

# Chapter 8

## School Contexts for Learning and Instruction

Chapter 8 presents findings about the school contexts for learning and instruction in science, including school characteristics, policies, and practices. Information is presented about the economic status of the student body, the extent of school resources in each country, the school climate, attendance problems, and school safety.

### What Are the Schools' Demographic Characteristics?

Exhibit 8.1 presents principals' reports about the economic background of the students in their schools. Internationally, about one-fifth of the eighth grade students (22%), on average, attended schools with few students (less than 10 percent) from economically disadvantaged homes, 26 percent attended schools with 11 to 25 percent disadvantaged students, 21 percent attended schools with 26 to 50 percent economically disadvantaged students, and 31 percent attended schools with more than 50 percent economically disadvantaged students. There was considerable variation across countries, however. In some countries more than half the students (52 to 85%) attended schools where the majority of the students came from disadvantaged homes, including Chile, Ghana, Indonesia, Lebanon, Malaysia, Morocco, the Palestinian National Authority, the Philippines, South Africa, and Tunisia.

At the fourth grade across the participating countries, 34 percent of the students, on average, attended schools with few students (less 10 percent) from economically disadvantaged homes, 25 percent attended schools with 11 to 25 percent disadvantaged students, 18 percent attended schools with 26 to 50 percent economically disadvantaged students, and 24 percent attended schools with more than 50 percent economically disadvantaged students. Among the countries participating at the fourth grade, 75 percent of the students in Morocco attended schools where the majority of the students came from disadvantaged homes, but it was the only one where more than half the students attended such schools.

At the eighth grade, on average, internationally, science achievement for students in schools with few students from economically disadvantaged homes was 51 scale-score points greater than that for students attending schools with more than half their student population from disadvantaged homes (500 vs. 449). At the fourth grade, this difference also was substantial – 43 points (505 vs. 462).

Exhibit 8.1: Principals' Reports on the Percentages of Students in Their Schools Coming from Economically Disadvantaged Homes



Countries	Schools with Few (0-10%) Economically Disadvantaged Students		Schools with 11-25% Economically Disadvantaged Students		Schools with 26-50% Economically Disadvantaged Students		Schools with More than 50% Economically Disadvantaged Students	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Armenia	r 3 (1.6)	435 (27.9)	21 (3.6)	459 (7.0)	29 (4.3)	465 (7.7)	47 (4.8)	459 (5.0)
Australia	32 (4.6)	544 (7.0)	35 (4.2)	539 (7.2)	23 (3.3)	508 (8.4)	9 (2.3)	497 (9.2)
Bahrain	16 (0.1)	454 (3.3)	20 (0.1)	434 (3.6)	33 (0.2)	444 (2.7)	31 (0.2)	424 (3.9)
Belgium (Flemish)	53 (3.7)	533 (3.4)	36 (3.9)	508 (4.6)	7 (2.2)	485 (22.4)	4 (1.7)	401 (25.5)
Botswana	15 (3.6)	385 (14.1)	22 (3.6)	373 (7.3)	25 (3.9)	362 (4.7)	38 (4.6)	351 (3.5)
Bulgaria	20 (3.3)	497 (13.5)	25 (4.2)	473 (13.3)	25 (3.6)	471 (9.8)	30 (3.9)	485 (7.8)
Chile	19 (2.7)	467 (9.3)	12 (2.2)	429 (8.1)	17 (3.1)	417 (6.9)	52 (3.7)	386 (3.7)
Chinese Taipei	67 (3.5)	579 (3.9)	25 (3.5)	565 (6.1)	5 (1.8)	561 (10.3)	3 (1.5)	483 (13.3)
Cyprus	38 (0.3)	453 (3.3)	35 (0.3)	439 (3.3)	15 (0.2)	427 (4.6)	11 (0.3)	431 (4.9)
Egypt	11 (2.5)	457 (13.4)	24 (3.7)	428 (8.9)	23 (3.5)	405 (7.4)	42 (3.8)	408 (6.4)
Estonia	13 (3.1)	572 (8.6)	45 (4.5)	554 (3.9)	25 (3.7)	545 (4.9)	18 (2.7)	538 (5.9)
Ghana	4 (1.6)	272 (24.7)	8 (2.5)	293 (19.1)	18 (3.5)	268 (12.2)	71 (4.3)	242 (7.4)
Hong Kong, SAR	14 (3.5)	576 (6.3)	27 (4.0)	552 (10.0)	24 (3.9)	555 (7.7)	35 (4.6)	544 (7.3)
Hungary	15 (3.0)	570 (7.6)	23 (3.3)	555 (5.8)	35 (4.3)	540 (4.5)	27 (3.9)	518 (6.8)
Indonesia	5 (1.9)	496 (23.1)	17 (3.5)	432 (9.0)	24 (3.5)	428 (8.4)	54 (4.1)	407 (6.2)
Iran, Islamic Rep. of	15 (2.6)	491 (5.3)	12 (2.2)	467 (7.1)	25 (3.5)	449 (5.4)	49 (4.1)	439 (3.3)
Israel	15 (3.1)	524 (5.8)	35 (3.8)	503 (6.1)	26 (4.1)	479 (8.1)	25 (3.3)	464 (6.0)
Italy	45 (3.4)	504 (3.2)	33 (3.8)	487 (6.8)	13 (2.4)	476 (9.2)	10 (2.2)	465 (9.0)
Japan	72 (3.6)	556 (2.1)	23 (3.3)	545 (3.4)	4 (1.7)	538 (7.4)	1 (0.0)	~ ~
Jordan	14 (3.2)	499 (12.5)	22 (4.2)	474 (7.8)	24 (3.5)	476 (5.8)	40 (4.5)	468 (6.4)
Korea, Rep. of	34 (3.7)	570 (2.7)	40 (4.1)	558 (2.5)	16 (3.0)	546 (3.1)	10 (2.5)	539 (4.6)
Latvia	22 (4.1)	526 (4.2)	44 (4.6)	515 (4.0)	18 (3.3)	498 (5.4)	16 (3.5)	497 (7.4)
Lebanon	8 (2.6)	374 (20.9)	17 (3.2)	422 (11.5)	15 (2.7)	417 (10.7)	61 (4.0)	383 (6.4)
Lithuania	r 20 (4.1)	538 (6.8)	41 (4.9)	521 (3.7)	31 (4.4)	508 (3.6)	8 (2.5)	502 (11.0)
Macedonia, Rep. of	11 (2.6)	477 (14.3)	19 (3.5)	465 (14.2)	35 (4.6)	448 (6.4)	36 (4.5)	431 (8.0)
Malaysia	8 (2.3)	538 (16.7)	12 (2.8)	515 (12.8)	17 (3.3)	515 (10.3)	64 (4.0)	505 (4.0)
Moldova, Rep. of	r 7 (2.4)	461 (14.2)	16 (3.7)	466 (7.9)	35 (4.4)	481 (5.4)	42 (4.8)	468 (8.2)
Morocco	s 0 (0.0)	~ ~	5 (2.2)	387 (9.4)	16 (4.1)	393 (6.5)	79 (4.6)	397 (3.3)
Netherlands	60 (4.6)	556 (4.8)	26 (4.0)	515 (6.3)	10 (2.6)	499 (9.4)	5 (2.3)	465 (18.9)
New Zealand	36 (4.2)	547 (7.7)	30 (5.6)	525 (7.1)	16 (3.2)	496 (14.8)	18 (2.3)	480 (10.8)
Norway	--	--	--	--	--	--	--	--
Palestinian Nat'l Auth.	6 (2.0)	457 (18.7)	11 (2.6)	437 (11.4)	28 (3.8)	444 (5.1)	55 (3.7)	428 (5.5)
Philippines	9 (2.7)	378 (24.3)	16 (2.6)	411 (16.2)	22 (3.9)	385 (10.9)	53 (4.4)	360 (8.1)
Romania	11 (2.9)	505 (13.6)	18 (3.2)	489 (11.6)	21 (3.0)	459 (9.1)	50 (4.2)	460 (6.7)
Russian Federation	19 (2.9)	529 (8.2)	36 (3.0)	513 (4.1)	24 (2.8)	511 (7.0)	20 (2.9)	503 (5.6)
Saudi Arabia	19 (3.7)	406 (6.3)	28 (4.3)	403 (7.2)	29 (5.3)	392 (7.8)	24 (3.9)	386 (10.1)
Scotland	s 28 (4.7)	539 (8.2)	44 (5.6)	526 (7.1)	23 (4.7)	487 (10.2)	6 (2.7)	468 (12.1)
Serbia	10 (2.2)	486 (9.3)	28 (4.0)	469 (5.0)	23 (4.0)	460 (6.7)	39 (4.2)	464 (4.1)
Singapore	57 (0.0)	592 (5.8)	28 (0.0)	568 (8.9)	10 (0.0)	530 (19.0)	5 (0.0)	545 (18.5)
Slovak Republic	16 (2.9)	539 (8.6)	43 (4.8)	518 (4.9)	25 (3.3)	505 (5.4)	16 (3.6)	501 (8.6)
Slovenia	23 (4.0)	524 (4.6)	43 (4.6)	523 (2.7)	23 (4.1)	517 (3.7)	11 (2.7)	512 (5.3)
South Africa	3 (1.3)	479 (51.8)	2 (1.0)	~ ~	9 (2.4)	342 (30.2)	85 (2.8)	211 (4.8)
Sweden	r 47 (4.0)	540 (4.3)	32 (4.1)	519 (5.4)	19 (3.8)	507 (6.7)	2 (1.1)	~ ~
Tunisia	10 (2.6)	429 (8.2)	15 (2.7)	418 (3.9)	17 (2.9)	400 (4.0)	59 (4.2)	395 (2.2)
United States	r 28 (2.9)	563 (5.8)	23 (3.1)	550 (6.1)	25 (3.1)	522 (4.6)	24 (2.8)	482 (5.1)
‡ England	s 32 (5.3)	576 (12.4)	33 (6.0)	551 (10.3)	22 (6.2)	535 (14.6)	13 (4.2)	505 (6.4)
<b>International Avg.</b>	<b>22 (0.5)</b>	<b>500 (2.2)</b>	<b>26 (0.5)</b>	<b>484 (1.3)</b>	<b>21 (0.5)</b>	<b>469 (1.5)</b>	<b>31 (0.5)</b>	<b>449 (1.4)</b>
<b>Benchmarking Participants</b>								
Basque Country, Spain	65 (4.9)	493 (3.4)	20 (3.8)	490 (6.5)	9 (3.1)	472 (12.3)	7 (2.4)	480 (8.4)
Indiana State, US	9 (4.3)	562 (11.6)	38 (7.5)	559 (6.2)	36 (6.7)	510 (7.5)	17 (4.9)	499 (11.6)
Ontario Province, Can.	41 (4.7)	542 (2.9)	29 (4.5)	529 (4.7)	14 (3.5)	532 (7.3)	16 (3.3)	513 (9.6)
Quebec Province, Can.	44 (4.7)	545 (5.7)	30 (4.9)	529 (5.6)	15 (3.0)	519 (7.3)	11 (2.5)	505 (10.0)

Background data provided by schools.

‡ Did not satisfy guidelines for sample participation rates (see Exhibit A.9).

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates comparable data are not available. A tilde (~) indicates insufficient data to report achievement.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.

