

Appendix **B**

**Predictors of School
Effectiveness in
Science**



Exhibit B.1

Predictors of School Effectiveness in Science, Eighth Grade*, Australia

Models of School Effectiveness														
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7							
Variance Decomposition														
Between Schools	23%													
Within Schools	77%													
Total	100%													
Percentage of Between School Variance Explained by Model	74%	74%	74%	74%	75%	75%	48%							
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.						
Intercept	76	0.25	2	0.76	27	0.75	25	0.76	13	0.92	32	0.80	548	0.00
Homework (3 Subjects)	48	0.00	5	0.00	49	0.00	48	0.00	38	0.01	37	0.01		
Homework (Amount Sci.)	-62	0.00	-65	0.00	-63	0.00	-63	0.00	-68	0.00	-62	0.01		
Attitude to Science	-1	0.96	-2	0.85	-2	0.89	-1	0.92	-8	0.58	-8	0.61		
Efficacy of Science Experiments	125	0.00	13	0.00	130	0.00	129	0.00	119	0.00	115	0.00		
	-5	0.61	-3	0.76	-2	0.81	-3	0.79	0	0.99	0	0.97		
Teaching Experience			-1	0.06	-1	0.06	-1	0.06	-1	0.11	-1	0.09		
Readiness to Teach Gen. Sci.			1	0.25	17	0.20	18	0.19	18	0.18	19	0.17		
Student Admin. Violations			-5	0.27	-5	0.27	-5	0.26	-4	0.38	-3	0.50		
Serious Student Misbehavior			4	0.44	4	0.44	5	0.43	3	0.64	3	0.63		
Urban Location							-2	0.72	0	0.92	-1	0.90		
Class Size							0	0.68	1	0.55	0	0.60		
Future Aspirations									10	0.22	7	0.39		
Self Press									-74	0.07	-77	0.06		
Mother's Press									95	0.02	100	0.02		
Home Background Index											16	0.45	100	0.00

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.2

Predictors of School Effectiveness in Science, Eighth Grade*, Austria

Models of School Effectiveness													
Variance Decomposition		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7					
Between Schools	22%	Classroom Characteristics	Model 1 with Teacher Characteristics	Model 2 with School Climate	Model 3 with School Location and Size	Model 4 with Home – School Interaction	Model 5 with Home Background Index	Home Background Index Only					
Within Schools	78%												
Total	100%												
Percentage of Between School Variance Explained by Model		33%	37%	36%	42%	51%	54%	46%					
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)													
Intercept		Coeff. 497	Prob. 0.00	Coeff. 392	Prob. 0.00	Coeff. 337	Prob. 0.01	Coeff. 229	Prob. 0.11	Coeff. 283	Prob. 0.05	Coeff. 569	Prob. 0.00
Homework (3 Subjects)		Coeff. 61	Prob. 0.02	Coeff. 67	Prob. 0.01	Coeff. 68	Prob. 0.01	Coeff. 55	Prob. 0.03	Coeff. 61	Prob. 0.01		
Homework (Amount Sci.)		Coeff. -58	Prob. 0.01	Coeff. -65	Prob. 0.01	Coeff. -63	Prob. 0.01	Coeff. -54	Prob. 0.02	Coeff. -57	Prob. 0.01		
Attitude to Science		Coeff. 31	Prob. 0.16	Coeff. 28	Prob. 0.20	Coeff. 27	Prob. 0.21	Coeff. 23	Prob. 0.27	Coeff. 28	Prob. 0.18	Coeff. 30	Prob. 0.14
Efficacy of Science Experiments		Coeff. -48	Prob. 0.05	Coeff. -35	Prob. 0.16	Coeff. -36	Prob. 0.16	Coeff. -32	Prob. 0.20	Coeff. -22	Prob. 0.37	Coeff. -22	Prob. 0.36
Teaching Experience		Coeff. 5	Prob. 0.63	Coeff. 4	Prob. 0.69	Coeff. 1	Prob. 0.93	Coeff. 6	Prob. 0.62	Coeff. 9	Prob. 0.45	Coeff. 6	Prob. 0.59
Readiness to Teach Gen. Sci.		Coeff. -2	Prob. 0.12	Coeff. -2	Prob. 0.11	Coeff. -2	Prob. 0.11	Coeff. -2	Prob. 0.04	Coeff. -1	Prob. 0.37	Coeff. -1	Prob. 0.50
Student Admin. Violations		Coeff. 38	Prob. 0.11	Coeff. 37	Prob. 0.13	Coeff. 41	Prob. 0.10	Coeff. 28	Prob. 0.25	Coeff. 25	Prob. 0.30		
Serious Student Misbehaviors		Coeff. 12	Prob. 0.37	Coeff. 6	Prob. 0.73	Coeff. 13	Prob. 0.44	Coeff. -6	Prob. 0.65	Coeff. -11	Prob. 0.38		
Urban Location		Coeff. 12	Prob. 0.37	Coeff. 6	Prob. 0.73	Coeff. 13	Prob. 0.44	Coeff. -6	Prob. 0.65	Coeff. -11	Prob. 0.38		
Class Size		Coeff. 12	Prob. 0.37	Coeff. 6	Prob. 0.73	Coeff. 13	Prob. 0.44	Coeff. -6	Prob. 0.65	Coeff. -11	Prob. 0.38		
Future Aspirations		Coeff. 25	Prob. 0.02	Coeff. 8	Prob. 0.52	Coeff. 18	Prob. 0.65	Coeff. 17	Prob. 0.66	Coeff. 17	Prob. 0.66		
Self Press		Coeff. 18	Prob. 0.65	Coeff. 17	Prob. 0.66	Coeff. 17	Prob. 0.66	Coeff. 17	Prob. 0.66	Coeff. 17	Prob. 0.66		
Mother's Press		Coeff. 1	Prob. 0.98	Coeff. 5	Prob. 0.92	Coeff. 5	Prob. 0.92	Coeff. 5	Prob. 0.92	Coeff. 5	Prob. 0.92		
Home Background Index		Coeff. 63	Prob. 0.06	Coeff. 96	Prob. 0.00	Coeff. 63	Prob. 0.06	Coeff. 96	Prob. 0.00	Coeff. 63	Prob. 0.06	Coeff. 96	Prob. 0.00

