0
Total	150	2	74	38	17	19	0

New Zealand

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4), special needs schools, correspondence schools, Maori-medium Level 1 immersion schools, and mostly students in Level 1-2 immersion units schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school type (state, independent), socioeconomic status (low, moderately low, moderately high, high), and urbanisation (major urban centers, smaller centers)
- No implicit stratification
- Sampled two classrooms per school
- The school sample for TIMSS at Grade 8 was selected by controlling for the overlap with the sample at Grade 4 using the Chowdhury approach

Allocation of School Sample in New Zealand, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Independent schools	9	0	8	0	0	1	0
Low SES schools - from major urban centers	24	0	16	5	1	2	0
Low SES schools - from smaller centers	8	0	5	2	0	1	0
Moderately low SES schools - from major urban centers	26	0	21	3	2	0	0
Moderately low SES schools - from smaller centers	16	0	14	1	0	1	0
Moderately high SES schools - from major urban centers	32	0	27	3	1	1	0
Moderately high SES schools - from smaller centers	18	0	13	3	0	2	0
High SES schools - from major urban centers	41	0	35	5	1	0	0
High SES schools - from smaller centers	8	0	8	0	0	0	0
Total	182	0	147	22	5	8	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4), special needs schools, correspondence schools, Maori-medium Level 1 immersion schools, and mostly students in Level 1-2 immersion units schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school type (state, independent), socioeconomic status (low, moderately low, moderately high, high), urbanisation (major urban centers, smaller centers), and gender (boys, girls, co-educational)
- No implicit stratification

- Sampled two classrooms per school
- The school sample for TIMSS at Grade 8 was selected by controlling for the overlap with the sample at Grade 4 using the Chowdhury approach
- Within schools, classes were stratified by performance level and one class from each level was selected

Allocation of School Sample in New Zealand, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Independent schools	8	0	8	0	0	0	0
Low SES schools - from major urban centers	12	0	9	3	0	0	0
Low SES schools - from smaller centers	8	0	6	1	0	1	0
Moderately low SES schools - from major urban centers - Coed	20	0	12	4	0	4	0
Moderately low SES schools - from major urban centers - Others	8	0	6	1	0	1	0
Moderately low SES schools - from smaller centers -	12	0	12	0	0	0	0
Moderately high SES schools - from major urban centers - Coed	26	0	18	5	0	3	0
Moderately high SES schools - from major urban centers - Boys	10	0	7	1	0	2	0
Moderately high SES schools - from major urban centers - Girls	8	0	6	2	0	0	0
Moderately high SES schools - from smaller centers -	16	0	14	2	0	0	0
High SES schools - Coed	18	0	11	3	0	4	0
High SES schools - Boys	8	0	5	1	0	2	0
High SES schools - Girls	8	0	6	2	0	0	0
Total	162	0	120	25	0	17	0

Northern Ireland

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 6) and special needs schools
- Within-school exclusions consisted of students with intellectual disabilities

Sample Design

- Explicit stratification by region (5) and deprivation (5)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 58)
- TIMSS 2015 sample and PIRLS 2016 samples were drawn simultaneously to avoid overlap

Allocation of School Sample in Northern Ireland, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Belfast - Lower Deprivation	10	0	4	1	0	5	0
Belfast - Highest Deprivation	12	0	5	1	1	5	0
Western - Lower Deprivation	10	0	8	1	1	0	0
Western - Moderate to High Deprivation	10	0	8	0	0	2	0
Western - Highest Deprivation	8	0	5	1	0	2	0
North Eastern - Lowest Deprivation	8	0	6	1	1	0	0
North Eastern - Low to Moderate Deprivation	12	0	8	0	0	4	0
North Eastern - Higher Deprivation	14	0	10	1	0	3	0
South Eastern - Lowest Deprivation	12	0	8	0	0	4	0
South Eastern - Low to Moderate Deprivation	8	0	4	0	1	3	0
South Eastern - Higher Deprivation	14	0	9	1	1	3	0
Southern - Lower Deprivation	12	0	7	2	1	2	0
Southern - Moderate Deprivation	12	0	11	1	0	0	0
Southern - Higher Deprivation	12	0	7	2	0	3	0
Total	154	0	100	12	6	36	0

Norway (5 and 9)

Fifth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4), Sami language schools, international schools, and remote schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 5' / 'Grade 5 and Grade 9' schools, language (Bokmål, Nynorsk), and municipality size (small, medium, large)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 35)
- Grade 5 and Grade 9 school samples were selected simultaneously with minimum overlap

Allocation of School Sample in Norway, Fifth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 5 - Bokmål - Small Municipalities	8	0	8	0	0	0	0
Grade 5 - Bokmål - Medium Municipalities	28	0	26	0	0	2	0
Grade 5 - Bokmål - Large Municipalities	66	0	63	0	0	3	0
Grade 5 - Nynorsk	14	0	13	0	0	1	0
Grade 5 & Grade 9 - Bokmål - Small Municipalities	8	0	8	0	0	0	0
Grade 5 & Grade 9 - Bokmål - Medium Municipalities	8	0	7	0	0	1	0
Grade 5 & Grade 9 - Bokmål - Large Municipalities	10	0	8	0	0	2	0
Grade 5 & Grade 9 - Nynorsk	8	0	7	0	0	1	0
Total	150	0	140	0	0	10	0

Ninth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 6), Sami language schools, international schools, and remote schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 9' / 'Grade 5 and Grade 9' schools, language (Bokmål, Nynorsk) and municipality size (small, medium, large)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 90)
- Grade 5 and Grade 9 school samples were selected simultaneously with minimum overlap

Allocation of School Sample in Norway, Ninth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 9 - Bokmål - Small Municipalities	8	0	7	0	0	1	0
Grade 9 - Bokmål - Medium Municipalities	26	0	26	0	0	0	0
Grade 9 - Bokmål - Large Municipalities	64	0	61	0	0	3	0
Grade 9 - Nynorsk	12	0	11	0	0	1	0
Grade 5 & Grade 9 - Bokmål - Small Municipalities	8	0	8	0	0	0	0
Grade 5 & Grade 9 - Bokmål - Medium Municipalities	8	0	6	0	0	2	0
Grade 5 & Grade 9 - Bokmål - Large Municipalities	16	0	16	0	0	0	0
Grade 5 & Grade 9 - Nynorsk	8	0	8	0	0	0	0
Total	150	0	143	0	0	7	0

Oman

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4) and special needs schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by governorates (11) and school type (government, private, international)
- No implicit stratification
- Sampled two classrooms in census strata or in large schools from other strata
- The school sample for TIMSS at Grade 8 was selected by controlling for the overlap with the sample at Grade 4 using the Chowdhury approach
- Census in AL Buraimi, Musandam, and Al Wusta Governorate strata
- In census strata schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates. Two classrooms selected within these schools.