Exhibit 8.1: Principals' Reports on the Percentages of Students in Their Schools Coming from Economically Disadvantaged Homes

Countries	Schools with Few (0-10%) Economically Disadvantaged Students		Schools with 11-25% Economically Disadvantaged Students		Schools with 26-50% Economically Disadvantaged Students		Schools with More than 50% Economically Disadvantaged Students		
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Armenia	r 4 (1.7)	432 (30.7)	21 (3.5)	433 (9.1)	28 (4.1)	433 (9.9)	48 (4.6)	435 (7.2)	
Australia	34 (4.4)	542 (5.3)	30 (4.0)	520 (5.5)	21 (3.6)	510 (6.2)	15 (4.0)	473 (17.7)	
Belgium (Flemish)	59 (4.4)	525 (2.2)	27 (4.0)	518 (2.7)	7 (2.1)	497 (5.4)	7 (2.7)	487 (12.6)	
Chinese Taipei	80 (3.4)	555 (2.1)	15 (3.0)	545 (3.8)	4 (1.5)	510 (13.1)	2 (0.9)	~ ~	
Cyprus	58 (4.5)	486 (2.9)	30 (4.4)	476 (4.8)	6 (2.2)	481 (8.2)	5 (1.1)	455 (10.0)	
England	r 38 (4.4)	565 (6.7)	25 (4.5)	537 (6.9)	11 (3.0)	540 (12.3)	25 (4.2)	500 (9.1)	
Hong Kong, SAR	23 (4.4)	553 (6.8)	26 (3.5)	543 (5.5)	25 (4.9)	545 (5.5)	25 (4.4)	530 (4.9)	
Hungary	15 (3.3)	554 (5.5)	24 (4.2)	540 (5.5)	31 (4.0)	529 (5.9)	30 (3.6)	505 (5.9)	
Iran, Islamic Rep. of	17 (3.5)	461 (13.3)	11 (3.2)	434 (9.4)	22 (4.3)	417 (8.3)	50 (4.7)	393 (5.3)	
Italy	46 (4.1)	525 (4.1)	37 (3.8)	513 (6.5)	10 (2.4)	490 (10.1)	8 (1.6)	505 (18.6)	
Japan	74 (3.9)	546 (1.8)	22 (3.6)	535 (2.8)	4 (1.5)	537 (7.1)	0 (0.0)	~ ~	
Latvia	23 (3.7)	547 (5.4)	42 (4.8)	540 (4.9)	22 (4.0)	516 (7.6)	14 (3.3)	504 (6.2)	
Lithuania	26 (3.8)	530 (4.4)	33 (4.5)	513 (4.5)	31 (3.8)	499 (4.3)	11 (2.9)	501 (7.9)	
Moldova, Rep. of	r 10 (3.0)	482 (25.7)	17 (3.1)	499 (7.7)	31 (4.7)	502 (11.9)	43 (5.2)	490 (6.6)	
Morocco	r 3 (1.2)	301 (38.9)	4 (1.5)	305 (16.0)	18 (3.5)	284 (16.5)	75 (3.8)	312 (7.6)	
Netherlands	64 (4.0)	534 (2.2)	17 (3.5)	526 (4.1)	8 (2.5)	508 (8.0)	10 (2.0)	488 (8.4)	
New Zealand	44 (3.2)	550 (3.8)	22 (3.5)	521 (6.1)	12 (2.3)	504 (9.2)	22 (2.5)	473 (6.6)	
Norway	--	--	--	--	--	--	--	--	
Philippines	12 (2.7)	350 (31.8)	14 (3.5)	368 (30.1)	25 (3.9)	303 (12.5)	48 (4.8)	315 (9.8)	
Russian Federation	18 (2.5)	542 (10.6)	33 (3.6)	525 (8.3)	26 (3.0)	528 (8.0)	23 (3.6)	511 (9.1)	
Scotland	r 36 (4.5)	521 (4.4)	31 (4.6)	502 (4.7)	17 (4.3)	482 (4.5)	15 (3.4)	468 (9.2)	
Singapore	64 (3.7)	580 (7.0)	25 (3.2)	540 (9.3)	6 (1.7)	524 (22.2)	4 (1.6)	535 (17.7)	
Slovenia	24 (4.0)	498 (5.4)	43 (4.6)	490 (3.3)	22 (4.0)	480 (7.2)	11 (2.7)	499 (8.9)	
Tunisia	20 (3.1)	371 (12.7)	16 (2.9)	312 (14.8)	15 (3.0)	310 (14.5)	49 (3.6)	289 (8.9)	
United States	19 (2.8)	579 (4.0)	23 (2.6)	567 (4.5)	20 (2.9)	539 (5.0)	38 (2.6)	498 (3.9)	
<b>International Avg.</b>	<b>34 (0.7)</b>	<b>505 (2.9)</b>	<b>25 (0.8)</b>	<b>492 (2.0)</b>	<b>18 (0.7)</b>	<b>478 (2.1)</b>	<b>24 (0.7)</b>	<b>462 (2.2)</b>	
<b>Benchmarking Participants</b>									
Indiana State, US	19 (4.5)	584 (6.2)	27 (6.2)	571 (7.0)	28 (6.6)	550 (5.9)	26 (3.9)	516 (7.7)	
Ontario Province, Can.	48 (5.5)	549 (4.1)	20 (4.1)	553 (12.6)	15 (3.8)	535 (8.2)	17 (4.1)	507 (6.1)	
Quebec Province, Can.	41 (4.4)	506 (3.9)	30 (3.7)	495 (4.1)	13 (3.2)	494 (5.6)	17 (3.3)	496 (7.3)	

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Background data provided by schools.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates comparable data are not available. A tilde (~) indicates insufficient data to report achievement.

An "r" indicates data are available for at least 70 but less than 85% of the students.

### What Is the Level of School-Home Involvement?

To measure the extent to which schools expected parents to participate in school-related events, TIMSS asked about five activities: attending special events, raising funds for the school, volunteering for school projects, ensuring their child completes his/her homework, and serving on school committees. The results are presented in Exhibit 8.2. At both the eighth and fourth grades, the common activities across countries were attending special events (89% and 91 %, respectively) and ensuring that homework was completed (87% and 91 %, respectively). Also at both grades, expecting parents to volunteer for school projects was the next activity schools expected on a relatively frequent basis (71% and 82%, respectively), followed by serving on committees (62% and 68%) and raising funds for the school (57% and 64%).

## Exhibit 8.2: Schools' Expectations for Parents' Involvement

Countries	Percentages of Students Whose Schools Reported That They Expect Parents to Be Involved in the School-Related Activity				
	Attend Special Events (e.g., Science Fair, Concert, Sporting Events)	Raise Funds for the School	Volunteer for School Projects, Programs, and Trips	Ensure That Their Child Completes His/Her Homework	Serve on School Committees (e.g., Select School Personnel, Review School Finances)
Armenia	r 94 (2.5)	r 57 (4.7)	r 73 (4.0)	r 92 (2.5)	r 87 (3.1)
Australia	96 (1.0)	71 (4.1)	64 (4.4)	98 (1.0)	90 (3.0)
Bahrain	81 (0.2)	29 (0.2)	39 (0.2)	75 (0.2)	14 (0.1)
Belgium (Flemish)	65 (4.4)	18 (3.5)	44 (4.2)	89 (2.5)	7 (2.3)
Botswana	93 (2.6)	99 (1.0)	88 (3.0)	97 (1.4)	88 (3.1)
Bulgaria	93 (2.2)	71 (4.1)	65 (4.1)	84 (3.2)	71 (4.0)
Chile	93 (2.1)	61 (3.6)	86 (2.5)	96 (1.7)	21 (3.4)
Chinese Taipei	99 (0.7)	75 (3.1)	97 (1.5)	98 (1.0)	86 (2.8)
Cyprus	100 (0.0)	97 (0.1)	62 (0.3)	100 (0.0)	53 (0.3)
Egypt	78 (3.4)	37 (4.3)	61 (4.1)	70 (4.1)	55 (3.9)
Estonia	98 (1.1)	27 (4.0)	87 (2.8)	95 (1.9)	86 (3.4)
Ghana	93 (2.5)	93 (2.7)	82 (4.0)	91 (2.7)	84 (3.8)
Hong Kong, SAR	93 (2.5)	81 (3.6)	89 (3.1)	94 (2.5)	47 (4.8)
Hungary	85 (3.1)	53 (4.6)	87 (2.4)	91 (2.2)	48 (4.1)
Indonesia	89 (2.6)	94 (2.3)	72 (3.8)	99 (0.9)	66 (3.7)
Iran, Islamic Rep. of	91 (2.2)	83 (3.0)	82 (3.1)	91 (2.2)	76 (3.6)
Israel	96 (1.8)	46 (3.9)	81 (3.1)	83 (3.5)	68 (4.0)
Italy	97 (1.3)	38 (3.7)	58 (4.1)	97 (1.3)	67 (3.6)
Japan	95 (1.7)	15 (2.7)	81 (3.3)	74 (3.7)	30 (3.9)
Jordan	89 (3.0)	21 (3.5)	42 (4.6)	73 (3.9)	25 (3.5)
Korea, Rep. of	83 (3.5)	36 (4.0)	49 (4.1)	83 (2.9)	82 (2.9)
Latvia	91 (2.7)	55 (4.4)	73 (4.0)	82 (3.7)	84 (3.6)
Lebanon	68 (4.0)	40 (4.2)	42 (4.7)	79 (3.0)	64 (4.5)
Lithuania	99 (0.7)	70 (3.6)	90 (2.6)	92 (2.3)	93 (2.2)
Macedonia, Rep. of	93 (2.2)	68 (4.0)	77 (3.7)	90 (2.8)	98 (1.2)
Malaysia	93 (2.0)	83 (3.5)	87 (2.8)	96 (1.8)	23 (3.5)
Moldova, Rep. of	r 74 (4.6)	r 79 (3.5)	r 61 (4.5)	r 64 (4.8)	r 75 (4.4)
Morocco	s 87 (3.8)	s 80 (4.7)	s 81 (4.3)	s 70 (5.5)	s 50 (6.1)
Netherlands	58 (4.8)	9 (2.3)	29 (4.7)	95 (1.8)	43 (5.3)
New Zealand	88 (3.8)	53 (4.0)	67 (4.8)	95 (2.2)	72 (5.5)
Norway	89 (2.4)	12 (2.3)	77 (3.8)	94 (2.1)	92 (2.6)
Palestinian Nat'l Auth.	95 (1.9)	52 (4.1)	62 (4.3)	70 (4.1)	12 (3.0)
Philippines	91 (2.6)	85 (2.7)	86 (3.1)	89 (3.1)	53 (4.5)
Romania	80 (3.8)	80 (3.2)	60 (4.0)	80 (3.7)	49 (3.8)
Russian Federation	94 (1.8)	64 (4.3)	89 (2.1)	84 (2.5)	83 (2.4)
Saudi Arabia	87 (2.1)	13 (3.3)	41 (5.1)	58 (3.9)	44 (5.0)
Scotland	s 98 (1.4)	s 82 (4.6)	s 58 (4.7)	s 92 (3.2)	s 79 (4.2)
Serbia	96 (1.7)	73 (3.5)	89 (2.6)	87 (3.0)	79 (4.2)
Singapore	88 (0.0)	65 (0.0)	81 (0.0)	98 (0.0)	64 (0.0)
Slovak Republic	83 (3.2)	80 (3.6)	92 (2.2)	95 (2.2)	85 (3.1)
Slovenia	97 (1.4)	49 (5.0)	69 (3.7)	94 (1.9)	60 (4.7)
South Africa	95 (1.5)	91 (2.2)	91 (2.0)	94 (2.1)	100 (0.3)
Sweden	85 (2.7)	9 (2.5)	65 (4.1)	98 (1.1)	63 (4.1)
Tunisia	60 (4.4)	19 (3.2)	32 (3.9)	40 (4.4)	9 (2.4)
United States	98 (0.9)	63 (3.1)	90 (2.1)	98 (1.0)	74 (3.5)
‡ England	--	--	--	--	--
International Avg.	89 (0.4)	57 (0.5)	71 (0.5)	87 (0.4)	62 (0.5)
<b>Benchmarking Participants</b>					
Basque Country, Spain	83 (3.5)	36 (5.3)	74 (4.5)	88 (3.4)	89 (3.6)
Indiana State, US	98 (2.2)	63 (7.6)	88 (4.9)	97 (2.3)	86 (5.4)
Ontario Province, Can.	96 (1.9)	86 (3.2)	94 (2.3)	100 (0.0)	74 (4.5)
Quebec Province, Can.	92 (2.9)	70 (4.8)	62 (4.6)	98 (1.0)	66 (4.8)

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Background data provided by schools.

‡ Did not satisfy guidelines for sample participation rates (see Exhibit A.9).

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates comparable data are not available.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.