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.3

Predictors of School Effectiveness in Science, Eighth Grade*, Belgium (Flemish)

Models of School Effectiveness							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Variance Decomposition							
Between Schools	18%						
Within Schools	82%						
Total	100%						
Percentage of Between School Variance Explained by Model	40%	38%	42%	51%	68%	72%	46%
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)							
Intercept	197 0.02	198 0.02	233 0.01	174 0.05	262 0.02	284 0.01	560 0.00
Homework (3 Subjects)	49 0.02	47 0.02	40 0.05	35 0.08	7 0.71	7 0.71	
Homework (Amount Sci.)	-41 0.00	-40 0.00	-42 0.00	-36 0.00	-19 0.12	-11 0.36	
Attitude to Science	33 0.01	33 0.01	38 0.00	35 0.00	25 0.04	25 0.03	
Efficacy of Science	45 0.01	47 0.01	44 0.01	46 0.01	32 0.06	33 0.04	
Experiments	7 0.53	8 0.50	7 0.53	7 0.52	-4 0.72	-8 0.43	
Teaching Experience		0 0.43	0 0.38	0 0.16	0 0.47	0 0.27	
Readiness to Teach Gen. Sci.		-5 0.59	-3 0.71	0 0.98	7 0.36	8 0.29	
Student Admin. Violations			-5 0.55	-6 0.41	-5 0.45	-3 0.64	
Serious Student Misbehavior			-9 0.14	-3 0.65	3 0.62	1 0.91	
Urban Location				-1 0.88	-1 0.84	-4 0.28	
Class Size				3 0.00	2 0.01	1 0.08	
Future Aspirations					14 0.00	11 0.00	
Self Press					6 0.78	14 0.51	
Mother's Press					11 0.69	12 0.63	
Home Background Index						51 0.02	102 0.00

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

* Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.4

Predictors of School Effectiveness in Science, Eighth Grade*, Belgium (French)

Models of School Effectiveness														
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7							
Variance Decomposition														
Between Schools														
Within Schools														
Total	52%	54%	56%	64%	82%	85%	75%							
Classroom Characteristics		Model 1 with Teacher Characteristics	Model 2 with School Climate	Model 3 with School Location and Size	Model 4 with Home – School Interaction	Model 5 with Home Background Index	Home Background Index Only							
Percentage of Between School Variance Explained by Model	52%	54%	56%	64%	82%	85%	75%							
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)														
Intercept	256	0.00	221	0.01	190	0.05	168	0.08	31	0.76	159	0.16	477	0.00
Homework (3 Subjects)	71	0.00	70	0.00	77	0.00	66	0.00	33	0.06	24	0.17		
Homework (Amount Sci.)	-29	0.11	-27	0.13	-35	0.06	-36	0.04	-13	0.40	-15	0.34		
Attitude to Science	4	0.75	5	0.68	7	0.55	10	0.42	14	0.24	10	0.36		
Efficacy of Science Experiments	24	0.22	21	0.27	23	0.25	19	0.31	16	0.33	13	0.43		
	-10	0.15	-8	0.27	-6	0.43	-7	0.32	-4	0.55	-4	0.54		
Teaching Experience			0	0.50	0	0.62	0	0.77	0	0.19	0	0.38		
Readiness to Teach Gen. Sci.			16	0.11	15	0.14	13	0.19	11	0.22	11	0.21		
Student Admin. Violations					-8	0.08	-9	0.05	-6	0.09	-6	0.12		
Serious Student Misbehaviors					9	0.14	10	0.10	9	0.08	7	0.14		
Urban Location							-1	0.83	-2	0.71	0	0.91		
Class Size							3	0.03	2	0.10	2	0.15		
Future Aspirations									28	0.00	18	0.02		
Self Press									64	0.07	32	0.41		
Mother's Press									-7	0.86	2	0.96		
Home Background Index											39	0.07	102	0.00