Allocation of School Sample in Oman, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Ad Dakhliyah Governorate	26	0	26	0	0	0	0
Adh Dhahirah Governorate	26	0	26	0	0	0	0
Al Batinah North Governorate	30	0	30	0	0	0	0
Al Batinah South Governorate	26	0	26	0	0	0	0
Al Buraimi Governorate	15	0	15	0	0	0	0
Al Wusta Governorate	20	0	20	0	0	0	0
Ash Sharqiyah North Governorate	26	2	24	0	0	0	0
Ash Sharqiyah South Governorate	26	0	26	0	0	0	0
Dhofar Governorate	26	0	26	0	0	0	0
Musandam Governorate	7	0	7	0	0	0	0
Muscat Governorate	28	0	28	0	0	0	0
Private Schools	26	1	24	1	0	0	0
International Schools	26	0	18	2	1	5	0
Total	308	3	296	3	1	5	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4) and special needs schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by governorates (11), and special school type (government, private, international)
- Implicit stratification by gender (3)
- Sampled two classrooms in census strata or in large schools from other strata

- The school sample for TIMSS at Grade 8 was selected by controlling for the overlap with the sample at Grade 4 using the Chowdhury approach
- Census in AL Buraimi, Musandam, and Al Wusta Governorate strata
- In census strata schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates. Two classrooms selected within these schools.

Allocation of School Sample in Oman, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Ad Dakhliyah Governorate	24	0	24	0	0	0	0
Adh Dhahirah Governorate	25	0	25	0	0	0	0
Al Batinah North Governorate	30	0	30	0	0	0	0
Al Batinah South Governorate	26	0	26	0	0	0	0
Al Buraimi Governorate	13	0	13	0	0	0	0
Al Wusta Governorate	22	0	22	0	0	0	0
Ash Sharqiyah North Governorate	26	1	25	0	0	0	0
Ash Sharqiyah South Governorate	26	0	26	0	0	0	0
Dhofar Governorate	26	0	26	0	0	0	0
Musandam Governorate	12	0	12	0	0	0	0
Muscat Governorate	27	1	26	0	0	0	0
Private Schools	27	0	27	0	0	0	0
International Schools	26	0	18	1	0	7	0
Total	310	2	300	1	0	7	0

Poland

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), special needs schools, and language of instruction other than Polish
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by urbanization (4) and school performance level (5)
- No implicit stratification
- Sampled two classrooms per school

Allocation of School Sample in Poland, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Village - Low Performance	14	0	14	0	0	0	0
Village - Medium-Low Performance	10	0	10	0	0	0	0
Village - Medium Performance	10	0	10	0	0	0	0
Village - Medium-High Performance	10	0	10	0	0	0	0
Village - High Performance	12	0	11	1	0	0	0
Town (Up to 20 Thousand Inhabitants) - Medium-Low Performance	8	0	7	1	0	0	0
Town (Up to 20 Thousand Inhabitants) - Medium-High Performance	10	0	9	1	0	0	0
City (20 to 100 Thousand Inhabitants) - Low Performance	10	0	9	1	0	0	0
City (20 to 100 Thousand Inhabitants) - Medium-Low Performance	8	0	7	1	0	0	0
City (20 to 100 Thousand Inhabitants) - Medium-High Performance	8	0	7	1	0	0	0
City (20 to 100 Thousand Inhabitants) - High Performance	10	0	9	1	0	0	0
City (Above 100 Thousand Inhabitants) - Low Performance	10	0	9	1	0	0	0
City (Above 100 Thousand Inhabitants) - Medium-Low Performance	10	0	10	0	0	0	0
City (Above 100 Thousand Inhabitants) - Medium-High Performance	10	0	7	2	1	0	0
City (Above 100 Thousand Inhabitants) - High Performance	10	0	8	2	0	0	0
Total	150	0	137	12	1	0	0

Portugal

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 6), special needs schools, and minority language schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by region (7) and school type (public, private)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 140)
- No overlap between TIMSS 2015 and PIRLS 2016 main data collection samples except in the 6 smallest strata where all schools are sampled
- Probability proportional to (school) size systematic sampling was used in the 3 largest explicit strata, and systematic sampling selection with equal probabilities was used in all other strata

Allocation of School Sample in Portugal, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Private - Lisboa	8	1	5	2	0	0	0
Private - All Other Regions	12	0	8	3	1	0	0
Public - Alentejo	30	0	28	1	0	1	0
Public - Algarve	8	0	7	1	0	0	0
Public - Centro	48	0	47	1	0	0	0
Public - Lisboa	36	0	31	4	1	0	0
Public - Norte	64	0	57	5	0	2	0
Public - R. A. Açores	8	0	4	1	2	1	0
Public - R. A. Madeira	8	0	6	1	1	0	0
Total	222	1	193	19	5	4	0

Qatar

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of instruction not in English or Arabic
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4' / 'Grade 4 and Grade 8'
- Implicit stratification by school type (private SEC, independent, community, private foreign) and gender (boys, girls, other)
- Sampled two classrooms in large schools (measure of size > 170)
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap
- Census of schools. Schools having Grade 4 and Grade 8 participated in TIMSS Main Data Collection for both grades.
- Schools or classrooms or half classrooms were used to build jackknife replicates for variance estimation

Allocation of School Sample in Qatar, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4	134	5	129	0	0	0	0
Grade 4 & Grade 8	83	1	82	0	0	0	3
Total	217	6	211	0	0	0	3

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of instruction not in English or Arabic
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 8' / 'Grade 4 and Grade 8'

- Implicit stratification by school type (private SEC, independent, community, private foreign) and gender (boys, girls, other)
- Sampled two classrooms whenever possible
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap
- Census of schools. Schools having Grade 4 and Grade 8 participated in TIMSS Main Data Collection for both grades.
- Schools or classrooms or half classrooms were used to build jackknife replicates for variance estimation

Allocation of School Sample in Qatar, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8	51	0	51	0	0	0	0
Grade 4 & Grade 8	85	2	80	0	0	3	0
Total	136	2	131	0	0	3	0

Russian Federation

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4) and special needs schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by region (42)
- No implicit stratification
- Sampled one classroom per school
- No overlap between Grade 4 and Grade 8 school samples
- An extra sampling stage (regions) was required prior to sampling schools. 28 of 69 regions were selected with probability proportional to the region size and 14 bigger regions were selected with certainty. While each certainty region itself is an explicit stratum, the other sampled regions make one large explicit stratum. In the large explicit stratum, a sample of schools is selected within each region.
- Within regions, schools were selected with probability proportional to (school) size systematic sampling. Schools were sorted (serpentine) by location (up to 7 levels) before being sorted by school size.
- Within the certainty regions, schools were paired for variance calculation purposes. Otherwise, selected regions were paired for variance calculation purposes.