## Exhibit 8.2: Schools' Expectations for Parents' Involvement

SCIENCE  
Grade 4

Countries	Percentages of Students Whose Schools Reported That They Expect Parents to Be Involved in the School-Related Activity				
	Attend Special Events (e.g., Science Fair, Concert, Sporting Events)	Raise Funds for the School	Volunteer for School Projects, Programs, and Trips	Ensure That Their Child Completes His/Her Homework	Serve on School Committees (e.g., Select School Personnel, Review School Finances)
Armenia	r 95 (1.9)	r 55 (4.3)	r 72 (4.2)	r 94 (2.2)	r 88 (2.7)
Australia	97 (1.6)	95 (2.2)	91 (2.8)	97 (1.9)	92 (2.6)
Belgium (Flemish)	60 (4.6)	42 (4.6)	84 (3.4)	98 (1.2)	4 (1.5)
Chinese Taipei	100 (0.0)	73 (3.6)	99 (0.6)	100 (0.0)	90 (2.1)
Cyprus	95 (2.2)	90 (3.0)	52 (4.9)	99 (0.8)	77 (4.5)
England	--	--	--	--	--
Hong Kong, SAR	98 (1.2)	79 (4.2)	99 (0.9)	99 (0.8)	52 (4.5)
Hungary	84 (3.0)	60 (4.4)	91 (2.2)	94 (2.2)	50 (3.4)
Iran, Islamic Rep. of	88 (2.2)	88 (2.7)	83 (3.5)	98 (1.2)	75 (4.3)
Italy	100 (0.0)	37 (3.7)	63 (3.6)	97 (1.4)	63 (3.1)
Japan	97 (1.5)	8 (2.5)	94 (1.9)	80 (3.5)	20 (3.4)
Latvia	94 (2.0)	59 (4.5)	78 (3.7)	84 (3.3)	86 (3.1)
Lithuania	100 (0.0)	70 (3.9)	84 (3.4)	94 (1.9)	91 (2.6)
Moldova, Rep. of	r 71 (4.1)	r 71 (4.5)	r 53 (4.5)	r 65 (4.4)	r 69 (4.1)
Morocco	r 81 (3.0)	r 68 (4.1)	r 67 (3.8)	r 69 (4.4)	r 56 (4.5)
Netherlands	77 (4.7)	42 (4.5)	96 (1.6)	93 (2.6)	85 (3.5)
New Zealand	97 (1.3)	90 (2.0)	99 (0.7)	97 (1.0)	88 (2.4)
Norway	97 (1.6)	17 (3.4)	89 (3.0)	98 (1.2)	91 (2.7)
Philippines	93 (2.1)	86 (2.7)	83 (3.5)	91 (2.9)	65 (4.1)
Russian Federation	98 (0.9)	64 (4.0)	92 (1.8)	95 (1.8)	83 (3.0)
Scotland	100 (0.0)	98 (1.2)	94 (1.8)	99 (1.0)	85 (3.5)
Singapore	96 (1.6)	75 (3.5)	96 (1.5)	99 (0.7)	57 (4.3)
Slovenia	97 (1.3)	50 (4.8)	69 (3.8)	96 (1.3)	59 (4.8)
Tunisia	73 (3.6)	41 (4.0)	52 (3.7)	53 (3.8)	28 (3.4)
United States	96 (1.4)	85 (2.3)	97 (1.2)	99 (0.7)	82 (3.1)
<b>International Avg.</b>	<b>91 (0.5)</b>	<b>64 (0.7)</b>	<b>82 (0.6)</b>	<b>91 (0.5)</b>	<b>68 (0.7)</b>
<b>Benchmarking Participants</b>					
Indiana State, US	97 (2.3)	89 (4.5)	99 (1.2)	100 (0.0)	73 (5.5)
Ontario Province, Can.	96 (2.0)	91 (2.3)	97 (1.9)	100 (0.0)	76 (4.5)
Quebec Province, Can.	96 (1.8)	92 (2.7)	96 (1.7)	100 (0.0)	67 (4.6)

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Background data provided by schools.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates comparable data are not available.

An "r" indicates data are available for at least 70 but less than 85% of the students.

## What School Resources Are Available to Support Science Learning?

Some school resources are specific to science, but many are general resources that improve learning opportunities across the curriculum. All the available resources, however, can work together to support science learning and instruction.

To measure the extent of school resources in each of the participating countries, TIMSS created an index of availability of school resources for science instruction. As described in Exhibit 8.3, the index is based on schools' average response to five questions about shortages that affect general capacity to provide instruction and six questions about shortages that affect science instruction in particular. Students were placed in the high category if principals reported that shortages, both general and for science in particular, had no or little effect on instructional capacity. The medium level indicates that one type of shortage affects instruction some or a lot, and the low level, that both shortages affect it some or a lot.

Since TIMSS results in 1995 and 1999 showed that students in schools that reported being generally unaffected by a lack of resources had higher average science achievement than those in schools where across-the-board shortages affected instructional capacity some or a lot, TIMSS 2003 reported information on trends in school resources. Exhibit 8.3 shows changes in the percentages of eighth-grade students in the high, medium, and low categories for 1995, 1999, and 2003, and for the fourth-grade students for 1995 to 2003. At the eighth grade, the trend suggests similarity between 1995 and 2003 with a dip in available resources in 1999. Consistent with this overall pattern across countries, the results at the eighth grade show 13 countries having significantly more students in the high category in 2003 than in 1999. At the fourth grade, the results for the participating countries were even more positive. Eleven of the countries showed significant increases in the high category and none showed a decrease.



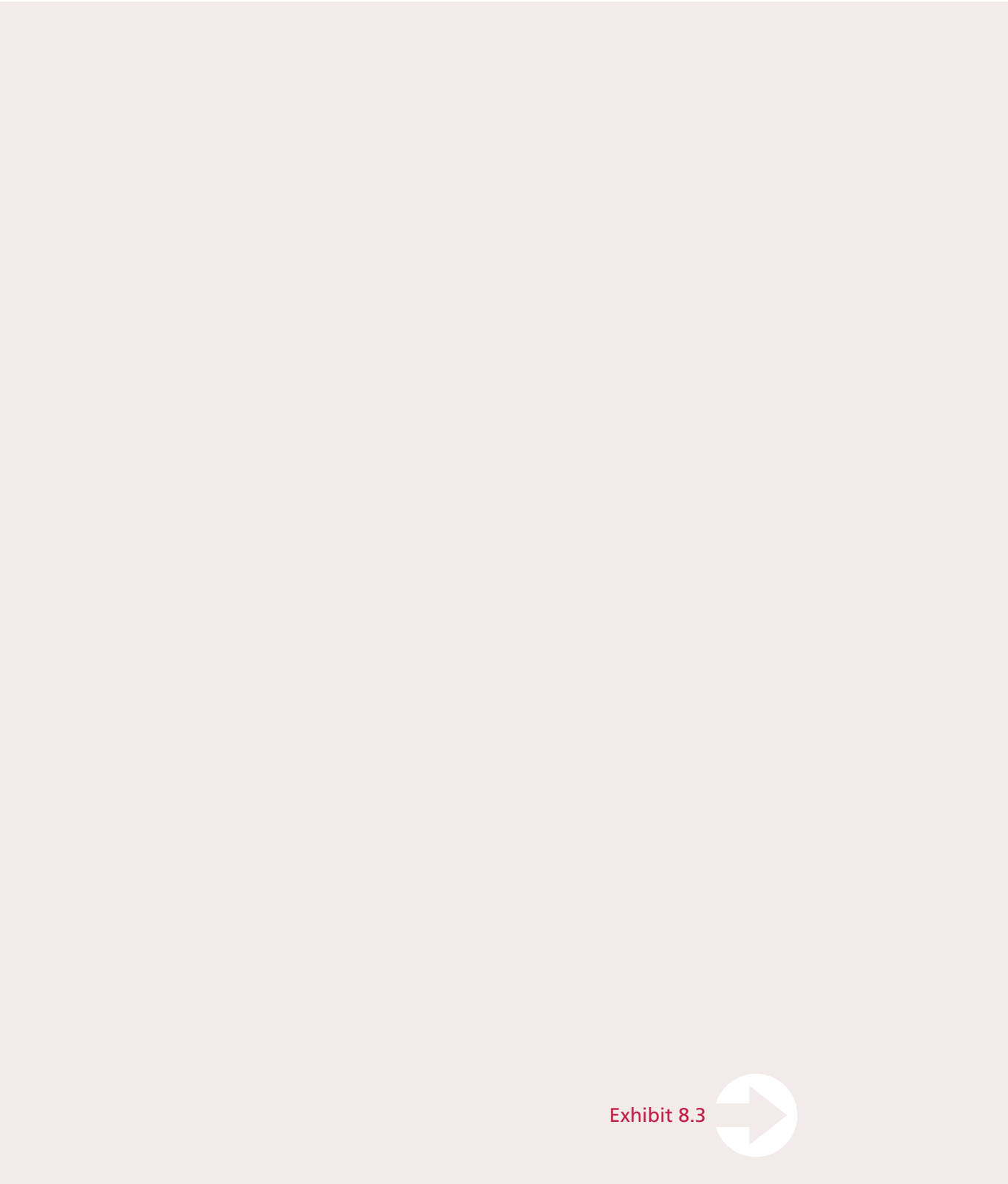


Exhibit 8.3 

Exhibit 8.3: Trends in Index of Availability of School Resources for Science Instruction (ASRSI)



SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

**Index of Availability of School Resources for Science Instruction**

Index based on principals' average response to five questions about shortages that affect general capacity to provide instruction: instructional materials (e.g., textbook); budget for supplies (e.g., paper, pencils); school buildings and grounds; heating/cooling and lighting systems; and instructional space (e.g., classrooms); and the average response to six questions about shortages that affect science instruction: science laboratory equipment and materials; computers for science instruction; computer software for science instruction; calculators for science instruction; library materials relevant to science instruction; and audio-visual resources for science instruction. Average is computed based on a 4-point scale: 1 = none; 2 = a little; 3 = some; 4 = a lot. High level indicates that both shortages are on average lower than 2. Low level indicates that both shortages are on average greater than or equal to 3. Medium level includes all other possible combinations of responses.

Countries	High ASRSI			Medium ASRSI		
	2003 Percent of Students	1999 Percent of Students	1995 Percent of Students	2003 Percent of Students	1999 Percent of Students	1995 Percent of Students
Singapore	92 (0.0)	56 (3.9) ▲	62 (4.8) ▲	7 (0.0)	40 (4.1) ▼	37 (4.7) ▼
Hong Kong, SAR	66 (3.6)	19 (3.3) ▲	23 (5.4) ▲	32 (3.6)	73 (3.5) ▼	72 (5.7) ▼
Netherlands	r 59 (4.7)	37 (6.4) ▲	50 (7.5)	40 (4.8)	62 (6.4) ▼	50 (7.5)
Belgium (Flemish)	57 (4.9)	60 (4.5)	52 (5.8)	41 (4.8)	40 (4.5)	48 (5.8)
Israel	55 (4.1)	36 (4.1) ▲	--	44 (4.1)	59 (4.1) ▼	--
Australia	r 55 (3.8)	--	42 (5.2) ▲	43 (3.8)	--	52 (5.4)
United States	r 49 (3.8)	34 (3.3) ▲	16 (3.3) ▲	48 (3.8)	59 (3.2) ▼	77 (3.5) ▼
Japan	49 (4.0)	31 (3.8) ▲	25 (3.4) ▲	49 (4.0)	64 (4.1) ▼	67 (3.8) ▼
Slovenia	r 48 (3.8)	--	7 (2.5) ▲	50 (3.8)	--	74 (4.2) ▼
New Zealand	45 (4.8)	37 (4.1)	19 (3.3) ▲	52 (5.1)	62 (4.1)	74 (4.0) ▼
Sweden	38 (4.0)	◇ ◇	33 (4.8)	60 (3.9)	◇ ◇	57 (5.2)
Scotland	36 (5.3)	◇ ◇	--	62 (5.4)	◇ ◇	--
Lebanon	34 (3.6)	◇ ◇	◇ ◇	58 (3.7)	◇ ◇	◇ ◇
Egypt	34 (4.4)	◇ ◇	◇ ◇	49 (4.3)	◇ ◇	◇ ◇
Italy	31 (3.4)	22 (3.1)	--	68 (3.5)	71 (3.8)	--
Korea, Rep. of	30 (4.0)	7 (2.2) ▲	2 (1.2) ▲	67 (3.9)	76 (3.7)	81 (3.0) ▼
Hungary	26 (3.9)	24 (3.6)	22 (3.3)	72 (3.9)	69 (3.9)	77 (3.4)
Chinese Taipei	26 (3.9)	5 (2.1) ▲	◇ ◇	68 (4.0)	78 (3.4)	◇ ◇
Estonia	24 (3.6)	◇ ◇	◇ ◇	71 (3.9)	◇ ◇	◇ ◇
Norway	r 23 (4.0)	◇ ◇	30 (4.0)	72 (4.3)	◇ ◇	66 (4.2)
Chile	19 (2.7)	20 (3.0)	◇ ◇	67 (3.3)	70 (3.3)	◇ ◇
Malaysia	18 (3.3)	23 (3.7)	◇ ◇	69 (3.7)	70 (4.1)	◇ ◇
Bahrain	18 (0.2)	◇ ◇	◇ ◇	67 (0.2)	◇ ◇	◇ ◇
Saudi Arabia	18 (5.6)	◇ ◇	◇ ◇	67 (6.2)	◇ ◇	◇ ◇
Jordan	17 (3.6)	5 (1.9) ▲	◇ ◇	69 (3.9)	58 (4.5)	◇ ◇
Cyprus	r 16 (0.2)	15 (0.1) ▲	23 (0.5) ▼	66 (0.3)	80 (0.2) ▼	69 (0.6) ▼
Latvia	13 (3.0)	--	--	77 (4.1)	--	--
Tunisia	13 (2.8)	5 (1.9) ▲	◇ ◇	71 (3.9)	66 (4.3)	◇ ◇
Philippines	12 (2.6)	11 (2.6)	◇ ◇	53 (4.5)	54 (4.1)	◇ ◇
Palestinian Nat'l Auth.	12 (3.0)	◇ ◇	◇ ◇	73 (4.0)	◇ ◇	◇ ◇
Slovak Republic	11 (2.6)	5 (2.0)	11 (2.5)	71 (4.0)	87 (3.1) ▼	86 (2.8) ▼
Ghana	11 (2.9)	◇ ◇	◇ ◇	75 (4.3)	◇ ◇	◇ ◇
Lithuania	10 (2.9)	6 (2.1)	2 (1.4) ▲	80 (3.9)	71 (3.7)	78 (3.7)
Iran, Islamic Rep. of	10 (2.4)	5 (1.9)	2 (1.0) ▲	67 (3.4)	71 (3.9)	67 (4.9)
Morocco	s 10 (3.4)	--	◇ ◇	63 (6.4)	--	◇ ◇
South Africa	9 (2.0)	7 (1.9)	--	52 (3.5)	45 (4.0)	--
Indonesia	9 (2.5)	21 (3.8) ▼	◇ ◇	85 (3.1)	67 (4.7) ▲	◇ ◇
Botswana	7 (2.5)	◇ ◇	◇ ◇	77 (3.9)	◇ ◇	◇ ◇
Macedonia, Rep. of	6 (1.9)	2 (1.2)	◇ ◇	69 (4.1)	59 (3.7)	◇ ◇
Romania	6 (2.1)	2 (1.1)	3 (1.1)	82 (2.9)	72 (3.7) ▲	73 (3.8)
Armenia	r 5 (2.0)	◇ ◇	◇ ◇	69 (4.6)	◇ ◇	◇ ◇
Serbia	4 (1.9)	◇ ◇	◇ ◇	70 (4.0)	◇ ◇	◇ ◇
Russian Federation	3 (1.2)	1 (0.9)	1 (0.0) ▲	69 (3.7)	46 (4.6) ▲	46 (4.3) ▲
Moldova, Rep. of	r 3 (1.6)	0 (0.0) ▲	◇ ◇	73 (4.7)	29 (3.9) ▲	◇ ◇
Bulgaria	3 (1.4)	0 (0.0) ▲	--	86 (2.6)	65 (4.4) ▲	--
‡ England	s 34 (6.5)	26 (4.2)	24 (4.8)	59 (6.5)	69 (4.5)	72 (5.0)
<b>International Avg.</b>	<b>26 (0.5)</b>	<b>19 (0.6) ▲</b>	<b>22 (0.9) ▲</b>	<b>63 (0.6)</b>	<b>63 (0.7)</b>	<b>66 (1.0) ▼</b>
<b>Benchmarking Participants</b>						
Basque Country, Spain	61 (4.9)	◇ ◇	◇ ◇	38 (4.9)	◇ ◇	◇ ◇
Indiana State, US	43 (6.5)	39 (7.9)	◇ ◇	53 (6.9)	58 (7.8)	◇ ◇
Ontario Province, Can.	25 (4.2)	17 (3.3)	15 (3.8)	67 (4.7)	74 (4.2)	80 (4.1) ▼
Quebec Province, Can.	r 56 (4.4)	57 (6.1)	41 (6.5)	41 (4.4)	43 (6.1)	59 (6.5) ▼