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

* Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.5

Predictors of School Effectiveness in Science, Eighth Grade*, Canada

Models of School Effectiveness							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Variance Decomposition							
Between Schools	15%						
Within Schools	85%						
Total	100%						
Percentage of Between School Variance Explained by Model	27%	28%	30%	31%	35%	37%	30%
	Classroom Characteristics	Model 1 with Teacher Characteristics	Model 2 with School Climate	Model 3 with School Location and Size	Model 4 with Home – School Interaction	Model 5 with Home Background Index	Home Background Index Only
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)							
Intercept	Coeff. 411 Prob. 0.00	Coeff. 373 Prob. 0.00	Coeff. 395 Prob. 0.00	Coeff. 419 Prob. 0.00	Coeff. 334 Prob. 0.00	Coeff. 406 Prob. 0.00	Coeff. 533 Prob. 0.00
Homework (3 Subjects)	12 0.28	13 0.21	11 0.32	13 0.24	15 0.17	10 0.39	
Homework (Amount Sci.)	-25 0.11	-30 0.06	-30 0.06	-30 0.06	-24 0.14	-21 0.19	
Attitude to Science	8 0.45	8 0.43	8 0.42	6 0.54	18 0.09	18 0.09	
Efficacy of Science Experiments	32 0.02	37 0.01	36 0.01	36 0.01	35 0.02	24 0.13	
	-8 0.14	-5 0.35	-6 0.34	-6 0.27	-7 0.21	-7 0.22	
Teaching Experience		0 0.23	0 0.34	0 0.37	0 0.28	0 0.39	
Readiness to Teach Gen. Sci.		8 0.27	8 0.26	8 0.27	5 0.47	6 0.42	
Student Admin. Violations			0 0.91	0 0.89	-1 0.80	0 0.93	
Serious Student Misbehaviors			-8 0.10	-7 0.13	-5 0.29	-5 0.28	
Urban Location				-3 0.41	-3 0.33	-3 0.29	
Class Size				-1 0.29	0 0.49	-1 0.39	
Future Aspirations					-2 0.82	-5 0.53	
Self Press					82 0.00	72 0.01	
Mother's Press					-46 0.10	-42 0.14	
Home Background Index						29 0.05	42 0.00

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.6

Predictors of School Effectiveness in Science, Eighth Grade*, Czech Republic

Models of School Effectiveness							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Variance Decomposition							
Between Schools	12%						
Within Schools	88%						
Total	100%						
Percentage of Between School Variance Explained by Model	43%	44%	49%	51%	75%	75%	32%
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)							
Intercept	Coeff. 256 Prob. 0.02	Coeff. 326 Prob. 0.00	Coeff. 305 Prob. 0.01	Coeff. 324 Prob. 0.00	Coeff. 271 Prob. 0.03	Coeff. 269 Prob. 0.03	Coeff. 574 Prob. 0.00
Homework (3 Subjects)	Coeff. 19 Prob. 0.11	Coeff. 21 Prob. 0.07	Coeff. 17 Prob. 0.13	Coeff. 19 Prob. 0.09	Coeff. 18 Prob. 0.08	Coeff. 17 Prob. 0.10	
Homework (Amount Sci.)	Coeff. 35 Prob. 0.05	Coeff. 33 Prob. 0.06	Coeff. 34 Prob. 0.05	Coeff. 30 Prob. 0.09	Coeff. 11 Prob. 0.48	Coeff. 12 Prob. 0.44	
Attitude to Science	Coeff. -14 Prob. 0.40	Coeff. -12 Prob. 0.46	Coeff. -6 Prob. 0.72	Coeff. -6 Prob. 0.70	Coeff. 8 Prob. 0.61	Coeff. 6 Prob. 0.67	
Efficacy of Science Experiments	Coeff. 52 Prob. 0.00	Coeff. 51 Prob. 0.00	Coeff. 50 Prob. 0.00	Coeff. 48 Prob. 0.00	Coeff. 31 Prob. 0.03	Coeff. 32 Prob. 0.02	
	Coeff. 33 Prob. 0.12	Coeff. 28 Prob. 0.20	Coeff. 40 Prob. 0.06	Coeff. 25 Prob. 0.26	Coeff. -2 Prob. 0.93	Coeff. -3 Prob. 0.89	
Teaching Experience		Coeff. 0 Prob. 0.96	Coeff. 0 Prob. 0.68	Coeff. 0 Prob. 0.69	Coeff. 0 Prob. 0.62	Coeff. 0 Prob. 0.73	
Readiness to Teach Gen. Sci.		Coeff. -24 Prob. 0.08	Coeff. -26 Prob. 0.05	Coeff. -23 Prob. 0.08	Coeff. -13 Prob. 0.25	Coeff. -14 Prob. 0.23	
Student Admin. Violations			Coeff. -8 Prob. 0.14	Coeff. -8 Prob. 0.13	Coeff. -1 Prob. 0.87	Coeff. 0 Prob. 0.97	
Serious Student Misbehaviors			Coeff. -8 Prob. 0.17	Coeff. -8 Prob. 0.17	Coeff. -10 Prob. 0.05	Coeff. -11 Prob. 0.05	
Urban Location				Coeff. 0 Prob. 1.00	Coeff. 0 Prob. 0.96	Coeff. 1 Prob. 0.85	
Class Size				Coeff. 1 Prob. 0.01	Coeff. 1 Prob. 0.03	Coeff. 1 Prob. 0.03	
Future Aspirations					Coeff. 19 Prob. 0.00	Coeff. 20 Prob. 0.00	
Self Press					Coeff. 42 Prob. 0.08	Coeff. 45 Prob. 0.06	
Mother's Press					Coeff. 13 Prob. 0.61	Coeff. 9 Prob. 0.72	
Home Background Index						Coeff. -11 Prob. 0.41	Coeff. 50 Prob. 0.00