Allocation of School Sample in Russian Federation, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Sankt-Petersburg*	6	0	6	0	0	0	0
Moscow*	14	0	14	0	0	0	0
Moscow region*	10	0	10	0	0	0	0
Nizhni Novgorod region*	4	0	4	0	0	0	0
Perm territory*	4	0	4	0	0	0	0
Samara region*	4	0	4	0	0	0	0
Republic of Tatarstan*	6	0	6	0	0	0	0
Republic of Bashkortostan*	8	0	8	0	0	0	0
Krasnodar territory*	8	0	8	0	0	0	0
Rostov region*	6	0	6	0	0	0	0
Chelyabinsk region*	6	0	6	0	0	0	0
Sverdlovsk region*	8	0	8	0	0	0	0
Krasnoyarsk territory*	4	0	4	0	0	0	0
Republic of Dagestan*	6	0	6	0	0	0	0
Novgorod region	4	0	4	0	0	0	0
Kaliningrad region	4	0	4	0	0	0	0
Vologda region	4	0	4	0	0	0	0
Voronezh region	4	0	4	0	0	0	0
Vladimir region	4	0	4	0	0	0	0
Tula region	4	0	4	0	0	0	0
Bryansk region	4	0	4	0	0	0	0
Ryazan region	4	0	4	0	0	0	0
Kaluga region	4	0	4	0	0	0	0
Republic of Marij El	4	0	4	0	0	0	0
Ulyanovsk region	4	0	4	0	0	0	0
Chuvashi republic	4	0	4	0	0	0	0
Orenburg region	4	0	4	0	0	0	0
Saratov region	4	0	4	0	0	0	0
Astrakhan region	4	0	4	0	0	0	0
Kurgan region	4	0	4	0	0	0	0
Khanty-Mansijsk AD	4	0	4	0	0	0	0

* Certainty Regions

Allocation of School Sample in Russian Federation, Fourth Grade (Continued)

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Irkutsk region	4	0	4	0	0	0	0
Kemerovo region	4	0	4	0	0	0	0
Novosibirsk region	4	0	4	0	0	0	0
Altai territory	4	0	4	0	0	0	0
Zabaikalsk territory	4	0	4	0	0	0	0
Tomsk region	4	0	4	0	0	0	0
Sakhalin region	4	0	4	0	0	0	0
Republic of Sakha (Yakutia)	4	0	4	0	0	0	0
Primorski territory	4	0	4	0	0	0	0
Stravropol territory	4	0	4	0	0	0	0
Kabardino-Balkarian Republic	6	0	6	0	0	0	0
Total	208	0	208	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4), special needs schools, and evening schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by region (42)
- No implicit stratification
- Sampled one classroom per school
- No overlap between Grade 4 and Grade 8 school samples
- An extra sampling stage (regions) was required prior to sampling schools. 28 of 69 regions were selected with probability proportional to the region size and 14 bigger regions were selected with certainty. While each certainty region itself is an explicit stratum, the other sampled regions make one large explicit stratum. In the large explicit stratum, a sample of schools is selected within each region.
- Within regions, schools were selected with probability proportional to (school) size systematic sampling. Schools were sorted (serpentine) by location (up to 7 levels) before being sorted by school size.
- Within the certainty regions, schools were paired for variance calculation purposes. Otherwise, selected regions were paired for variance calculation purposes.

Allocation of School Sample in Russian Federation, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Sankt-Petersburg*	6	0	6	0	0	0	0
Moscow*	12	0	12	0	0	0	0
Moscow region*	10	0	10	0	0	0	0
Perm territory*	4	0	4	0	0	0	0
Samara region*	4	0	4	0	0	0	0
Nizhni Novgorod region*	4	0	4	0	0	0	0
Republic of Tatarstan*	6	0	6	0	0	0	0
Republic of Bashkortostan*	8	0	8	0	0	0	0
Krasnodar territory*	8	0	8	0	0	0	0
Rostov region*	6	0	6	0	0	0	0
Chelyabinsk region*	6	0	6	0	0	0	0
Sverdlovsk region*	6	0	6	0	0	0	0
Krasnoyarsk territory*	4	0	4	0	0	0	0
Republic of Dagestan*	6	0	6	0	0	0	0
Novgorod region	4	0	4	0	0	0	0
Kaliningrad region	4	0	4	0	0	0	0
Arkhangelsk region	4	0	4	0	0	0	0
Voronezh region	4	0	4	0	0	0	0
Belgorod region	4	0	4	0	0	0	0
Vladimir region	4	0	4	0	0	0	0
Lipetzk region	4	0	4	0	0	0	0
Yaroslavl region	4	0	4	0	0	0	0
Kaluga region	4	0	4	0	0	0	0
Kostroma region	4	0	4	0	0	0	0
Ulyanovsk region	4	0	4	0	0	0	0
Chuvashi republic	4	0	4	0	0	0	0
Orenburg region	4	0	4	0	0	0	0
Saratov region	4	0	4	0	0	0	0
Volgograd region	4	0	4	0	0	0	0
Yamalo-Nenets autonomous district	4	0	4	0	0	0	0
Tyumen region	4	0	4	0	0	0	0
Irkutsk region	4	0	4	0	0	0	0

* Certainty Regions

Allocation of School Sample in Russian Federation, Eighth Grade (Continued)

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Kemerovo region	4	0	4	0	0	0	0
Novosibirsk region	4	0	4	0	0	0	0
Altai territory	4	0	4	0	0	0	0
Omsk region	4	0	4	0	0	0	0
Tomsk region	4	0	4	0	0	0	0
Kamchatka territory	4	0	4	0	0	0	0
Khabarovsk territory	4	0	4	0	0	0	0
Primorski territory	4	0	4	0	0	0	0
Stravropol territory	4	0	4	0	0	0	0
Kabardino-Balkarian Republic	6	0	6	0	0	0	0
Total	204	0	204	0	0	0	0

Saudi Arabia

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 6) and special needs schools
- Within-school exclusions consisted of students with intellectual disabilities and non-native language speakers

Sample Design

- Explicit stratification by gender (boys, girls), education type (religious, non-religious) and school type (government, non-government) within non-religious schools
- No implicit stratification
- Sampled one classroom per school
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in Saudi Arabia, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Government - General - Boys	78	2	69	6	1	0	0
Government - General - Girls	78	6	69	2	1	0	0
Non Government - Non-Religious - Boys	12	0	12	0	0	0	0
Non Government - Non-Religious - Girls	10	0	10	0	0	0	0
Other - Religious - Boys	10	0	10	0	0	0	0
Other - Religious - Girls	10	1	8	1	0	0	0
Total	198	9	178	9	2	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 10) and special needs schools

- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by gender (boys, girls), education type (religious, non-religious) and school type (government, non-government) within non-religious schools
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 215)
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in Saudi Arabia, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Government - General - Boys	60	6	51	2	1	0	0
Government - General - Girls	60	3	57	0	0	0	0
Non Government - Non-Religious - Boys	10	0	10	0	0	0	0
Non Government - Non-Religious - Girls	8	0	8	0	0	0	0
Other - Religious - Boys	8	2	6	0	0	0	0
Other - Religious - Girls	8	0	8	0	0	0	0
Total	154	11	140	2	1	0	0

Serbia

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools, language other than Serbian, and less than 4 children taught in Serbian
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by region (Belgrade, Vojvodina, Central Serbia), urbanization (city, other) and school type (main, branch department)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 130)

Allocation of School Sample in Serbia, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Belgrade - City	30	0	30	0	0	0	0
Belgrade - Other	8	0	8	0	0	0	0
Vojvodina - City	24	0	23	1	0	0	0
Vojvodina - Other	16	0	16	0	0	0	0
Central Serbia - City	50	0	49	0	1	0	0
Central Serbia - Other - Main Schools	16	0	16	0	0	0	0
Central Serbia - Other - Branch Department Schools	16	0	16	0	0	0	0
Total	160	0	158	1	1	0	0

Singapore

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and private schools
- No within-school exclusions
- For TIMSS 2015, like in all previous cycles, Singapore took a census of all public schools with Grade 4 or Grade 8 students. The sampling frame excluded private schools, which are largely foreign-system schools operating in Singapore and which serve predominantly international students. These foreign-system schools are fundamentally different from the public schools in many respects (e.g., language of instruction; school-calendar year).