▲ 2003 significantly higher

▼ 2003 significantly lower

Background data provided by schools.

‡ Did not satisfy guidelines for sample participation rates (see Exhibit A.9).

Trend notes: Because of differences in population coverage, 1999 data are not shown for Australia, Latvia, Morocco, and Slovenia, and 1995 data are not shown for Israel, Italy, Latvia, and South Africa. Korea tested later in 2003 than in 1999 and 1995, at the beginning of the next school year. Similarly, Lithuania tested later in 1999 than in 2003 and 1995.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates comparable data are not available.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.

A diamond (◇) indicates the country did not participate in the assessment.

Exhibit 8.3: Trends in Index of Availability of School Resources for Science Instruction (ASRSI)

Countries	Low ASRSI		
	2003 Percent of Students	1999 Percent of Students	1995 Percent of Students
Singapore	1 (0.0)	4 (1.4)	1 (0.8)
Hong Kong, SAR	2 (1.3)	8 (2.3) ▼	5 (2.6)
Netherlands	r 1 (1.0)	1 (0.8)	0 (0.0)
Belgium (Flemish)	2 (1.2)	0 (0.0)	1 (0.8)
Israel	1 (0.9)	5 (1.7)	--
Australia	r 2 (1.3)	--	6 (2.3)
United States	r 3 (1.2)	6 (2.4)	7 (0.9) ▼
Japan	2 (1.0)	5 (1.9)	8 (2.5) ▼
Slovenia	r 2 (1.3)	--	19 (3.6) ▼
New Zealand	3 (1.7)	1 (1.0)	7 (2.4)
Sweden	1 (1.0)	◇ ◇	10 (3.3) ▼
Scotland	2 (1.3)	◇ ◇	--
Lebanon	8 (2.1)	◇ ◇	◇ ◇
Egypt	17 (3.2)	◇ ◇	◇ ◇
Italy	1 (0.9)	7 (2.0) ▼	--
Korea, Rep. of	2 (1.0)	17 (3.2) ▼	17 (2.9) ▼
Hungary	1 (1.0)	7 (2.3) ▼	1 (1.0)
Chinese Taipei	6 (1.9)	17 (2.9) ▼	◇ ◇
Estonia	4 (1.8)	◇ ◇	◇ ◇
Norway	r 5 (1.9)	◇ ◇	4 (1.8)
Chile	14 (2.4)	10 (2.2)	◇ ◇
Malaysia	13 (2.7)	7 (2.0)	◇ ◇
Bahrain	15 (0.2)	◇ ◇	◇ ◇
Saudi Arabia	15 (2.9)	◇ ◇	◇ ◇
Jordan	14 (2.8)	38 (4.4) ▼	◇ ◇
Cyprus	r 18 (0.3)	5 (0.2) ▲	8 (0.4) ▲
Latvia	10 (3.2)	--	--
Tunisia	16 (2.9)	30 (3.8) ▼	◇ ◇
Philippines	35 (4.0)	35 (4.0)	◇ ◇
Palestinian Nat'l Auth.	15 (3.3)	◇ ◇	◇ ◇
Slovak Republic	17 (3.1)	8 (2.4) ▲	3 (1.6) ▲
Ghana	14 (3.3)	◇ ◇	◇ ◇
Lithuania	9 (2.7)	23 (3.6) ▼	20 (3.5) ▼
Iran, Islamic Rep. of	23 (3.1)	23 (3.6)	31 (4.9)
Morocco	s 28 (5.9)	--	◇ ◇
South Africa	39 (3.5)	48 (4.1)	--
Indonesia	6 (2.1)	12 (3.1)	◇ ◇
Botswana	15 (3.2)	◇ ◇	◇ ◇
Macedonia, Rep. of	25 (3.9)	39 (3.9) ▼	◇ ◇
Romania	12 (2.6)	27 (3.5) ▼	24 (3.9) ▼
Armenia	26 (4.5)	◇ ◇	◇ ◇
Serbia	26 (3.7)	◇ ◇	◇ ◇
Russian Federation	27 (3.8)	53 (4.6) ▼	54 (4.4) ▼
Moldova, Rep. of	r 23 (4.5)	71 (3.9) ▼	◇ ◇
Bulgaria	11 (2.7)	35 (4.4) ▼	--
‡ England	s 7 (3.3)	5 (2.1)	5 (1.7)
<b>International Avg.</b>	<b>12 (0.4)</b>	<b>20 (0.6) ▼</b>	<b>12 (0.6)</b>
<b>Benchmarking Participants</b>			
Basque Country, Spain	0 (0.5)	◇ ◇	◇ ◇
Indiana State, US	4 (2.6)	3 (2.3)	◇ ◇
Ontario Province, Can.	8 (2.6)	9 (2.6)	5 (1.7)
Quebec Province, Can.	r 3 (1.7)	0 (0.0)	0 (0.0)

Background data provided by schools.

‡ Did not satisfy guidelines for sample participation rates (see Exhibit A.9).

Trend notes: Because of differences in population coverage, 1999 data are not shown for Australia, Latvia, Morocco, and Slovenia, and 1995 data are not shown for Israel, Italy, Latvia, and South Africa. Korea tested later in 2003 than in 1999 and 1995, at the beginning of the next school year. Similarly, Lithuania tested later in 1999 than in 2003 and 1995.

() Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates comparable data are not available.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.

A diamond (◇) indicates the country did not participate in the assessment.

Exhibit 8.3: Trends in Index of Availability of School Resources for Science Instruction (ASRSI)

Countries	High ASRSI		Medium ASRSI		Low ASRSI		
	2003 Percent of Students	1995 Percent of Students	2003 Percent of Students	1995 Percent of Students	2003 Percent of Students	1995 Percent of Students	
Singapore	85 (2.8)	47 (4.1) ▲	15 (2.8)	53 (4.1) ▼	1 (0.5)	0 (0.0)	▲ 2003 significantly higher
Scotland	51 (4.7)	--	47 (4.9)	--	1 (1.1)	--	
Slovenia	49 (4.1) r	7 (2.6) ▲	49 (4.3)	73 (4.6) ▼	2 (1.4)	21 (4.2) ▼	
Japan	48 (3.8)	25 (3.6) ▲	49 (3.9)	70 (3.8) ▼	3 (1.3)	5 (2.0)	
England	45 (4.9) r	26 (4.5) ▲	55 (4.9)	66 (4.6)	0 (0.0)	8 (2.9) ▼	▼ 2003 significantly lower
New Zealand	40 (3.3)	20 (3.8) ▲	59 (3.3)	72 (4.3) ▼	1 (0.8)	7 (2.5) ▼	
Australia	38 (3.9)	24 (4.6) ▲	59 (4.0)	74 (4.5) ▼	3 (1.3)	2 (1.2)	
United States	36 (3.4) r	24 (3.2) ▲	57 (3.5)	72 (2.7) ▼	6 (1.7)	4 (1.5)	
Belgium (Flemish)	36 (3.9)	◇ ◇	62 (4.2)	◇ ◇	3 (1.4)	◇ ◇	
Hong Kong, SAR	35 (4.5)	21 (4.3) ▲	65 (4.5)	75 (4.5)	0 (0.0)	3 (1.6)	
Hungary	34 (4.0)	22 (3.7) ▲	66 (4.0)	76 (3.8)	1 (0.5)	2 (1.1)	
Netherlands	29 (4.3)	28 (4.5)	67 (4.1)	69 (4.8)	3 (1.7)	3 (1.6)	
Norway	27 (4.3) r	16 (3.2) ▲	66 (4.6)	82 (3.4) ▼	7 (2.2)	1 (1.1) ▲	
Italy	25 (3.3)	--	72 (3.5)	--	3 (1.3)	--	
Latvia	21 (3.9)	--	73 (4.6)	--	7 (2.5)	--	
Chinese Taipei	20 (3.1)	◇ ◇	75 (3.5)	◇ ◇	5 (1.6)	◇ ◇	
Cyprus	14 (3.0) r	15 (3.3)	70 (4.8)	83 (3.4) ▼	16 (4.0)	3 (1.2) ▲	
Iran, Islamic Rep. of	12 (3.4)	4 (1.9) ▲	65 (5.2)	68 (4.6)	23 (4.5)	27 (4.5)	
Philippines	11 (3.0)	◇ ◇	66 (4.6)	◇ ◇	23 (4.0)	◇ ◇	
Lithuania	11 (2.2)	◇ ◇	78 (3.2)	◇ ◇	11 (2.8)	◇ ◇	
Tunisia	7 (2.2)	◇ ◇	69 (3.9)	◇ ◇	24 (3.8)	◇ ◇	
Morocco	7 (2.7)	◇ ◇	54 (4.8)	◇ ◇	40 (4.3)	◇ ◇	
Armenia	6 (2.7)	◇ ◇	70 (4.6)	◇ ◇	24 (4.3)	◇ ◇	
Russian Federation	4 (1.4)	◇ ◇	73 (3.2)	◇ ◇	23 (3.1)	◇ ◇	
Moldova, Rep. of	2 (1.2)	◇ ◇	75 (4.8)	◇ ◇	23 (4.6)	◇ ◇	
<b>International Avg.</b>	<b>28 (0.7)</b>	<b>22 (1.0) ▲</b>	<b>62 (0.8)</b>	<b>72 (1.1) ▼</b>	<b>11 (0.6)</b>	<b>7 (0.6) ▲</b>	
<b>Benchmarking Participants</b>							
Indiana State, US	40 (6.7)	◇ ◇	60 (6.7)	◇ ◇	0 (0.0)	◇ ◇	
Ontario Province, Can.	25 (4.6)	13 (3.5)	66 (4.9)	83 (4.0) ▼	9 (3.0)	4 (1.9)	
Quebec Province, Can.	36 (4.5)	48 (10.3)	62 (4.2)	52 (10.3)	3 (1.3)	0 (0.0) ▲	

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Background data provided by schools.