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.7

Predictors of School Effectiveness in Science, Eighth Grade*, France

Models of School Effectiveness							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	Classroom Characteristics	Model 1 with Teacher Characteristics	Model 2 with School Climate	Model 3 with School Location and Size	Model 4 with Home – School Interaction	Model 5 with Home Background Index	Home Background Index Only
Variance Decomposition							
Between Schools	15%						
Within Schools	85%						
Total	100%						
Percentage of Between School Variance Explained by Model	38%	43%	48%	50%	60%	60%	31%
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)							
Intercept	Coeff. 314 Prob. 0.00	Coeff. 336 Prob. 0.00	Coeff. 345 Prob. 0.00	Coeff. 335 Prob. 0.00	Coeff. 412 Prob. 0.00	Coeff. 435 Prob. 0.00	Coeff. 498 Prob. 0.00
Homework (3 Subjects)							
Homework (Amount Sci.)	47 0.00	49 0.00	45 0.00	45 0.00	24 0.09	24 0.09	
Attitude to Science	-21 0.27	-27 0.15	-21 0.25	-26 0.17	-18 0.32	-20 0.27	
Efficacy of Science	12 0.33	8 0.53	12 0.31	11 0.38	3 0.82	1 0.90	
Experiments	21 0.17	20 0.19	11 0.45	12 0.42	1 0.96	1 0.96	
	-9 0.12	-9 0.11	-6 0.30	-6 0.26	-6 0.29	-5 0.31	
Teaching Experience							
Readiness to Teach Gen. Sci.	1 0.04	1 0.04	1 0.12	1 0.08	1 0.11	1 0.08	
	-9 0.31	-9 0.31	-7 0.40	-9 0.30	-5 0.58	-4 0.62	
Student Admin. Violations							
Serious Student Misbehaviors	-12 0.01	-12 0.01	-12 0.01	-12 0.02	-14 0.00	-13 0.01	
	11 0.09	11 0.09	11 0.09	11 0.11	11 0.08	11 0.08	
Urban Location							
Class Size	-5 0.20	-5 0.20	-5 0.20	-5 0.20	-5 0.14	-6 0.09	
	1 0.19	1 0.19	1 0.19	1 0.19	1 0.26	1 0.39	
Future Aspirations							
Self Press	13 0.00	13 0.00	13 0.00	13 0.00	10 0.04	10 0.04	
Mother's Press	-21 0.35	-21 0.35	-21 0.35	-21 0.35	-24 0.29	-24 0.29	
	1 0.98	1 0.98	1 0.98	1 0.98	3 0.91	3 0.91	
Home Background Index							
	17 0.34	17 0.34	17 0.34	17 0.34	54 0.00	54 0.00	