Sample Design

- No explicit stratification
- No implicit stratification
- Sampled two classrooms per school
- No overlap between Grade 4 and Grade 8 school samples
- Census of all schools. Within schools, two half classrooms were sampled with probability proportional to the size of the classroom. Within selected classrooms, 19 students were randomly sampled.
- Schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates

Allocation of School Sample in Singapore, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
None	179	0	179	0	0	0	0
Total	179	0	179	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and private schools
- No within-school exclusions

- For TIMSS 2015, like in all previous cycles, Singapore took a census of all public schools with Grade 4 or Grade 8 students. The sampling frame excluded private schools, which are largely foreign-system schools operating in Singapore and which serve predominantly international students. These foreign-system schools are fundamentally different from the public schools in many respects (e.g., language of instruction; school-calendar year).

Sample Design

- No explicit stratification
- No implicit stratification
- Sampled two classrooms per school
- No overlap between Grade 4 and Grade 8 school samples
- Census of all schools. Within schools, two half classrooms were sampled with probability proportional to the size of the classroom. Within selected classrooms, 19 students were randomly sampled.
- Schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates

Allocation of School Sample in Singapore, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
None	167	0	167	0	0	0	0
Total	167	0	167	0	0	0	0

Slovakia

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4), special needs schools, and schools where language of instruction is not Slovak or Hungarian
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by language (Slovak, Hungarian), socioeconomic status (4), and area (5)
- No implicit stratification
- Sampled two classrooms per school

Allocation of School Sample in Slovakia, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Slovak - High Mean SES - Bratislavský	16	0	14	2	0	0	0
Slovak - High Mean SES - North Area	22	1	20	1	0	0	0
Slovak - High Mean SES - South Area	12	0	12	0	0	0	0
Slovak - Low to Medium Mean SES - Bratislavský	10	0	9	0	0	1	0
Slovak - Medium Mean SES - North Area	46	0	46	0	0	0	0
Slovak - Medium Mean SES - South Area	26	0	26	0	0	0	0
Slovak - Low Mean SES - North Area	18	0	18	0	0	0	0
Slovak - Low Mean SES - South Area	28	0	28	0	0	0	0
Hungarian - Košický	10	0	8	0	2	0	0
Hungarian - Other	12	0	12	0	0	0	0
Total	200	1	193	3	2	1	0

Slovenia

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools, Italian schools, Waldorf schools, and Montessori schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by performance level (4)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 50)
- Grade 4 and Grade 8 school samples were selected simultaneously with full overlap

Allocation of School Sample in Slovenia, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Very low math scores	14	0	14	0	0	0	0
Low math scores	46	0	44	1	0	1	0
Medium math scores	46	0	43	3	0	0	0
High math scores	44	0	43	0	0	1	0
Total	150	0	144	4	0	2	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools, Italian schools, and Waldorf schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by performance level (4)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 50)
- Grade 4 and Grade 8 school samples were selected simultaneously with full overlap

Allocation of School Sample in Slovenia, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Very low math scores	14	0	14	0	0	0	0
Low math scores	46	0	44	1	0	1	0
Medium math scores	46	0	43	3	0	0	0
High math scores	44	0	43	0	0	1	0
Total	150	0	144	4	0	2	0

South Africa

Fifth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 8) and special needs schools
- No within-school exclusions

Sample Design

- Explicit stratification by school type (independent, public), province (9) within public schools and socioeconomic status (low, medium/high) within independent schools
- Implicit stratification by performance level (lower quintiles, mid quintiles, higher quintiles) and province (GT, other)
- Sampled one classroom per school
- No overlap between Grade 5 and Grade 9 school samples

Allocation of School Sample in South Africa, Fifth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Independent schools - Low fee	27	0	25	2	0	0	1
Independent schools - Med-High fee	12	0	11	1	0	0	0
Public- EC	29	0	29	0	0	0	1
Public- FS	28	0	28	0	0	0	0
Public- GT	28	0	28	0	0	0	0
Public- KZ	30	0	30	0	0	0	0
Public- LP	30	0	30	0	0	0	0
Public- MP	28	0	28	0	0	0	0
Public- NC	28	0	28	0	0	0	0
Public- NW	28	0	28	0	0	0	0
Public- WC	30	1	28	0	1	0	0
Total	298	1	293	3	1	0	2

Ninth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 15) and special needs schools
- No within-school exclusions

Sample Design

- Explicit stratification by school type (independent, public), province (9), language (English, Afrikaans, bilingual) and socioeconomic status (low, medium/high)
- Implicit stratification by performance level (lower quintiles, first quintiles, second quintiles, higher quintiles, and other quintiles) and province (GT/WC, other)
- Sampled two classrooms in dual language schools with one class for each language group
- No overlap between Grade 5 and Grade 9 school samples

Allocation of School Sample in South Africa, Ninth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Independent schools - Low fee	26	0	26	0	0	0	0
Independent schools - Med-High fee	12	0	6	4	2	0	0
Public- EC - English	24	3	21	0	0	0	0
Public- FS - English	26	0	26	0	0	0	0
Public- GT - English	22	0	22	0	0	0	0
Public- KZ - English	28	1	26	1	0	0	0
Public- LP - English	28	0	27	1	0	0	0
Public- MP - English	26	0	26	0	0	0	0
Public- NC - Afrikaans	12	0	12	0	0	0	0
Public- NC - Bilingual	8	0	8	0	0	0	0
Public- NC - English	8	0	8	0	0	0	0
Public- NW - English	26	3	23	0	0	0	0
Public- WC - Afrikaans	8	0	8	0	0	0	0
Public- WC - Bilingual	10	0	10	0	0	0	0
Public- WC - English	10	1	9	0	0	0	0
Public- EC, FS, GT, KZ, LP, MP, NW - Afrikaans	12	0	10	2	0	0	0
Public- EC, FS, GT, KZ, LP, MP, NW - Bilingual	14	0	14	0	0	0	0
Total	300	8	282	8	2	0	0

Spain

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4), special needs schools, and international schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by region (7) and school type (public, private)
- No implicit stratification
- Sampled one classroom per school except for the private schools in La Rioja where two classrooms were sampled whenever possible
- Oversampled in Asturias, La Rioja, Castile and Leon, Catalonia, Andalusia and Madrid in order to get better estimates. In La Rioja-private stratum all schools were taken.
- In La Rioja- private stratum, schools or classrooms were used as variance estimation strata and classrooms or half classrooms were used to build jackknife replicates. Two classrooms selected within these schools whenever possible.