Trend notes: Because of differences between 1995 and 2003 in population coverage, 1995 data are not shown for Italy and Latvia. 1995 data for New Zealand in this exhibit include students in English medium instruction only (&gt;98% of the estimated population).

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (--) indicates comparable data are not available.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.

A diamond (◇) indicates the country did not participate in the assessment.

## What Are the Perceptions of School Climate?

The school environment establishes the climate for learning. To measure the extent to which schools offer a positive school climate, TIMSS created two new indices in 2003 – one measuring the views of principals and the other the views of teachers. The results for the Index of Principals' Perception of School Climate are presented in Exhibit 8.4. On a scale from very high to very low, the index was based on principals' characterizations of the following:

- teachers' job satisfaction;
- teachers' understanding of the school's curricular goals;
- teachers' degree of success in implementing the school's curricula;
- teachers' expectations for students' achievement;
- parental support for student's achievement;
- parental involvement in schools' activities;
- students' regard for school property;
- students' desire to do well in school.

Students in the high category attended schools where the principals averaged high or very high reports for each aspect of school climate. Students whose principals characterized school climate as medium were placed in the medium category, and whose principals characterized the school climate as low or very low were placed in the low category.

At both grades, internationally, on average, two-thirds of the students were in the medium category. At the eighth grade, 15 percent were in the high category, and 18 percent were in the low category. Morocco, Tunisia, and Botswana had from 59 to 69 percent of their students in the low category. At the fourth grade, 23 percent were in the high category, and 11 percent in the low category. In both grades,

Exhibit 8.4: Index of Principals' Perception of School Climate (PPSC)

Index of Principals' Perception of School Climate	Countries	High PPSC		Medium PPSC		Low PPSC	
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
	United States	43 (3.2)	560 (4.7)	49 (3.3)	512 (5.1)	8 (1.9)	492 (6.4)
	Scotland <sup>s</sup>	42 (4.3)	539 (6.7)	52 (4.7)	505 (7.1)	6 (2.6)	473 (30.2)
	Chinese Taipei	37 (3.8)	582 (5.1)	60 (4.0)	566 (4.0)	3 (1.0)	532 (27.2)
	Philippines	35 (4.1)	397 (9.1)	59 (4.1)	368 (8.2)	6 (2.2)	365 (20.4)
	New Zealand	34 (4.7)	547 (7.8)	58 (4.7)	509 (7.5)	8 (3.2)	504 (11.7)
	Australia	31 (4.3)	541 (7.0)	61 (4.8)	529 (5.3)	8 (2.7)	476 (19.9)
	Singapore	30 (0.0)	628 (6.0)	65 (0.0)	559 (6.4)	5 (0.0)	520 (22.1)
	Japan	29 (3.4)	563 (3.8)	69 (3.4)	548 (2.1)	3 (1.3)	533 (4.8)
	Israel	28 (4.0)	506 (6.6)	69 (4.1)	484 (4.2)	2 (1.0)	~ ~
	Egypt	26 (3.3)	430 (7.8)	62 (4.2)	418 (5.1)	12 (3.0)	415 (13.0)
	Sweden	21 (3.2)	536 (4.9)	72 (3.8)	523 (3.7)	7 (2.2)	516 (12.4)
	Cyprus	20 (0.2)	460 (4.3)	76 (0.2)	435 (2.2)	4 (0.1)	456 (6.1)
	Indonesia	19 (3.2)	433 (11.8)	71 (3.8)	421 (4.7)	11 (2.8)	391 (17.0)
	Jordan	18 (3.2)	502 (9.7)	71 (4.2)	472 (4.4)	11 (2.7)	452 (11.9)
	Lebanon	18 (3.5)	421 (10.6)	63 (4.6)	402 (6.3)	19 (2.9)	347 (8.9)
	Malaysia	17 (3.3)	535 (10.0)	70 (4.1)	507 (4.5)	13 (3.1)	499 (9.2)
	Korea, Rep. of	16 (3.3)	573 (4.7)	68 (3.8)	558 (2.2)	15 (3.0)	549 (3.4)
	Belgium (Flemish)	16 (2.7)	539 (6.5)	74 (3.8)	518 (3.5)	10 (2.6)	463 (19.3)
	Chile	14 (2.8)	436 (10.9)	67 (3.6)	414 (3.8)	19 (3.2)	395 (5.6)
	Palestinian Nat'l Auth.	14 (3.1)	456 (10.5)	77 (3.5)	434 (4.1)	8 (2.5)	410 (10.4)
	Saudi Arabia	14 (4.5)	380 (11.5)	68 (5.1)	400 (3.8)	18 (3.8)	402 (8.4)
	Macedonia, Rep. of	14 (3.0)	481 (13.0)	74 (3.7)	449 (4.4)	12 (2.8)	426 (16.2)
	Ghana	13 (3.4)	296 (25.0)	68 (4.4)	248 (7.2)	18 (3.3)	237 (12.5)
	Norway	13 (2.6)	509 (4.3)	82 (3.4)	492 (2.2)	5 (2.2)	494 (21.8)
	Italy	12 (2.7)	511 (8.3)	75 (3.6)	491 (3.7)	13 (2.3)	470 (8.5)
	Hong Kong, SAR	12 (2.7)	576 (11.1)	70 (4.1)	556 (3.4)	18 (3.4)	533 (9.7)
	Bahrain	11 (0.1)	453 (2.9)	74 (0.2)	436 (2.2)	15 (0.2)	429 (5.4)
	Iran, Islamic Rep. of	10 (2.2)	488 (8.6)	69 (3.7)	453 (2.9)	21 (3.0)	437 (4.8)
	Slovenia	9 (2.2)	525 (4.9)	83 (2.8)	521 (2.1)	8 (2.4)	513 (8.0)
	Lithuania	8 (2.4)	533 (12.2)	88 (3.0)	519 (2.3)	4 (1.9)	509 (7.6)
	Romania	7 (2.2)	526 (13.7)	69 (4.1)	475 (5.5)	24 (3.7)	439 (8.8)
	South Africa	7 (2.1)	330 (49.4)	45 (4.1)	256 (13.3)	48 (3.9)	220 (7.4)
	Hungary	7 (2.1)	574 (12.3)	84 (3.3)	542 (3.4)	10 (2.6)	531 (11.5)
	Netherlands	5 (2.1)	572 (10.5)	81 (3.7)	538 (3.4)	13 (3.2)	510 (13.9)
	Bulgaria	4 (1.4)	507 (12.8)	72 (3.4)	483 (6.6)	23 (3.1)	466 (9.5)
	Morocco <sup>s</sup>	3 (1.7)	393 (17.5)	37 (5.6)	399 (6.0)	59 (5.7)	395 (3.9)
	Slovak Republic	3 (1.6)	588 (24.2)	78 (3.9)	519 (2.8)	19 (3.9)	495 (6.9)
	Serbia	3 (1.4)	494 (25.3)	71 (4.1)	466 (3.3)	26 (3.8)	469 (4.7)
	Armenia <sup>r</sup>	3 (1.5)	486 (39.8)	79 (4.1)	462 (4.1)	18 (4.0)	439 (7.6)
	Estonia	1 (1.1)	~ ~	79 (3.1)	553 (3.2)	20 (2.9)	547 (4.2)
	Tunisia	1 (1.0)	~ ~	30 (3.7)	412 (3.6)	69 (3.7)	399 (2.5)
	Botswana	1 (1.0)	~ ~	31 (4.2)	366 (6.1)	68 (4.3)	358 (3.1)
	Moldova, Rep. of <sup>r</sup>	1 (0.0)	~ ~	50 (5.1)	481 (4.1)	49 (5.1)	465 (7.0)
	Russian Federation	1 (0.5)	~ ~	70 (2.9)	516 (4.5)	29 (2.9)	507 (5.3)
	Latvia	0 (0.0)	~ ~	84 (3.8)	514 (3.0)	16 (3.8)	508 (6.4)
	‡ England <sup>s</sup>	33 (5.8)	568 (11.0)	63 (6.2)	539 (8.2)	5 (3.1)	503 (11.9)
	<b>International Avg.</b>	<b>15 (0.4)</b>	<b>499 (2.4)</b>	<b>67 (0.6)</b>	<b>473 (0.8)</b>	<b>18 (0.4)</b>	<b>455 (1.9)</b>
	<b>Benchmarking Participants</b>						
	Basque Country, Spain	12 (3.3)	498 (9.0)	79 (3.8)	490 (2.9)	9 (2.4)	470 (7.4)
	Indiana State, US	29 (6.4)	554 (7.7)	67 (6.7)	527 (5.0)	5 (2.2)	458 (13.4)
	Ontario Province, Can.	42 (4.3)	543 (3.2)	52 (4.7)	525 (3.6)	5 (2.1)	534 (10.7)
	Quebec Province, Can.	14 (2.2)	562 (7.2)	78 (3.1)	529 (3.7)	8 (2.2)	512 (9.6)

Background data provided by schools.

‡ Did not satisfy guidelines for sample participation rates (see Exhibit A.9).

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A tilde (~) indicates insufficient data to report achievement.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.

Exhibit 8.4: Index of Principals' Perception of School Climate (PPSC)

Countries	High PPSC		Medium PPSC		Low PPSC	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Chinese Taipei	57 (3.8)	556 (2.3)	41 (3.8)	547 (3.1)	2 (0.9)	~ ~
Scotland	51 (5.0)	513 (4.2)	45 (4.9)	497 (4.5)	4 (1.8)	451 (14.3)
New Zealand	48 (3.3)	543 (3.1)	48 (3.3)	505 (4.6)	4 (1.5)	477 (14.4)
United States	48 (3.5)	564 (3.4)	45 (3.5)	521 (4.1)	7 (1.6)	475 (9.0)
Australia	38 (4.6)	538 (4.5)	55 (5.1)	514 (4.4)	7 (3.6)	468 (36.6)
England	r 34 (4.7)	556 (7.3)	64 (4.9)	533 (5.9)	2 (1.3)	~ ~
Singapore	32 (4.1)	583 (7.7)	63 (4.1)	558 (7.0)	5 (1.6)	519 (15.1)
Hong Kong, SAR	30 (4.6)	551 (5.2)	65 (4.8)	540 (3.4)	5 (2.1)	529 (5.8)
Cyprus	28 (4.0)	483 (5.6)	66 (4.3)	480 (2.8)	6 (2.3)	479 (5.1)
Philippines	27 (3.9)	359 (17.7)	66 (4.2)	312 (8.5)	7 (2.2)	306 (26.1)
Norway	26 (3.9)	472 (4.6)	72 (4.0)	464 (3.0)	2 (1.0)	~ ~
Lithuania	25 (3.5)	517 (5.3)	72 (3.7)	510 (2.9)	3 (1.4)	489 (9.9)
Iran, Islamic Rep. of	25 (4.0)	438 (10.8)	67 (4.3)	411 (4.9)	8 (2.6)	366 (13.2)
Belgium (Flemish)	21 (3.3)	527 (3.0)	77 (3.2)	518 (1.9)	3 (1.4)	479 (32.8)
Netherlands	20 (3.8)	528 (3.7)	79 (4.0)	526 (2.5)	2 (1.2)	~ ~
Japan	18 (3.1)	554 (3.7)	77 (3.3)	542 (1.8)	5 (1.8)	526 (6.4)
Italy	15 (2.8)	525 (9.0)	76 (3.4)	515 (4.4)	10 (2.4)	507 (12.7)
Tunisia	9 (2.4)	367 (19.2)	49 (3.9)	331 (7.8)	42 (3.9)	281 (8.2)
Slovenia	8 (2.1)	499 (4.3)	85 (2.7)	492 (3.0)	7 (2.0)	469 (7.0)
Hungary	8 (2.2)	559 (8.6)	85 (3.0)	526 (3.4)	7 (2.3)	532 (16.7)
Latvia	6 (2.2)	543 (11.6)	83 (3.6)	532 (3.1)	11 (2.9)	521 (7.9)
Russian Federation	4 (1.3)	545 (19.4)	84 (2.6)	526 (5.7)	12 (2.4)	524 (12.5)
Morocco	r 3 (1.4)	399 (11.6)	41 (4.7)	299 (9.0)	57 (4.7)	308 (9.9)
Armenia	r 2 (1.3)	~ ~	80 (3.7)	439 (4.9)	18 (3.5)	408 (12.4)
Moldova, Rep. of	r 0 (0.0)	~ ~	55 (5.0)	503 (6.3)	45 (5.0)	485 (8.8)
<b>International Avg.</b>	<b>23 (0.7)</b>	<b>510 (2.0)</b>	<b>66 (0.8)</b>	<b>486 (1.1)</b>	<b>11 (0.5)</b>	<b>457 (3.5)</b>
<b>Benchmarking Participants</b>						
Indiana State, US	55 (7.2)	568 (5.3)	42 (7.1)	539 (6.1)	3 (0.3)	480 (5.7)
Ontario Province, Can.	43 (4.5)	557 (6.2)	52 (4.6)	530 (4.1)	5 (2.4)	519 (12.6)
Quebec Province, Can.	25 (3.6)	510 (3.6)	70 (3.9)	498 (2.9)	5 (2.1)	483 (8.7)

Background data provided by schools.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A tilde (~) indicates insufficient data to report achievement.