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.8

Predictors of School Effectiveness in Science, Eighth Grade*, Hong Kong

Models of School Effectiveness							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Variance Decomposition							
Between Schools	30%						
Within Schools	70%						
Total	100%						
Percentage of Between School Variance Explained by Model	65%	64%	65%	66%	68%	75%	44%
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)							
Intercept	Coeff. 330 Prob. 0.01	Coeff. 343 Prob. 0.01	Coeff. 349 Prob. 0.01	Coeff. 255 Prob. 0.06	Coeff. 394 Prob. 0.03	Coeff. 390 Prob. 0.02	Coeff. 522 Prob. 0.00
Homework (3 Subjects)	Coeff. 88 Prob. 0.00	Coeff. 87 Prob. 0.00	Coeff. 77 Prob. 0.00	Coeff. 71 Prob. 0.00	Coeff. 41 Prob. 0.09	Coeff. 46 Prob. 0.03	
Homework (Amount Sci.)	Coeff. -33 Prob. 0.37	Coeff. -33 Prob. 0.38	Coeff. -28 Prob. 0.44	Coeff. -19 Prob. 0.60	Coeff. -12 Prob. 0.74	Coeff. -36 Prob. 0.29	
Attitude to Science	Coeff. 24 Prob. 0.23	Coeff. 27 Prob. 0.19	Coeff. 29 Prob. 0.15	Coeff. 22 Prob. 0.27	Coeff. 20 Prob. 0.33	Coeff. 20 Prob. 0.30	
Efficacy of Science Experiments	Coeff. -7 Prob. 0.84	Coeff. -11 Prob. 0.77	Coeff. -1 Prob. 0.98	Coeff. 7 Prob. 0.85	Coeff. 7 Prob. 0.86	Coeff. -4 Prob. 0.90	
	Coeff. -31 Prob. 0.01	Coeff. -32 Prob. 0.01	Coeff. -29 Prob. 0.02	Coeff. -26 Prob. 0.04	Coeff. -21 Prob. 0.10	Coeff. -21 Prob. 0.07	
Teaching Experience	Coeff. 0 Prob. 0.41	Coeff. 0 Prob. 0.41	Coeff. 0 Prob. 0.58	Coeff. 0 Prob. 0.68	Coeff. 0 Prob. 0.93	Coeff. 0 Prob. 0.70	
Readiness to Teach Gen. Sci.	Coeff. -4 Prob. 0.65	Coeff. -4 Prob. 0.65	Coeff. -7 Prob. 0.48	Coeff. -3 Prob. 0.73	Coeff. -7 Prob. 0.48	Coeff. 0 Prob. 1.00	
Student Admin. Violations	Coeff. -3 Prob. 0.57	Coeff. -3 Prob. 0.57	Coeff. -3 Prob. 0.57	Coeff. -2 Prob. 0.64	Coeff. -3 Prob. 0.53	Coeff. -2 Prob. 0.66	
Serious Student Misbehaviors	Coeff. -7 Prob. 0.41	Coeff. -7 Prob. 0.41	Coeff. -7 Prob. 0.41	Coeff. -8 Prob. 0.31	Coeff. -7 Prob. 0.40	Coeff. -6 Prob. 0.45	
Urban Location	Coeff. 6 Prob. 0.36	Coeff. 6 Prob. 0.36	Coeff. 6 Prob. 0.36	Coeff. 6 Prob. 0.36	Coeff. 9 Prob. 0.20	Coeff. 5 Prob. 0.42	
Class Size	Coeff. 2 Prob. 0.14	Coeff. 2 Prob. 0.14	Coeff. 2 Prob. 0.14	Coeff. 2 Prob. 0.14	Coeff. 1 Prob. 0.42	Coeff. 1 Prob. 0.44	
Future Aspirations	Coeff. 11 Prob. 0.30	Coeff. 11 Prob. 0.30	Coeff. 11 Prob. 0.30	Coeff. 11 Prob. 0.30	Coeff. 11 Prob. 0.30	Coeff. 9 Prob. 0.34	
Self Press	Coeff. -36 Prob. 0.46	Coeff. -36 Prob. 0.46	Coeff. -36 Prob. 0.46	Coeff. -36 Prob. 0.46	Coeff. -36 Prob. 0.46	Coeff. -13 Prob. 0.77	
Mother's Press	Coeff. -24 Prob. 0.57	Coeff. -24 Prob. 0.57	Coeff. -24 Prob. 0.57	Coeff. -24 Prob. 0.57	Coeff. -24 Prob. 0.57	Coeff. -16 Prob. 0.66	
Home Background Index	Coeff. 62 Prob. 0.00	Coeff. 62 Prob. 0.00	Coeff. 62 Prob. 0.00	Coeff. 62 Prob. 0.00	Coeff. 62 Prob. 0.00	Coeff. 133 Prob. 0.00	