Allocation of School Sample in Spain, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Andalusia - Public	30	0	30	0	0	0	0
Andalusia - Private	20	0	20	0	0	0	0
Asturias - Public	30	0	30	0	0	0	0
Asturias - Private	20	0	20	0	0	0	0
Castile and Leon - Public	30	0	26	0	0	4	0
Castile and Leon - Private	20	0	20	0	0	0	0
Catalonia - Public	30	0	30	0	0	0	0
Catalonia - Private	20	0	20	0	0	0	0
La Rioja - Public	27	0	27	0	0	0	0
La Rioja - Private	23	0	23	0	0	0	0
Madrid - Public	26	1	25	0	0	0	0
Madrid - Private	24	0	24	0	0	0	0
Other - Public	44	0	43	0	0	1	0
Other - Private	20	0	19	1	0	0	0
Total	364	1	357	1	0	5	0

Sweden

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), international schools, and special education schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4' / 'Grade 4 and Grade 8' schools and average achievement for the grade (low, high, missing)
- Implicit stratification by school type (public, private, all)
- Sampled two classrooms in large schools (measure of size > 45)
- The school sample for TIMSS at Grade 4 was selected by controlling for the overlap with the sample at Grade 8 using the Chowdhury approach

Allocation of School Sample in Sweden, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4	99	4	95	0	0	0	1
Grade 4 & Grade 8 - Missing	10	0	10	0	0	0	0
Grade 4 & Grade 8 - Low	16	1	15	0	0	0	0
Grade 4 & Grade 8 - High	24	0	24	0	0	0	0
Total	149	5	144	0	0	0	1

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5), international schools, and special education schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by average achievement for the grade (7)
- Implicit stratification by 'Grade 8' / 'Grade 4 and Grade 8' schools
- Sampled two classrooms in large schools (measure of size > 110)
- The school sample for TIMSS at Grade 4 was selected by controlling for the overlap with the sample at Grade 8 using the Chowdhury approach

Allocation of School Sample in Sweden, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Missing	22	2	19	1	0	0	0
Low	26	2	24	0	0	0	0
Low-Medium	26	0	26	0	0	0	0
Medium	28	0	28	0	0	0	0
Medium-High	18	0	18	0	0	0	0
High	16	0	16	0	0	0	0
Very High	18	0	18	0	0	0	0
Total	154	4	149	1	0	0	0

Thailand

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 5) and special needs schools
- No within-school exclusions

Sample Design

- Explicit stratification by jurisdiction (7) and region (Bangkok, Central, other) within OBEC2 jurisdiction
- No implicit stratification
- Sampled one classroom per school

Allocation of School Sample in Thailand, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
OBEC1	42	0	41	1	0	0	0
OBEC2 - Bangkok	10	0	9	1	0	0	0
OBEC2 - Central	10	0	10	0	0	0	0
OBEC2 - Other Regions	78	0	78	0	0	0	0
OPEC	22	0	20	1	1	0	0
BMA	10	0	10	0	0	0	0
DLA	12	0	12	0	0	0	0
OHEC	10	0	10	0	0	0	0
SCISCH	10	0	10	0	0	0	0
Total	204	0	200	3	1	0	0

Turkey

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools, geographically inaccessible schools, very small schools, and schools with different structure/curriculum
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by urbanization (urban, rural) and statistical regions (12) within urban
- No implicit stratification
- Sampled one classroom per school
- No overlap between Grade 4 and Grade 8 samples

Allocation of School Sample in Turkey, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Rural	40	3	37	0	0	0	0
Urban - TR1-Istanbul	36	4	32	0	0	0	0
Urban - TR2-West Marmara	10	3	7	0	0	0	0
Urban - TR3-Aegean	26	0	26	0	0	0	0
Urban - TR4-East Marmara	16	4	12	0	0	0	0
Urban - TR5-West Anatolia	16	1	15	0	0	0	0
Urban - TR6-Mediterranean	30	0	30	0	0	0	0
Urban - TR7-Central Anatolia	10	1	9	0	0	0	0
Urban - TR8-West Black Sea	10	0	10	0	0	0	0
Urban - TR9-East Black Sea	10	0	10	0	0	0	0
Urban - TRA-Northeast Anatolia	10	0	10	0	0	0	0
Urban - TRB-Centraleast Anatolia	14	1	13	0	0	0	0
Urban - TRC-Southeast Anatolia	32	1	31	0	0	0	0
Total	260	18	242	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools, geographically inaccessible schools, very small schools, and schools with different structure/curriculum
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by urbanization (urban, rural) and statistical regions (12) within urban
- No implicit stratification
- Sampled one classroom per school
- No overlap between Grade 4 and Grade 8 samples

Allocation of School Sample in Turkey, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Rural	34	1	33	0	0	0	0
Urban - TR1-Istanbul	30	3	27	0	0	0	0
Urban - TR2-West Marmara	10	3	7	0	0	0	0
Urban - TR3-Aegean	24	1	23	0	0	0	0
Urban - TR4-East Marmara	22	2	20	0	0	0	0
Urban - TR5-West Anatolia	16	4	12	0	0	0	0
Urban - TR6-Mediterranean	20	0	20	0	0	0	0
Urban - TR7-Central Anatolia	10	0	10	0	0	0	0
Urban - TR8-West Black Sea	10	2	8	0	0	0	0
Urban - TR9-East Black Sea	10	0	10	0	0	0	0
Urban - TRA-Northeast Anatolia	10	1	9	0	0	0	0
Urban - TRB-Centraleast Anatolia	14	1	13	0	0	0	0
Urban - TRC-Southeast Anatolia	30	4	26	0	0	0	0
Total	240	22	218	0	0	0	0

United Arab Emirates

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 15) in Abu Dhabi and other Emirates, (measure of size < 10) in Dubai, instruction language other than English or Arabic, and geographically inaccessible schools in Emirates other than Dubai and Abu Dhabi
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4' / 'Grade 4 and Grade 8' schools, Emirates (7), national assessment score (4) and curriculum (Ministry of Education, UK/US/CAD, other). School type (public, private) within Dubai. Region (Abu Dhabi, Al Ain, Western region), school type (public, private), and performance level (low, medium, high) within Abu Dhabi.
- Implicit stratification by educational zones (Ajman, Fujairah, Ras Al Khaimah, Sharjah, Umm Al Quwain) and language of test (Arabic, English, French)
- Sampled two classrooms in schools from the western region, from 'Grade 4' schools in Abu Dhabi, from Dubai and from regions other than Sharjah
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap
- All schools were sampled in all regions except Sharjah, in Western region of Abu Dhabi and in Dubai
- The United Arab Emirates was divided into three large districts: Abu Dhabi (Abu Dhabi, Al Ain, and West region), Dubai, and the rest of the Emirates. All three districts were oversampled.
- In census strata, classes or half classes were used to build jackknife replicates for variance estimation. Two classrooms selected within these schools.