An "r" indicates data are available for at least 70 but less than 85% of the students.



Exhibit 8.5: Index of Science Teachers' Perception of School Climate (TPSC)

Index of Teachers' Perception of School Climate	Countries	High TPSC		Medium TPSC		Low TPSC	
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
	Philippines	32 (4.5)	402 (10.4)	59 (4.9)	372 (7.7)	9 (1.9)	358 (11.1)
	Israel	25 (3.0)	514 (7.1)	61 (3.6)	487 (3.8)	14 (2.4)	452 (8.1)
	United States	24 (2.6)	564 (5.5)	52 (3.0)	531 (4.0)	24 (2.6)	499 (5.8)
	New Zealand	22 (4.3)	534 (6.6)	60 (5.3)	523 (6.6)	18 (4.1)	503 (12.0)
	Lebanon	20 (2.8)	415 (7.3)	55 (3.6)	402 (6.3)	25 (3.2)	360 (7.6)
	Egypt	20 (3.0)	441 (8.7)	60 (4.1)	419 (4.4)	20 (3.2)	406 (11.5)
	Chinese Taipei	19 (3.5)	587 (8.0)	66 (4.2)	569 (4.0)	15 (3.1)	551 (6.7)
	Malaysia	15 (3.1)	531 (11.9)	71 (4.0)	510 (4.3)	14 (3.3)	494 (8.4)
	Indonesia	15 (1.8)	450 (8.7)	69 (3.1)	419 (4.9)	16 (2.6)	413 (8.6)
	Ghana	14 (3.3)	307 (21.5)	61 (4.6)	247 (7.5)	25 (4.0)	241 (10.2)
	Australia r	13 (2.1)	559 (7.2)	57 (3.9)	534 (5.5)	30 (3.9)	499 (6.6)
	Macedonia, Rep. of	13 (2.0)	453 (11.0)	70 (2.6)	455 (4.1)	16 (2.0)	427 (9.1)
	Scotland s	12 (1.8)	536 (10.0)	60 (3.0)	522 (4.9)	28 (2.9)	493 (6.8)
	South Africa	12 (2.3)	317 (33.7)	44 (4.1)	244 (12.4)	44 (4.2)	226 (8.6)
	Cyprus	12 (0.7)	453 (3.5)	59 (1.0)	439 (2.4)	29 (1.1)	437 (3.0)
	Bahrain	11 (2.1)	459 (4.8)	50 (3.5)	440 (2.6)	39 (3.5)	430 (3.0)
	Armenia r	11 (1.5)	475 (9.2)	65 (2.1)	464 (3.8)	24 (2.2)	455 (5.1)
	Romania	10 (1.6)	507 (8.2)	61 (2.7)	472 (5.6)	29 (2.8)	452 (6.1)
	Palestinian Nat'l Auth.	10 (2.8)	452 (11.3)	67 (3.9)	435 (4.0)	23 (3.6)	428 (7.8)
	Chile	10 (1.7)	448 (10.7)	53 (3.5)	420 (4.1)	37 (3.4)	393 (4.3)
	Iran, Islamic Rep. of	9 (2.3)	489 (8.3)	43 (4.0)	456 (4.5)	48 (3.8)	445 (3.0)
	Singapore	9 (1.5)	625 (16.2)	71 (2.6)	583 (5.3)	20 (2.0)	542 (9.4)
	Japan	9 (2.2)	573 (13.4)	62 (4.0)	554 (2.7)	30 (3.7)	542 (3.2)
	Serbia	7 (1.1)	468 (6.8)	63 (2.1)	470 (3.0)	30 (2.2)	461 (3.8)
	Norway	7 (2.1)	501 (13.1)	85 (3.1)	494 (2.2)	8 (2.2)	486 (6.7)
	Jordan	7 (2.0)	513 (13.2)	54 (4.3)	481 (4.9)	39 (3.9)	460 (6.9)
	Belgium (Flemish)	7 (1.5)	551 (8.1)	68 (3.0)	525 (3.0)	25 (2.8)	482 (8.2)
	Hong Kong, SAR	7 (2.3)	589 (15.0)	66 (4.7)	561 (4.1)	28 (4.5)	537 (7.4)
	Lithuania	6 (1.1)	527 (7.0)	84 (1.7)	520 (2.2)	10 (1.4)	505 (4.0)
	Sweden	6 (1.7)	540 (4.8)	65 (3.2)	529 (3.1)	29 (2.8)	513 (4.7)
	Tunisia	6 (2.0)	408 (9.3)	54 (4.2)	404 (2.8)	40 (3.8)	401 (3.0)
	Korea, Rep. of r	6 (1.6)	560 (6.0)	70 (3.1)	561 (2.3)	25 (3.0)	556 (4.2)
	Saudi Arabia	5 (1.7)	395 (13.9)	52 (5.9)	406 (5.0)	43 (5.9)	387 (6.0)
	Hungary	5 (1.0)	570 (9.5)	79 (2.1)	545 (2.7)	17 (2.0)	518 (5.4)
	Slovenia	4 (1.3)	540 (9.4)	77 (2.8)	520 (2.0)	19 (2.6)	523 (3.0)
	Italy	4 (1.8)	499 (33.3)	49 (4.2)	497 (4.3)	48 (3.9)	484 (4.4)
	Bulgaria r	4 (1.2)	487 (17.3)	54 (3.0)	486 (5.4)	43 (3.2)	469 (6.4)
	Slovak Republic	2 (1.2)	~ ~	58 (3.0)	519 (3.4)	40 (3.1)	509 (3.7)
	Morocco	1 (1.1)	~ ~	30 (4.9)	407 (7.0)	68 (5.1)	396 (3.6)
	Latvia	1 (0.6)	~ ~	68 (3.2)	515 (3.1)	31 (3.2)	508 (4.0)
	Russian Federation	1 (0.6)	~ ~	52 (2.5)	521 (3.8)	47 (2.6)	504 (4.4)
	Moldova, Rep. of	1 (0.4)	~ ~	46 (2.9)	476 (4.2)	53 (2.9)	467 (4.9)
	Botswana	1 (1.0)	~ ~	31 (4.2)	373 (4.9)	68 (4.3)	357 (3.3)
	Netherlands r	1 (0.7)	~ ~	60 (3.1)	546 (4.3)	39 (3.0)	521 (4.9)
	Estonia	1 (0.3)	~ ~	61 (3.0)	556 (2.6)	38 (3.0)	547 (3.6)
	‡ England s	12 (2.2)	606 (14.6)	70 (4.5)	546 (7.9)	19 (4.3)	537 (10.4)
	<b>International Avg.</b>	<b>10 (0.3)</b>	<b>496 (2.1)</b>	<b>60 (0.5)</b>	<b>477 (0.8)</b>	<b>30 (0.5)</b>	<b>460 (1.1)</b>
	<b>Benchmarking Participants</b>						
	Basque Country, Spain	6 (2.6)	507 (7.1)	68 (4.8)	491 (3.0)	26 (4.2)	481 (5.7)
	Indiana State, US	19 (4.1)	557 (12.3)	56 (6.5)	531 (5.1)	24 (5.8)	509 (10.6)
	Ontario Province, Can.	19 (3.8)	540 (4.4)	62 (4.6)	535 (3.2)	20 (4.1)	525 (6.8)
	Quebec Province, Can.	8 (2.8)	562 (8.2)	66 (4.4)	534 (4.3)	25 (3.4)	518 (4.2)

Background data provided by teachers.

‡ Did not satisfy guidelines for sample participation rates (see Exhibit A.9).

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A tilde (~) indicates insufficient data to report achievement.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003



Exhibit 8.5: Index of Science Teachers' Perception of School Climate (TPSC)

Countries	High TPSC		Medium TPSC		Low TPSC	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
United States	42 (2.8)	557 (3.3)	47 (2.8)	531 (3.4)	12 (1.5)	486 (6.5)
Scotland	r 41 (5.1)	518 (4.9)	58 (5.0)	500 (4.2)	2 (1.1)	~ ~
New Zealand	37 (2.9)	533 (5.1)	57 (3.1)	516 (3.5)	5 (1.2)	461 (9.5)
Philippines	34 (4.5)	359 (22.3)	57 (4.7)	320 (10.5)	9 (2.8)	306 (20.4)
Lithuania	34 (3.4)	517 (4.1)	65 (3.4)	508 (2.9)	0 (0.0)	~ ~
Chinese Taipei	34 (4.4)	557 (3.1)	63 (4.6)	550 (2.5)	3 (1.3)	539 (23.4)
Australia	31 (3.6)	532 (7.3)	59 (3.7)	526 (3.3)	11 (2.5)	466 (25.7)
England	r 29 (4.4)	552 (6.6)	63 (4.9)	533 (5.2)	8 (2.4)	539 (15.4)
Iran, Islamic Rep. of	25 (4.0)	437 (10.0)	60 (4.6)	408 (5.7)	15 (3.5)	402 (8.6)
Cyprus	23 (3.4)	486 (5.0)	68 (3.8)	481 (2.7)	9 (2.1)	460 (6.6)
Singapore	20 (3.5)	596 (9.5)	71 (3.9)	558 (6.5)	9 (2.1)	534 (20.7)
Belgium (Flemish)	19 (2.6)	518 (3.6)	75 (3.2)	521 (1.7)	6 (1.9)	490 (13.4)
Norway	18 (3.6)	477 (5.9)	76 (3.7)	464 (3.2)	6 (1.9)	459 (10.7)
Armenia	s 18 (4.0)	452 (12.1)	60 (5.6)	451 (7.8)	23 (5.5)	431 (11.4)
Slovenia	16 (3.6)	490 (7.0)	80 (4.0)	491 (3.2)	4 (1.8)	490 (2.1)
Hungary	15 (2.8)	535 (7.9)	79 (3.2)	531 (3.1)	7 (2.1)	492 (15.8)
Japan	13 (2.8)	557 (4.6)	75 (3.5)	543 (1.8)	12 (2.8)	532 (3.3)
Hong Kong, SAR	11 (2.8)	555 (6.9)	76 (4.2)	540 (3.4)	13 (3.3)	544 (7.6)
Italy	8 (2.2)	522 (13.4)	73 (3.3)	520 (4.4)	19 (2.7)	495 (8.5)
Netherlands	8 (2.6)	538 (5.1)	84 (3.6)	527 (2.4)	8 (2.5)	504 (8.6)
Morocco	s 6 (2.3)	377 (31.1)	28 (5.1)	303 (15.2)	66 (5.1)	302 (8.1)
Tunisia	r 6 (2.2)	367 (17.4)	58 (3.8)	325 (8.5)	36 (3.7)	287 (10.8)
Russian Federation	5 (1.8)	562 (18.4)	80 (3.4)	528 (5.6)	15 (3.1)	504 (9.1)
Latvia	5 (2.0)	547 (7.3)	87 (2.8)	532 (2.9)	8 (2.0)	514 (10.4)
Moldova, Rep. of	2 (0.7)	~ ~	63 (4.1)	497 (6.9)	35 (4.1)	494 (6.3)
<b>International Avg.</b>	<b>20 (0.7)</b>	<b>506 (2.4)</b>	<b>66 (0.8)</b>	<b>488 (1.2)</b>	<b>14 (0.6)</b>	<b>467 (2.7)</b>
<b>Benchmarking Participants</b>						
Indiana State, US	35 (5.5)	571 (6.2)	59 (4.9)	544 (4.1)	7 (2.8)	542 (23.9)
Ontario Province, Can.	36 (4.1)	555 (7.7)	55 (4.4)	534 (3.2)	9 (3.2)	518 (14.6)
Quebec Province, Can.	14 (2.7)	516 (6.8)	73 (3.8)	499 (3.0)	13 (3.1)	493 (6.0)

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Background data provided by teachers.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A tilde (~) indicates insufficient data to report achievement.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.

there was a strong positive relationship between the principals' perception of school climate and average science achievement.