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.9

Predictors of School Effectiveness in Science, Eighth Grade*, Ireland

Models of School Effectiveness														
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7							
Variance Decomposition														
Between Schools	36%													
Within Schools	64%													
Total	100%													
Percentage of Between School Variance Explained by Model	61%	61%	61%	61%	67%	72%	49%							
Model 1	Classroom Characteristics	Model 2	Model 1 with Teacher Characteristics	Model 3	Model 2 with School Climate	Model 4	Model 3 with School Location and Size							
Model 5	Model 4 with Home - School Interaction	Model 6	Model 5 with Home Background Index	Model 7	Home Background Index Only									
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.						
Intercept	99	0.21	184	0.08	197	0.06	174	0.11	161	0.22	220	0.08	537	0.00
Homework (3 Subjects)	113	0.00	108	0.00	107	0.00	102	0.00	75	0.00	63	0.00		
Homework (Amount Sci.)	-28	0.40	-25	0.46	-28	0.41	-24	0.48	-5	0.89	-19	0.55		
Attitude to Science	22	0.11	24	0.08	23	0.11	24	0.10	22	0.13	33	0.02		
Efficacy of Science Experiments	31	0.17	30	0.19	33	0.15	33	0.15	15	0.52	3	0.91		
	-6	0.36	-7	0.32	-6	0.40	-5	0.44	-2	0.76	2	0.75		
Teaching Experience			0	0.90	0	0.95	0	0.97	0	0.50	0	0.49		
Readiness to Teach Gen. Sci.			-27	0.20	-27	0.19	-30	0.16	-33	0.11	-20	0.31		
Student Admin. Violations					-4	0.41	-4	0.41	-1	0.85	-1	0.80		
Serious Student Misbehaviors					-3	0.77	-2	0.80	1	0.86	-3	0.76		
Urban Location							1	0.79	-2	0.72	-4	0.34		
Class Size							1	0.35	0	0.81	-2	0.20		
Future Aspirations									24	0.00	18	0.01		
Self Press									27	0.46	34	0.34		
Mother's Press									12	0.78	23	0.56		
Home Background Index											75	0.00	135	0.00

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.10

Predictors of School Effectiveness in Science, Eighth Grade*, New Zealand

Models of School Effectiveness							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Variance Decomposition							
Between Schools	35%						
Within Schools	65%						
Total	100%						
Percentage of Between School Variance Explained by Model	56%	55%	55%	56%	68%	72%	58%
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)							
Intercept	142	108	127	113	58	168	526
	0.05	0.26	0.20	0.25	0.58	0.11	0.00
Homework (3 Subjects)	71	72	73	72	40	32	
	0.00	0.00	0.00	0.00	0.01	0.02	
Homework (Amount Sci.)	-102	-101	-106	-100	-67	-63	
	0.00	0.00	0.00	0.00	0.01	0.01	
Attitude to Science	4	5	5	6	8	6	
	0.75	0.72	0.73	0.63	0.50	0.59	
Efficacy of Science Experiments	82	84	83	80	55	34	
	0.00	0.00	0.00	0.00	0.00	0.07	
	-9	-7	-6	-7	1	-1	
	0.43	0.53	0.57	0.52	0.92	0.93	
Teaching Experience		0	0	0	0	0	
		0.78	0.93	0.83	0.99	0.85	
Readiness to Teach Gen. Sci.		9	7	4	-2	6	
		0.57	0.64	0.78	0.87	0.65	
Student Admin. Violations			-7	-6	-5	-2	
			0.15	0.19	0.21	0.54	
Serious Student Misbehaviors			4	3	9	10	
			0.52	0.60	0.11	0.07	
Urban Location				-8	-9	-8	
				0.08	0.04	0.03	
Class Size				2	1	1	
				0.07	0.23	0.40	
Future Aspirations				32	0.00	24	
				0.00	0.00	0.00	
Self Press				-1	0.97	-12	
				0.97	0.67	0.67	
Mother's Press				43	0.23	49	
				0.23	0.15	0.15	
Home Background Index				64	0.00	126	
				0.00	0.00	0.00	

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.11 Predictors of School Effectiveness in Science, Eighth Grade*, Singapore

Models of School Effectiveness														
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7							
Variance Decomposition	Classroom Characteristics	Model 1 with Teacher Characteristics	Model 2 with School Climate	Model 3 with School Location and Size	Model 4 with Home – School Interaction	Model 5 with Home Background Index	Model 7							
Between Schools	41%						Home Background Index Only							
Within Schools	59%													
Total	100%													
Percentage of Between School Variance Explained by Model	64%	63%	66%	66%	82%	83%	62%							
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.						
Intercept	-67	0.49	-52	0.60	5	0.96	-59	0.60	-132	0.30	-74	0.55	602	0.00
Homework (3 Subjects)	111	0.00	110	0.00	101	0.00	99	0.00	65	0.01	53	0.02		
Homework (Amount Sci.)	-90	0.00	-90	0.00	-79	0.00	-78	0.00	-64	0.00	-53	0.00		
Attitude to Science	36	0.06	35	0.08	38	0.05	37	0.06	34	0.03	36	0.02		
Efficacy of Science Experiments	130	0.00	133	0.00	126	0.00	132	0.00	52	0.01	50	0.02		
	-42	0.00	-41	0.00	-37	0.00	-37	0.00	-24	0.02	-20	0.05		
Teaching Experience		0	0.97	0	0.71	0	0.68	0	0.72	0	0.63			
Readiness to Teach Gen. Sci.		-9	0.40	-15	0.15	-13	0.19	-13	0.19	-5	0.52	-6	0.47	
Student Admin. Violations				-11	0.02	-9	0.04	-9	0.04	-3	0.35	-3	0.42	
Serious Student Misbehaviors				-1	0.94	-1	0.90	-1	0.90	-2	0.83	0	0.96	
Urban Location				11	0.16	2	0.75	3	0.65					
Class Size				0	0.73	0	0.69	1	0.46					
Future Aspirations				66	0.00	53	0.00							
Self Press				38	0.39	28	0.52							
Mother's Press				9	0.82	26	0.51							
Home Background Index				44	0.01	162	0.00							