Allocation of School Sample in United Arab Emirates, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4 - Abu Dhabi - Public - Low Performance	10	0	10	0	0	0	0
Grade 4 - Abu Dhabi - Public - Medium Performance	10	0	10	0	0	0	0
Grade 4 - Abu Dhabi - Public - High Performance	10	0	10	0	0	0	0
Grade 4 - Abu Dhabi - Private	10	1	9	0	0	0	0
Grade 4 - Al Ain - Public - Low Performance	12	0	12	0	0	0	0
Grade 4 - Al Ain - Public - High Performance	10	1	9	0	0	0	0
Grade 4 - Western Region	12	0	12	0	0	0	0
Grade 4 - Dubai - Private	37	0	37	0	0	0	0
Grade 4 - Dubai - Public	25	0	25	0	0	0	0
Grade 4 - Sharjah - No Assessment Score	8	0	8	0	0	0	0
Grade 4 - Sharjah - Low Assessment Score	8	0	8	0	0	0	0
Grade 4 - Sharjah - Medium Assessment Score	8	0	8	0	0	0	0
Grade 4 - Sharjah - High Assessment Score	8	0	8	0	0	0	0
Grade 4 - Other Zones	85	1	84	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - Ministry of Education	14	1	13	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - UK/US/CAD	22	2	20	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - Other	22	5	17	0	0	0	0

Allocation of School Sample in United Arab Emirates, Fourth Grade (Continued)

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4 & Grade 8 - Al Ain - UK/US/CAD	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Al Ain - Other	14	0	14	0	0	0	0
Grade 4 & Grade 8 - Western Region	15	0	15	0	0	0	0
Grade 4 & Grade 8 - Dubai - Private	105	2	103	0	0	0	0
Grade 4 & Grade 8 - Dubai - Public	3	0	3	0	0	0	0
Grade 4 & Grade 8 - Sharjah - No Assessment Score - UK/US/Australian	18	0	18	0	0	0	0
Grade 4 & Grade 8 - Sharjah - No Assessment Score - Other	20	0	20	0	0	0	0
Grade 4 & Grade 8 - Sharjah - Medium Assessment Score - Ministry of Education	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Sharjah - High Assessment Score - Ministry of Education	8	1	7	0	0	0	0
Grade 4 & Grade 8 - Other Zones	59	1	58	0	0	0	0
Total	573	15	558	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 15) in Abu Dhabi and other Emirates, very small schools (measure of size < 10) in Dubai, special needs and geographically inaccessible schools in Emirates other than Dubai and Abu Dhabi, and language of instruction other than English or Arabic
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 8' / 'Grade 4 and Grade 8' schools, Emirates (7), national assessment score (4) and curriculum (Ministry of Education, UK/US/CAD, other). School type (public, private) within Dubai. Region (Abu Dhabi, Al Ain, Western region), school type (public, private), and performance level (low, medium, high) within Abu Dhabi.
- Implicit stratification by educational zones (Ajman, Fujairah, Ras Al Khaimah, Umm Al Quwain) and language of test (Arabic, English, French)
- Sampled two classrooms in schools from the western region, from 'Grade 8' schools in Abu Dhabi, from Dubai and from regions other than Sharjah
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap
- All schools were sampled in all regions except Sharjah, in Western region of Abu Dhabi and in Dubai.
- In census strata, classes or half classes were used to build jackknife replicates for variance estimation. Two classrooms selected within these schools.

Allocation of School Sample in United Arab Emirates, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8 - Abu Dhabi - Public - Low Performance	15	0	15	0	0	0	0
Grade 8 - Abu Dhabi - Public - High Performance	16	0	16	0	0	0	0
Grade 8 - Al Ain - Public - Low Performance	10	0	10	0	0	0	0
Grade 8 - Al Ain - Public - High Performance	15	1	14	0	0	0	0
Grade 8 - Western Region	10	0	10	0	0	0	0
Grade 8 - Dubai - Private	7	1	6	0	0	0	0
Grade 8 - Dubai - Public	22	0	22	0	0	0	0
Grade 8 - Sharjah - Low Assessment Score	8	0	8	0	0	0	0

Allocation of School Sample in United Arab Emirates, Eighth Grade (Continued)

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8 - Sharjah - High Assessment Score	8	0	8	0	0	0	0
Grade 8 - Other Zones	58	0	58	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - Ministry of Education	14	0	14	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - UK/US/CAD	22	2	20	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - Other	22	5	17	0	0	0	0
Grade 4 & Grade 8 - Al Ain - UK/US/CAD	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Al Ain - Other	14	0	14	0	0	0	0
Grade 4 & Grade 8 - Western Region	15	1	14	0	0	0	0
Grade 4 & Grade 8 - Dubai - Private	105	1	104	0	0	0	0
Grade 4 & Grade 8 - Dubai - Public	3	0	3	0	0	0	0
Grade 4 & Grade 8 - Sharjah - No Assessment Score - UK/US/Australian	18	0	18	0	0	0	0
Grade 4 & Grade 8 - Sharjah - No Assessment Score - Other	20	0	20	0	0	0	0
Grade 4 & Grade 8 - Sharjah - Medium Assessment Score - Ministry of Education	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Sharjah - High Assessment Score - Ministry of Education	8	0	8	0	0	0	0
Grade 4 & Grade 8 - Other Zones	59	1	58	0	0	0	0
Total	489	12	477	0	0	0	0

United States

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- No school level exclusions
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by poverty level (high, low), school type (public, private), and census region (4)
- Implicit stratification by urbanization (city, suburb, town, rural) and ethnicity status (above 15% non-White students in a school, below 15% non-White students in a school)
- Sampled two classrooms per school
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in United States, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
High poverty - Public - Census region 1	17	0	10	0	0	7	0
High poverty - Public - Census region 2	26	1	21	3	0	1	0
High poverty - Public - Census region 3	68	2	61	3	0	2	0
High poverty - Public - Census region 4	37	0	29	0	0	8	0
Low poverty - Private - Census region 1	6	0	3	1	0	2	0
Low poverty - Private - Census region 2	6	0	4	1	0	1	0
Low poverty - Private - Census region 3	9	0	5	2	0	2	0
Low poverty - Private - Census region 4	5	0	1	2	0	2	0
Low poverty - Public - Census region 1	26	0	13	4	0	9	0
Low poverty - Public - Census region 2	31	0	25	3	0	3	0
Low poverty - Public - Census region 3	39	0	35	2	0	2	0
Low poverty - Public - Census region 4	29	1	21	1	0	6	1
Total	299	4	228	22	0	45	1

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- No school level exclusions
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by poverty level (high, low), school type (public, private) and census region (4)
- Implicit stratification by urbanization (city, suburb, town, rural) and ethnicity status (above 15% non-White students in a school, below 15% non-White students in a school)
- Sampled two classrooms per school
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in United States, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
High poverty - Public - Census region 1	15	0	11	1	0	3	0
High poverty - Public - Census region 2	23	1	18	0	0	4	0
High poverty - Public - Census region 3	63	2	54	4	0	3	0
High poverty - Public - Census region 4	34	0	29	0	0	5	0
Low poverty - Private - Census region 1	6	0	3	3	0	0	0
Low poverty - Private - Census region 2	6	0	5	0	0	1	0
Low poverty - Private - Census region 3	8	0	6	1	0	1	0
Low poverty - Private - Census region 4	5	2	2	1	0	0	0
Low poverty - Public - Census region 1	29	0	18	0	0	11	0
Low poverty - Public - Census region 2	36	0	28	4	0	4	0
Low poverty - Public - Census region 3	43	0	36	3	0	4	0
Low poverty - Public - Census region 4	32	2	19	0	0	11	0
Total	300	7	229	17	0	47	0