The Index of Science Teachers' Perception of School Climate is presented in Exhibit 8.5. It is based on the teachers' characterizations of the same aspects of school climate as were characterized by the principals (see list above). As can be seen from the results, fourth-grade teachers were in considerable agreement with principals, also placing two-thirds of the fourth-grade students in the medium category. According to their teachers, internationally, on average, 20 percent of the students attended schools in the high category and 14 percent attended schools in the low category. At the eighth grade, teachers had a somewhat more gloomy view of the climate in schools than did the principals. According to their teachers, on average, only 10 percent of the eighth-grade students were attending schools in the high category. Sixty percent were attending schools in the medium category and 30 percent in the low category. Similar to the results for the principals, at both grades, there was a positive relationship between higher reports from teachers and higher average science achievement.

## How Serious Are School Attendance Problems?

In some countries, schools are confronted with high rates of absenteeism, which can influence instructional continuity and reduce the time for learning. In general, research has shown that greater truancy is related to less serious attitudes towards school and lower academic achievement. To examine this issue, TIMSS developed an index of good school and class attendance based on schools' responses to three questions about the seriousness of students' absenteeism, arriving late at school, and skipping class. The high index level indicates schools reported that all three behaviors are not a problem. The low level indicates that two or more are a serious problem, or two are minor problems and the third a serious problem. The medium category includes all other possible combinations of responses.

The results of the index for TIMSS 2003 are presented in Exhibit 8.6, which also contains trends between 1999 and 2003 at the eighth grade. At the eighth grade, the results show very little change, on average, in attendance problems. Considering the two assessments, the high category did show a small (statistically significant) increase from 21 percent in 1999 to 23 percent in 2003. Nevertheless, the overwhelming majority of the students – 58 to 59 percent – were in the medium category in both years, and about one-fifth (19-20%) were in the low category. Student attendance problems remain a serious problem in many countries, decreasing in five countries but increasing in four others during the same four-year period. At the fourth grade in 2003, 47 percent of students, on average, internationally, were in the high category, where principals had judged their schools to have few if any attendance problems. Another 47 percent of the students were in schools at the medium level of the index where principals reported moderate attendance problems. Only 5 percent were in schools at the low index level.

Exhibit 8.6: Trends in Index of Good School and Class Attendance (GSCA)



Index of Good School and Class Attendance	Countries	High GSCA		Medium GSCA		Low GSCA	
		2003 Percent of Students	1999 Percent of Students	2003 Percent of Students	1999 Percent of Students	2003 Percent of Students	1999 Percent of Students
	Lebanon	66 (4.2)	◇ ◇	31 (4.1)	◇ ◇	2 (1.1)	◇ ◇
	Italy	56 (3.5)	35 (3.2) ●	39 (3.6)	57 (3.3) ▼	5 (1.5)	9 (2.2)
	Korea, Rep. of	51 (3.8)	31 (3.7) ●	48 (3.8)	62 (3.9) ▼	1 (0.7)	7 (2.2) ▼
	Chinese Taipei	51 (3.9)	28 (3.7) ●	45 (4.0)	62 (3.6) ▼	4 (1.6)	10 (2.6) ▼
	Belgium (Flemish)	47 (4.5)	51 (4.4)	47 (4.4)	46 (4.4)	6 (2.0)	3 (1.0)
	Egypt	47 (4.4)	◇ ◇	37 (4.2)	◇ ◇	16 (2.6)	◇ ◇
	Singapore	41 (0.0)	32 (4.1) ●	55 (0.0)	64 (4.0) ▼	4 (0.0)	3 (1.6)
	Iran, Islamic Rep. of	36 (3.9)	39 (4.7)	56 (3.8)	58 (4.8)	8 (2.0)	2 (1.2) ●
	Jordan	34 (4.2)	40 (4.3)	52 (4.5)	56 (4.4)	14 (3.1)	4 (1.8) ●
	Saudi Arabia	34 (3.8)	◇ ◇	56 (4.3)	◇ ◇	10 (2.3)	◇ ◇
	Slovak Republic	31 (3.8)	32 (4.2)	54 (3.8)	56 (4.4)	16 (3.6)	12 (3.2)
	Slovenia	30 (4.0)	--	55 (4.3)	--	15 (2.5)	--
	Hungary	30 (3.9)	22 (3.6)	55 (4.3)	62 (4.1)	16 (2.7)	16 (2.9)
	Palestinian Nat'l Auth.	29 (3.6)	◇ ◇	53 (4.0)	◇ ◇	18 (3.3)	◇ ◇
	Hong Kong, SAR	27 (4.1)	25 (3.9)	69 (4.1)	68 (4.3)	4 (1.8)	7 (2.5)
	Morocco	26 (5.5)	--	56 (6.0)	--	18 (4.7)	--
	Australia	26 (4.5)	--	61 (4.4)	--	13 (2.6)	--
	Bahrain	25 (0.2)	◇ ◇	58 (0.2)	◇ ◇	16 (0.2)	◇ ◇
	Macedonia, Rep. of	24 (3.7)	32 (4.4)	54 (4.3)	49 (4.5)	22 (3.3)	19 (3.1)
	Chile	22 (3.5)	18 (3.1)	64 (3.8)	69 (3.8)	15 (2.4)	13 (2.7)
	Romania	22 (3.7)	15 (3.3)	56 (4.4)	55 (4.3)	22 (3.2)	30 (4.1)
	Cyprus	r 22 (0.2)	19 (0.1) ●	65 (0.3)	54 (0.2) ●	14 (0.3)	27 (0.2) ▼
	Armenia	r 21 (3.6)	◇ ◇	64 (4.8)	◇ ◇	15 (3.8)	◇ ◇
	Norway	20 (4.1)	◇ ◇	71 (4.5)	◇ ◇	8 (2.5)	◇ ◇
	United States	r 18 (2.7)	19 (3.0)	72 (3.3)	68 (3.5)	10 (2.0)	13 (2.5)
	Malaysia	18 (3.5)	6 (2.4) ●	68 (4.2)	69 (4.1)	14 (3.1)	25 (3.8) ▼
	Netherlands	r 17 (4.1)	30 (7.3)	64 (4.7)	46 (7.3) ●	19 (3.5)	24 (7.5)
	Tunisia	17 (3.2)	16 (3.1)	60 (4.3)	59 (3.8)	23 (3.4)	25 (3.6)
	Serbia	16 (3.2)	◇ ◇	57 (4.5)	◇ ◇	27 (3.7)	◇ ◇
	Moldova, Rep. of	r 15 (3.5)	1 (1.0) ●	60 (4.6)	63 (3.8)	26 (4.1)	35 (3.8)
	Scotland	s 14 (3.7)	◇ ◇	69 (5.3)	◇ ◇	16 (4.0)	◇ ◇
	Israel	r 13 (3.0)	7 (2.3)	72 (3.6)	58 (4.7) ●	16 (3.1)	36 (4.5) ▼
	Japan	12 (2.3)	9 (2.1)	45 (4.4)	50 (4.0)	44 (4.2)	41 (3.7)
	New Zealand	11 (3.3)	15 (2.9)	64 (5.0)	69 (3.7)	26 (4.1)	16 (2.5) ●
	Russian Federation	9 (2.5)	10 (1.7)	70 (3.6)	70 (3.8)	21 (2.9)	20 (3.4)
	Indonesia	9 (2.4)	10 (2.6)	58 (4.6)	59 (4.6)	33 (4.3)	32 (4.1)
	Latvia	8 (2.2)	--	56 (4.1)	--	36 (3.8)	--
	Ghana	8 (2.4)	◇ ◇	69 (3.6)	◇ ◇	23 (3.2)	◇ ◇
	Estonia	8 (2.3)	◇ ◇	48 (3.9)	◇ ◇	45 (4.0)	◇ ◇
	Sweden	7 (2.2)	◇ ◇	58 (4.1)	◇ ◇	35 (4.1)	◇ ◇
	Philippines	7 (2.2)	8 (2.4)	69 (4.1)	72 (3.9)	24 (3.5)	20 (3.4)
	South Africa	6 (1.9)	3 (1.3)	50 (3.8)	44 (3.9)	44 (3.6)	53 (4.0)
	Lithuania	6 (2.1)	12 (2.6)	52 (4.4)	56 (4.2)	43 (4.4)	32 (3.7)
	Botswana	5 (1.9)	◇ ◇	62 (4.7)	◇ ◇	33 (4.6)	◇ ◇
	Bulgaria	4 (1.5)	24 (5.6) ▼	59 (4.0)	60 (5.4)	37 (4.1)	16 (3.1) ●
	‡ England	16 (4.2)	--	72 (5.6)	--	12 (4.6)	--
	<b>International Avg.</b>	<b>23 (0.5)</b>	<b>21 (0.7) ●</b>	<b>58 (0.6)</b>	<b>59 (0.8)</b>	<b>19 (0.5)</b>	<b>20 (0.6)</b>
	<b>Benchmarking Participants</b>						
	Basque Country, Spain	25 (4.4)	◇ ◇	65 (5.1)	◇ ◇	10 (3.2)	◇ ◇
	Indiana State, US	14 (5.3)	27 (7.8)	78 (6.4)	66 (8.4)	8 (3.7)	7 (3.7)
	Ontario Province, Can.	23 (3.5)	24 (4.1)	71 (4.0)	72 (4.5)	6 (2.2)	4 (2.1)
	Quebec Province, Can.	16 (3.2)	7 (3.7) ●	68 (4.6)	79 (5.8)	15 (3.4)	14 (4.4)

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Index based on principals' responses to three questions about the seriousness of attendance problems in the school: arriving late at school; absenteeism (i.e., unjustified absences); and skipping class. High level indicates that all three behaviors either never occur or are reported not to be a problem. Low level indicates that two or more behaviors are reported to be a serious problem, or two behaviors are reported to be minor problems and the third a serious problem. Medium level includes all other possible combinations of responses.

● 2003 significantly higher

▼ 2003 significantly lower

Background data provided by schools.

‡ Did not satisfy guidelines for sample participation rates (see Exhibit A.9)

Trend notes: Because of differences in population coverage, 1999 data are not shown for Australia, Latvia, Morocco, and Slovenia. Korea tested later in 2003 than in 1999, at the beginning of the next school year. Similarly, Lithuania tested later in 1999 than in 2003.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates comparable data are not available.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.

A diamond (◇) indicates the country did not participate in the assessment.

Exhibit 8.6: Index of Good School and Class Attendance (GSCA)

Countries	High GSCA	Medium GSCA	Low GSCA
	2003 Percent of Students	2003 Percent of Students	2003 Percent of Students
Slovenia	81 (3.8)	18 (3.7)	2 (1.1)
Chinese Taipei	79 (3.5)	21 (3.5)	0 (0.0)
Italy	72 (3.4)	26 (3.3)	2 (1.1)
Netherlands	69 (4.1)	31 (4.1)	0 (0.0)
Singapore	65 (4.3)	33 (4.3)	1 (0.6)
Hong Kong, SAR	64 (5.1)	36 (5.1)	0 (0.0)
Belgium (Flemish)	54 (3.9)	45 (4.0)	1 (0.8)
Scotland	53 (5.4)	43 (5.4)	4 (1.6)
Japan	52 (3.7)	41 (4.0)	7 (1.6)
Norway	51 (4.3)	48 (4.2)	0 (0.0)
Cyprus	49 (5.0)	51 (5.0)	0 (0.0)
Tunisia	46 (3.6)	45 (3.9)	9 (2.2)
Hungary	46 (4.0)	51 (4.0)	3 (1.3)
Lithuania	46 (4.2)	53 (4.2)	2 (1.0)
Iran, Islamic Rep. of	45 (4.7)	53 (4.9)	2 (1.3)
Australia	41 (4.4)	55 (4.6)	4 (2.0)
Latvia	41 (4.3)	52 (4.8)	7 (2.4)
Morocco	39 (4.8)	41 (5.3)	20 (3.9)
England	38 (4.9)	58 (5.1)	4 (1.4)
New Zealand	35 (3.1)	63 (3.3)	2 (0.9)
Armenia	33 (4.1)	55 (4.6)	11 (3.4)
Russian Federation	28 (3.5)	68 (3.7)	4 (1.4)
Moldova, Rep. of	26 (4.0)	56 (4.6)	19 (3.7)
United States	21 (2.8)	71 (2.8)	8 (1.8)
Philippines	11 (2.7)	74 (3.9)	15 (3.3)
<b>International Avg.</b>	<b>47 (0.8)</b>	<b>47 (0.9)</b>	<b>5 (0.4)</b>
<b>Benchmarking Participants</b>			
Indiana State, US	29 (5.9)	68 (5.8)	3 (2.3)
Ontario Province, Can.	35 (4.4)	61 (4.4)	3 (2.2)
Quebec Province, Can.	43 (3.9)	53 (4.1)	4 (2.1)

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Background data provided by schools.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates comparable data are not available.