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.12

Predictors of School Effectiveness in Science, Eighth Grade*, Slovak Republic

Models of School Effectiveness														
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7							
Variance Decomposition														
Between Schools	15%													
Within Schools	85%													
Total	100%													
Percentage of Between School Variance Explained by Model	39%	38%	37%	38%	48%	47%	32%							
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)														
Intercept	177	0.22	225	0.13	202	0.19	170	0.28	90	0.60	107	0.54	537	0.00
Homework (3 Subjects)	33	0.09	34	0.07	39	0.06	47	0.02	38	0.07	38	0.07		
Homework (Amount Sci.)	-6	0.76	-2	0.94	-4	0.82	-1	0.97	2	0.91	1	0.95		
Attitude to Science	-7	0.77	-7	0.77	-6	0.80	-3	0.90	-1	0.95	1	0.98		
Efficacy of Science Experiments	51	0.02	47	0.02	49	0.02	43	0.04	32	0.11	33	0.11		
	36	0.09	32	0.14	29	0.19	24	0.29	24	0.26	22	0.32		
Teaching Experience			0	0.31	0	0.37	0	0.34	0	0.64	0	0.70		
Readiness to Teach Gen. Sci.			-12	0.36	-10	0.48	-12	0.40	-3	0.81	-3	0.81		
Student Admin. Violations			7	0.46	7	0.46	6	0.54	7	0.45	7	0.44		
Serious Student Misbehaviors			0	0.98	0	0.98	1	0.91	-1	0.91	-2	0.84		
Urban Location			1	0.86	1	0.86	1	0.86	-3	0.59	-3	0.51		
Class Size			2	0.09	2	0.09	2	0.09	1	0.42	1	0.44		
Future Aspirations			18	0.00	18	0.00	18	0.00	16	0.01	16	0.01		
Self Press			19	0.62	19	0.62	18	0.63	18	0.63	18	0.63		
Mother's Press			20	0.63	20	0.63	17	0.68	17	0.68	17	0.68		
Home Background Index			11	0.59	11	0.59	38	0.02						

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.13 Predictors of School Effectiveness in Science, Eighth Grade*, Sweden

Models of School Effectiveness														
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7							
Variance Decomposition														
Between Schools	11%													
Within Schools	89%													
Total	100%													
Percentage of Between School Variance Explained by Model	53%	54%	52%	52%	62%	68%	54%							
Model 1	Classroom Characteristics	Model 2	Model 1 with Teacher Characteristics	Model 3	Model 4	Model 5	Model 6							
Model 2	Model 1 with Teacher Characteristics	Model 3	Model 2 with School Climate	Model 4	Model 5	Model 6	Model 7							
Model 3	Model 2 with School Climate	Model 4	Model 3 with School Location and Size	Model 5	Model 6	Model 7	Home Background Index Only							
Model 4	Model 3 with School Location and Size	Model 5	Model 4 with Home – School Interaction	Model 6	Model 7	Home Background Index Only								
Model 5	Model 4 with Home – School Interaction	Model 6	Model 5 with Home Background Index	Model 7										
Model 6	Model 5 with Home Background Index													
Model 7	Home Background Index Only													
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.						
Intercept	191	0.01	214	0.01	212	0.01	198	0.02	120	0.25	174	0.09	537	0.00
Homework (3 Subjects)	41	0.03	44	0.02	43	0.04	45	0.03	42	0.03	32	0.09		
Homework (Amount Sci.)	-34	0.12	-33	0.13	-34	0.13	-30	0.19	-40	0.09	-28	0.22		
Attitude to Science	34	0.05	30	0.08	31	0.09	25	0.18	21	0.28	19	0.30		
Efficacy of Science Experiments	40	0.04	42	0.03	42	0.04	43	0.03	43	0.03	29	0.13		
	8	0.26	8	0.29	8	0.30	7	0.38	9	0.18	10	0.14		
Teaching Experience			0	0.57	0	0.58	0	0.54	0	0.42	0	0.53		
Readiness to Teach Gen. Sci.			-11	0.24	-11	0.25	-10	0.27	-13	0.13	-9	0.27		
Student Admin. Violations					-1	0.90	0	1.00	1	0.85	2	0.60		
Serious Student Misbehaviors					1	0.85	0	0.99	-1	0.84	-3	0.62		
Urban Location					3	0.39	-1	0.89	-1	0.89	-1	0.76		
Class Size					1	0.54	0	0.88	0	0.88	0	0.78		
Future Aspirations					20	0.00	17	0.00	20	0.00	17	0.00		
Self Press					34	0.21	28	0.27	34	0.21	28	0.27		
Mother's Press					-6	0.83	8	0.78	-6	0.83	8	0.78		
Home Background Index					41	0.00	68	0.00	41	0.00	68	0.00		