Characteristics of Benchmarking Participants

Buenos Aires, Argentina

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools, and federal government schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4' / 'Grade 4 and Grade 8' schools (2), school type (public, private) and socioeconomic status (low, medium, high)
- No implicit stratification
- Sampled all classrooms
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap

Allocation of School Sample in Buenos Aires, Argentina, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4 - Private - Low Mean SES	8	0	7	0	0	1	0
Grade 4 - Private - Medium Mean SES	8	0	4	1	0	3	0
Grade 4 - Private - High Mean SES	8	0	7	1	0	0	0
Grade 4 - Public - Low Mean SES	28	0	22	2	1	3	0
Grade 4 - Public - Medium Mean SES	28	0	22	2	0	4	0
Grade 4 - Public - High Mean SES	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Private - Low Mean SES	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Private - Medium Mean SES	20	0	16	2	0	2	0
Grade 4 & Grade 8 - Private - High Mean SES	18	0	17	0	0	1	0
Grade 4 & Grade 8 - Public - All Mean SESs	8	0	8	0	0	0	0
Total	150	0	127	8	1	14	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of special needs schools and federal government schools
- No within-school exclusions

Sample Design

- Explicit stratification by 'Grade 8' / 'Grade 4 and Grade 8' schools (2), school type (public, private), and socioeconomic status (low, medium, high)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 280)
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap

Allocation of School Sample in Buenos Aires, Argentina, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8 - Private - Low Mean SES	8	0	7	1	0	0	0
Grade 8 - Private - Medium Mean SES	8	0	7	0	0	1	0
Grade 8 - Private - High Mean SES	8	0	8	0	0	0	0
Grade 8 - Public - Low Mean SES	26	0	19	1	0	6	0
Grade 8 - Public - Medium Mean SES	26	0	19	2	0	5	0
Grade 8 - Public - High Mean SES	16	0	12	1	0	3	0
Grade 4 & Grade 8 - Private - Low Mean SES	12	0	11	0	0	1	0
Grade 4 & Grade 8 - Private - Medium Mean SES	20	0	17	1	0	2	0
Grade 4 & Grade 8 - Private - High Mean SES	18	0	16	0	0	2	0
Grade 4 & Grade 8 - Public - All Mean SESs	8	0	6	0	0	2	0
Total	150	0	122	6	0	22	0

Ontario, Canada

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 6), special needs schools, and First Nations schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4' / 'Grade 4 and Grade 8' schools, language (French, English), and school type (public, Catholic, private)
- Implicit stratification by regional office (Thunder Bay/Sudbury/London, Barrie/Ottawa, Toronto and Area)
- Sampled two classrooms per school
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap

Allocation of School Sample in Ontario, Canada, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4 - Private	8	0	3	0	0	5	0
Grade 4 - English - Catholic	8	0	8	0	0	0	0
Grade 4 - English - Public	40	0	39	0	0	1	0
Grade 4 - French - Catholic & Public	8	0	8	0	0	0	0
Grade 4 & Grade 8 - English - Catholic	36	1	35	0	0	0	0
Grade 4 & Grade 8 - English - Public	59	0	58	0	0	1	1
Total	159	1	151	0	0	7	1

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 6), special needs schools, and First Nations schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 8' / 'Grade 4 and Grade 8' schools, language (French, English), and school type (public, Catholic, private)
- Implicit stratification by regional office (Thunder Bay/Sudbury/London, Barrie/Ottawa, Toronto and Area)
- Sampled two classrooms in large schools (measure of size > 50)
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap

Allocation of School Sample in Ontario, Canada, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8 - Private	8	0	0	2	1	5	0
Grade 8 - English - Catholic	8	1	7	0	0	0	0
Grade 8 - English - Public	32	0	30	0	0	2	0
Grade 8 - French - Catholic & Public	8	0	7	0	0	1	0
Grade 4 & Grade 8 - English - Catholic	36	1	34	0	0	1	0
Grade 4 & Grade 8 - English - Public	59	2	57	0	0	0	1
Total	151	4	135	2	1	9	1

Quebec, Canada

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 10), special needs schools, international schools, federal schools, and school boards with special status
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school type (private, public) and language (English, French)
- Implicit stratification by Mathematics average score (3)
- Sampled two classrooms in large schools (measure of size > 80)
- Grade 4 and Grade 8 school samples were selected separately

Allocation of School Sample in Quebec, Canada, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Private - English	8	0	8	0	0	0	0
Private - French	8	0	8	0	0	0	0
Public - English	40	0	38	1	0	1	2
Public - French	118	0	47	16	3	52	0
Total	174	0	101	17	3	53	2

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 10), special needs schools, international schools, federal schools, and school boards with special status
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by school type (private, public) and language (English, French)
- Implicit stratification by Mathematics average score (3)
- Sampled two classrooms in large schools (measure of size > 450)
- Grade 4 and Grade 8 school samples were selected separately

Allocation of School Sample in Quebec, Canada, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Private - English	12	0	11	0	0	1	0
Private - French	26	1	25	0	0	0	0
Public - English	38	0	36	1	0	1	0
Public - French	100	1	30	19	0	50	0
Total	176	2	102	20	0	52	0

Norway (4 and 8)

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 4), language other than Bokmål and Nynorsk, international schools, and remote schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 5' / 'Grade 5 and Grade 9' / 'Grade 4 only' schools, language (Bokmål, Nynorsk), and municipality size (small, medium, large)
- No implicit stratification
- Grade 4 school sample corresponds to the Grade 5 school sample, with an additional sample selected from the Grade 4 only schools stratum
- Grade 4 and Grade 8 school samples were selected simultaneously with minimum overlap

Allocation of School Sample in Norway (4 and 8), Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 5 - Bokmål - Small Municipalities	8	0	8	0	0	0	0
Grade 5 - Bokmål - Medium Municipalities	28	0	26	0	0	2	0
Grade 5 - Bokmål - Large Municipalities	66	1	63	0	0	2	0
Grade 5 - Nynorsk	14	1	12	0	0	1	0
Grade 5 & Grade 9 - Bokmål - Small Municipalities	8	0	8	0	0	0	0
Grade 5 & Grade 9 - Bokmål - Medium Municipalities	8	1	6	0	0	1	0
Grade 5 & Grade 9 - Bokmål - Large Municipalities	10	0	8	0	0	2	0
Grade 5 & Grade 9 - Nynorsk	8	1	6	0	0	1	0
Grade 4	2	0	2	0	0	0	0
Total	152	4	139	0	0	9	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 6), Sami language schools, international schools, remote schools, and Grade 8 only schools
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 9' / 'Grade 5 and Grade 9' schools, language (Bokmål, Nynorsk), and municipality size (small, medium, large)
- No implicit stratification
- Sampled two classrooms in large schools (measure of size > 90)
- Grade 8 school sample corresponds to the Grade 9 school sample. Grade 8 only schools were scarce and as a result were excluded prior to school sampling.
- Grade 4 and Grade 8 school samples were selected simultaneously with minimum overlap

Allocation of School Sample in Norway (4 and 8), Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 9 - Bokmål - Small Municipalities	8	0	7	0	0	1	0
Grade 9 - Bokmål - Medium Municipalities	26	0	26	0	0	0	0
Grade 9 - Bokmål - Large Municipalities	64	0	61	0	0	3	0
Grade 9 - Nynorsk	12	0	10	0	0	2	0
Grade 5 & Grade 9 - Bokmål - Small Municipalities	8	0	8	0	0	0	0
Grade 5 & Grade 9 - Bokmål - Medium Municipalities	8	0	6	0	0	2	0
Grade 5 & Grade 9 - Bokmål - Large Municipalities	16	0	16	0	0	0	0
Grade 5 & Grade 9 - Nynorsk	8	0	8	0	0	0	0
Total	150	0	142	0	0	8	0

Abu Dhabi, United Arab Emirates

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 15), and language of instruction other than Arabic and English
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4' / 'Grade 4 and Grade 8' schools, region (Abu Dhabi, Al Ain, Western region), school type (public, private), and performance level (low, medium, high) within 'Grade 4' schools, and curriculum (Ministry of Education, UK/US/CAD, other) within 'Grade 4 and Grade 8' schools.
- No implicit stratification
- Sampled two classrooms in Western region and in Grade 4 schools
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap
- All schools were sampled in Western region
- In census strata (Western region), classes or half classes were used to build jackknife replicates for variance estimation. Two classrooms selected within these schools.

Allocation of School Sample in Abu Dhabi, United Arab Emirates, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4 - Abu Dhabi - Public - Low Performance	10	0	10	0	0	0	0
Grade 4 - Abu Dhabi - Public - Medium Performance	10	0	10	0	0	0	0
Grade 4 - Abu Dhabi - Public - High Performance	10	0	10	0	0	0	0
Grade 4 - Abu Dhabi - Private	10	1	9	0	0	0	0
Grade 4 - Al Ain - Public - Low Performance	12	0	12	0	0	0	0
Grade 4 - Al Ain - Public - High Performance	10	1	9	0	0	0	0
Grade 4 - Western Region	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - Ministry of Education	14	1	13	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - UK/US/CAD	22	2	20	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - Other	22	5	17	0	0	0	0
Grade 4 & Grade 8 - Al Ain - UK/US/CAD	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Al Ain - Other	14	0	14	0	0	0	0
Grade 4 & Grade 8 - Western Region	15	0	15	0	0	0	0
Total	173	10	163	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 15) and language of instruction other than Arabic and English
- Within-school exclusions consisted of students with intellectual disabilities and students with functional disabilities

Sample Design

- Explicit stratification by 'Grade 8' / 'Grade 4 and Grade 8' schools, region (Abu Dhabi, Al Ain, Western region), school type (public, private), and performance level (low, medium, high)
- No implicit stratification
- Sampled two classrooms in Western region and in Grade 8 schools
- Grade 4 and grade 8 school samples were selected simultaneously with maximum overlap
- All schools were sampled in Western region
- In census strata (Western region) classes or half classes were used to build jackknife replicates for variance estimation. Two classrooms selected within these schools.

Allocation of School Sample in Abu Dhabi, United Arab Emirates, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8 - Abu Dhabi - Public - Low Performance	15	0	15	0	0	0	0
Grade 8 - Abu Dhabi - Public - High Performance	16	0	16	0	0	0	0
Grade 8 - Al Ain - Public - Low Performance	10	0	10	0	0	0	0
Grade 8 - Al Ain - Public - High Performance	15	1	14	0	0	0	0
Grade 8 - Western Region	10	0	10	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - Ministry of Education	14	0	14	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - UK/US/CAD	22	2	20	0	0	0	0
Grade 4 & Grade 8 - Abu Dhabi - Other	22	5	17	0	0	0	0
Grade 4 & Grade 8 - Al Ain - UK/US/CAD	12	0	12	0	0	0	0
Grade 4 & Grade 8 - Al Ain - Other	14	0	14	0	0	0	0
Grade 4 & Grade 8 - Western Region	15	1	14	0	0	0	0
Total	165	9	156	0	0	0	0

Dubai, United Arab Emirates

Fourth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 10), and instruction language other than English or Arabic
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 4/' 'Grade 4 and Grade 8' schools, and school type (public, private)
- Implicit stratification by language of test (Arabic, English, French)
- Sampled two classrooms per school
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap
- Census of all schools
- Schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates. Some schools are paired together within explicit stratum when there is only one class participating.

Allocation of School Sample in Dubai, United Arab Emirates, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 4 - Private	37	0	37	0	0	0	0
Grade 4 - Public	25	0	25	0	0	0	0
Grade 4 & Grade 8 - Private	105	2	103	0	0	0	0
Grade 4 & Grade 8 - Public	3	0	3	0	0	0	0
Total	170	2	168	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 100 percent
- School-level exclusions consisted of very small schools (measure of size < 10) and instruction language other than English or Arabic
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by 'Grade 8' / 'Grade 4 and Grade 8' schools and school type (public, private)
- Implicit stratification by language of test (Arabic, English, French)
- Sampled two classrooms per school
- Grade 4 and Grade 8 school samples were selected simultaneously with maximum overlap
- Census of all schools
- Schools or classes were used as variance estimation strata and classes or half classes were used to build jackknife replicates. Some schools are paired together within explicit stratum when there is only one class participating

Allocation of School Sample in Dubai, United Arab Emirates, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
Grade 8 - Private	7	1	6	0	0	0	0
Grade 8 - Public	22	0	22	0	0	0	0
Grade 4 & Grade 8 - Private	105	1	104	0	0	0	0
Grade 4 & Grade 8 - Public	3	0	3	0	0	0	0
Total	137	2	135	0	0	0	0

Florida, United States

Fourth Grade

Coverage and Exclusions

- Coverage is 89.8 percent. Coverage in USA Florida is restricted to students from public schools.
- No school level exclusions
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by poverty level (high, low)
- Implicit stratification by location (city, suburb, town, rural) and ethnicity status (above 15% non-White students in a school, below 15% non-White students in a school)
- Sampled one classroom per school
- TIMSS sample was selected using the Chowdhury method to minimize overlap with the TIMSS USA sample and the Alpha and the Beta NAEP samples
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in Florida, United States, Fourth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
High poverty	37	1	36	0	0	0	0
Low poverty	17	0	17	0	0	0	0
Total	54	1	53	0	0	0	0

Eighth Grade

Coverage and Exclusions

- Coverage is 90.1 percent. Coverage in USA Florida is restricted to students from public schools.
- No school level exclusions
- Within-school exclusions consisted of students with intellectual disabilities, students with functional disabilities, and non-native language speakers

Sample Design

- Explicit stratification by poverty level (high, low)
- Implicit stratification by location (city, suburb, town, rural) and ethnicity status (above 15% non-White students in a school, below 15% non-White students in a school)
- Sampled one classroom per school
- TIMSS sample was selected using the Chowdhury method to minimize overlap with the TIMSS USA sample, the Alpha and the Beta NAEP samples.
- No overlap between Grade 4 and Grade 8 school samples

Allocation of School Sample in Florida, United States, Eighth Grade

Explicit Strata	Total Sampled Schools	Ineligible Schools	Participating Schools			Refusal Schools	Excluded Schools
			Original Schools	1st Replacements	2nd Replacements		
High poverty	36	0	35	0	0	1	0
Low poverty	18	0	18	0	0	0	0
Total	54	0	53	0	0	1	0