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

Exhibit B.14 Predictors of School Effectiveness in Science, Eighth Grade*, United States

Models of School Effectiveness							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Variance Decomposition							
Between Schools	34%						
Within Schools	66%						
Total	100%						
Percentage of Between School Variance Explained by Model	73%	73%	73%	74%	76%	78%	66%
Regression Coefficient Estimates (With Probabilities Indicating Significance Levels)							
Intercept	Coeff. 158 Prob. 0.01	Coeff. 151 Prob. 0.02	Coeff. 154 Prob. 0.02	Coeff. 211 Prob. 0.00	Coeff. 156 Prob. 0.17	Coeff. 273 Prob. 0.02	Coeff. 535 Prob. 0.00
Homework (3 Subjects)	Coeff. 53 Prob. 0.00	Coeff. 53 Prob. 0.00	Coeff. 52 Prob. 0.00	Coeff. 58 Prob. 0.00	Coeff. 51 Prob. 0.00	Coeff. 33 Prob. 0.02	
Homework (Amount Sci.)	Coeff. -89 Prob. 0.00	Coeff. -91 Prob. 0.00	Coeff. -90 Prob. 0.00	Coeff. -89 Prob. 0.00	Coeff. -83 Prob. 0.00	Coeff. -71 Prob. 0.00	
Attitude to Science	Coeff. -14 Prob. 0.21	Coeff. -11 Prob. 0.35	Coeff. -10 Prob. 0.39	Coeff. -11 Prob. 0.32	Coeff. -1 Prob. 0.92	Coeff. 3 Prob. 0.82	
Efficacy of Science Experiments	Coeff. 104 Prob. 0.00	Coeff. 101 Prob. 0.00	Coeff. 101 Prob. 0.00	Coeff. 92 Prob. 0.00	Coeff. 81 Prob. 0.00	Coeff. 60 Prob. 0.01	
	Coeff. -4 Prob. 0.50	Coeff. -2 Prob. 0.73	Coeff. -3 Prob. 0.67	Coeff. -3 Prob. 0.67	Coeff. -1 Prob. 0.92	Coeff. -2 Prob. 0.83	
Teaching Experience	Coeff. 1 Prob. 0.16	Coeff. 1 Prob. 0.16	Coeff. 1 Prob. 0.16	Coeff. 0 Prob. 0.20	Coeff. 0 Prob. 0.17	Coeff. 0 Prob. 0.27	
Readiness to Teach Gen. Sci.	Coeff. -2 Prob. 0.87	Coeff. -1 Prob. 0.91	Coeff. -1 Prob. 0.91	Coeff. -3 Prob. 0.79	Coeff. -4 Prob. 0.67	Coeff. -4 Prob. 0.68	
Student Admin. Violations			Coeff. 1 Prob. 0.83	Coeff. 3 Prob. 0.55	Coeff. 3 Prob. 0.59	Coeff. 4 Prob. 0.40	
Serious Student Misbehaviors			Coeff. -2 Prob. 0.69	Coeff. -1 Prob. 0.82	Coeff. 0 Prob. 0.95	Coeff. -3 Prob. 0.64	
Urban Location				Coeff. -8 Prob. 0.03	Coeff. -8 Prob. 0.04	Coeff. -9 Prob. 0.02	
Class Size				Coeff. -1 Prob. 0.37	Coeff. 0 Prob. 0.46	Coeff. 0 Prob. 0.43	
Future Aspirations					Coeff. 11 Prob. 0.04	Coeff. 10 Prob. 0.06	
Self Press					Coeff. 58 Prob. 0.07	Coeff. 46 Prob. 0.15	
Mother's Press					Coeff. -47 Prob. 0.20	Coeff. -38 Prob. 0.28	
Home Background Index						Coeff. 36 Prob. 0.01	Coeff. 82 Prob. 0.00

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

*Eighth grade in most countries; see Exhibit 1 for information about the grades tested in each country.