An "r" indicates data are available for at least 70 but less than 85% of the students.

## How Safe and Orderly Are Schools?

Since school safety is central for providing an environment conducive to learning, TIMSS asked both teachers and students to characterize their perceptions of safety in their schools. More specifically, teachers were asked how much they agreed with three statements:

- This school is located in a safe neighborhood;
- I feel safe at this school;
- This school's security policies and practices are sufficient.

TIMSS used the teachers' responses to create an index, called the Index of Science Teachers' Perceptions of Safety in the Schools. If their teachers agreed or agreed a lot to all three statements, then the students were placed in the high category. If their teachers disagreed or disagreed a lot to all three statements, then students were placed in the low category. All other combinations (some agreements and some disagreements) were placed in the medium category.

Exhibit 8.7 contains the results for the Index of Science Teachers' Perception of Safety in the Schools. On the positive side of things, across countries, about three-fourths of students in both grades were in the high category (70 percent of the eighth-grade students and 76 percent of the fourth-grade students). More than one-fifth were in the medium category (24 to 20 percent, respectively), and only 6 to 4 percent were in the low category. At both grades, there was a positive relationship between teachers' reports of school safety and science achievement.

TIMSS asked the students to answer "yes" or "no" to whether each of the following five things had happened during the last month:

- Something of mine was stolen;
- I was hit or hurt by other students;
- I was made to do things that I didn't want to do by other students;

- I was made fun of or called names;
- I was left out of activities by other students.

TIMSS used students' responses to create the Index of Students' Perception of Being Safe in the Schools. Students who reported being in a safe environment, answering "no" to all five statements, were placed in the high category. Students who reported being in a much riskier school environment by answering "yes" to all five statements were placed in the low category. Students who answered "yes" to some statements and "no" to others were placed in the medium category.

Exhibit 8.8 presents the results for the Index of Students' Perception of Being Safe in the Schools. Internationally, on average, eighth-grade students reported a greater sense of security than did fourth-grade students. Nearly half of the eighth-grade students (48%) were in the high category, 37 percent were in the medium category, and 15 percent were in the low category. It should be emphasized, however, that the feeling of safety was not universal. In several countries, more than one-third of the eighth-grade students were in the low category, including Jordan, the Philippines, Ghana, and South Africa. There was a positive relationship between eighth-grade students' reporting being in safer schools and science achievement.

At the fourth grade, across the participating countries, 35 percent of the students, on average, were in the high category, 42 percent were in the medium category, and 23 percent were in the low category. The two countries with more than one-third of the fourth-grade students in the low category were Chinese Taipei and the Philippines. Similar to the eighth grade, there was a direct relationship at the fourth grade between students' reporting being in safer schools and having higher science achievement.



Exhibit 8.7: Index of Science Teachers' Perception of Safety in the Schools (TPSS)

**Index of Teachers' Perception of Safety in the Schools**

Index based on teachers' responses to three statements about their schools: this school is located in a safe neighborhood; I feel safe at this school; this school's security policies and practices are sufficient. High level indicates that the teacher agrees a lot or agrees to all three statements. Low level indicates that teacher disagrees or disagrees a lot to all three statements. Medium level includes all other combinations of responses.

Countries	High TPSS		Medium TPSS		Low TPSS	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Singapore	91 (1.5)	578 (4.8)	8 (1.5)	574 (16.2)	1 (0.6)	~ ~
Hong Kong, SAR	88 (2.9)	559 (3.1)	12 (2.9)	535 (16.6)	0 (0.0)	~ ~
Egypt	85 (2.7)	424 (4.3)	13 (2.7)	408 (10.8)	2 (1.1)	~ ~
Indonesia	85 (2.5)	423 (4.4)	12 (2.2)	425 (7.7)	3 (1.3)	408 (26.3)
Hungary	84 (2.2)	543 (3.1)	14 (2.0)	538 (4.7)	2 (0.7)	~ ~
Israel	82 (2.8)	491 (3.3)	15 (2.5)	482 (11.2)	3 (1.1)	481 (11.1)
Saudi Arabia	82 (3.5)	398 (4.7)	15 (3.4)	395 (4.4)	4 (1.5)	390 (10.0)
Slovak Republic	81 (2.2)	518 (3.5)	17 (2.0)	511 (5.4)	2 (0.8)	~ ~
Lebanon	81 (2.6)	405 (5.0)	17 (2.6)	351 (8.4)	2 (0.8)	~ ~
Norway	81 (2.9)	495 (2.2)	19 (2.9)	489 (6.3)	0 (0.0)	~ ~
United States	80 (2.3)	538 (3.3)	18 (2.3)	506 (8.3)	2 (0.8)	~ ~
Belgium (Flemish)	80 (3.0)	517 (3.1)	18 (2.7)	512 (7.6)	2 (1.2)	~ ~
Netherlands	r 79 (2.4)	539 (3.4)	18 (2.1)	535 (8.0)	2 (1.2)	~ ~
Lithuania	79 (2.6)	520 (2.3)	19 (2.5)	512 (4.1)	2 (0.7)	~ ~
New Zealand	78 (5.2)	522 (5.7)	18 (4.6)	523 (11.4)	3 (2.8)	515 (7.4)
Sweden	78 (2.7)	528 (2.7)	21 (2.6)	515 (5.2)	1 (0.7)	~ ~
Romania	78 (2.4)	471 (5.3)	19 (2.3)	466 (8.2)	3 (0.8)	445 (23.9)
Serbia	75 (2.6)	467 (2.6)	17 (2.2)	470 (5.6)	8 (1.4)	459 (4.8)
Philippines	75 (4.0)	384 (7.1)	20 (3.7)	365 (12.6)	5 (2.0)	377 (22.6)
Tunisia	75 (3.4)	406 (2.3)	21 (3.2)	396 (4.1)	4 (1.7)	401 (11.6)
Cyprus	74 (1.3)	440 (2.4)	22 (1.3)	444 (3.8)	4 (0.2)	429 (4.6)
Bahrain	74 (2.0)	441 (2.2)	21 (1.9)	431 (3.9)	5 (1.6)	429 (7.1)
Iran, Islamic Rep. of	73 (3.4)	455 (3.2)	23 (3.4)	453 (3.6)	3 (1.4)	435 (13.7)
Malaysia	73 (4.1)	515 (4.3)	21 (3.6)	504 (8.0)	6 (2.3)	493 (11.0)
Slovenia	73 (2.6)	522 (2.0)	21 (2.2)	521 (2.6)	6 (1.4)	516 (5.3)
Jordan	72 (3.6)	477 (4.8)	25 (3.6)	469 (8.5)	3 (1.4)	463 (21.5)
Macedonia, Rep. of	71 (2.9)	450 (4.0)	25 (2.5)	450 (7.0)	4 (1.1)	448 (10.6)
Australia	r 70 (3.6)	527 (4.5)	26 (3.5)	529 (9.0)	3 (1.3)	501 (14.0)
Bulgaria	r 69 (3.4)	482 (5.3)	24 (3.0)	473 (6.1)	7 (1.7)	468 (15.6)
Estonia	69 (2.5)	551 (2.7)	29 (2.3)	556 (3.5)	2 (0.5)	~ ~
Italy	68 (3.3)	499 (3.3)	23 (3.0)	473 (5.8)	9 (2.2)	480 (11.8)
Armenia	r 66 (3.0)	463 (4.1)	30 (2.6)	464 (5.5)	5 (1.2)	460 (8.3)
Latvia	63 (2.9)	511 (3.1)	31 (2.6)	517 (3.5)	6 (1.3)	511 (8.9)
Chinese Taipei	63 (4.3)	578 (4.0)	32 (4.0)	559 (6.0)	4 (1.7)	543 (8.5)
Scotland	s 61 (3.1)	523 (5.0)	35 (3.0)	509 (6.1)	4 (1.4)	461 (27.1)
Russian Federation	60 (2.3)	514 (4.0)	34 (2.3)	511 (4.7)	6 (1.3)	515 (12.0)
Morocco	59 (4.3)	404 (4.1)	25 (4.2)	395 (5.5)	16 (4.1)	386 (5.6)
Chile	58 (3.9)	424 (4.6)	35 (3.7)	397 (4.4)	7 (1.5)	393 (7.5)
Japan	55 (3.9)	555 (2.7)	35 (3.5)	551 (3.1)	10 (2.3)	539 (6.0)
Palestinian Nat'l Auth.	54 (4.1)	434 (4.8)	26 (3.9)	438 (6.5)	20 (3.6)	435 (9.7)
Moldova, Rep. of	51 (2.6)	477 (3.6)	37 (2.4)	465 (5.1)	12 (1.8)	467 (8.5)
Korea, Rep. of	r 49 (3.5)	560 (2.8)	42 (3.4)	557 (2.9)	8 (2.1)	566 (7.3)
Ghana	43 (4.7)	254 (11.0)	43 (4.8)	253 (9.0)	14 (3.3)	256 (16.0)
Botswana	36 (4.6)	367 (7.5)	43 (4.3)	366 (4.4)	20 (3.8)	353 (5.3)
South Africa	29 (3.6)	302 (19.9)	35 (3.9)	220 (12.4)	36 (4.1)	221 (7.9)
‡ England	s 62 (5.0)	563 (7.4)	34 (5.0)	536 (9.2)	4 (1.7)	494 (11.0)
<b>International Avg.</b>	<b>70 (0.5)</b>	<b>479 (0.8)</b>	<b>24 (0.5)</b>	<b>468 (1.2)</b>	<b>6 (0.3)</b>	<b>447 (2.4)</b>
<b>Benchmarking Participants</b>						
Basque Country, Spain	69 (5.1)	492 (3.2)	29 (5.2)	488 (6.1)	2 (1.1)	~ ~
Indiana State, US	82 (4.2)	534 (5.1)	15 (4.1)	525 (10.0)	3 (0.5)	470 (41.7)
Ontario Province, Can.	90 (2.5)	535 (2.7)	8 (2.4)	525 (11.1)	2 (1.4)	~ ~
Quebec Province, Can.	81 (3.3)	533 (3.3)	18 (3.3)	530 (7.3)	0 (0.3)	~ ~

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Background data provided by teachers.

‡ Did not satisfy guidelines for sample participation rates (see Exhibit A.9).

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A tilde (~) indicates insufficient data to report achievement.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.



Exhibit 8.7: Index of Science Teachers' Perception of Safety in the Schools (TPSS)

Countries	High TPSS		Medium TPSS		Low TPSS	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Norway	91 (2.8)	466 (2.7)	9 (2.7)	467 (12.4)	1 (0.7)	~ ~
Singapore	88 (2.5)	568 (5.6)	12 (2.5)	542 (17.4)	0 (0.0)	~ ~
Hungary	88 (3.0)	528 (3.2)	11 (2.8)	538 (12.6)	1 (1.0)	~ ~
New Zealand	r 88 (1.9)	524 (2.8)	12 (1.9)	484 (9.4)	0 (0.3)	~ ~
Netherlands	85 (2.2)	531 (2.0)	13 (2.1)	497 (7.7)	2 (1.5)	~ ~
United States	83 (2.1)	545 (2.5)	14 (1.9)	499 (7.6)	2 (0.7)	~ ~
Hong Kong, SAR	83 (3.8)	542 (3.5)	15 (3.6)	547 (6.1)	2 (1.3)	~ ~
Armenia	s 82 (4.7)	449 (6.2)	15 (4.5)	424 (14.2)	3 (1.6)	506 (28.8)
Iran, Islamic Rep. of	81 (4.3)	416 (4.8)	16 (4.1)	406 (11.3)	2 (1.5)	~ ~
Lithuania	81 (3.1)	513 (2.7)	17 (2.8)	502 (5.4)	3 (1.1)	505 (9.7)
Tunisia	r 79 (3.8)	319 (6.7)	11 (2.6)	290 (25.4)	10 (2.8)	299 (18.0)
Australia	79 (3.5)	529 (3.9)	20 (3.5)	494 (15.6)	1 (0.7)	~ ~
Philippines	78 (3.7)	340 (11.8)	17 (3.3)	307 (13.9)	5 (2.1)	288 (24.0)
Scotland	r 77 (3.2)	513 (3.8)	22 (3.1)	486 (5.8)	1 (0.0)	~ ~
Chinese Taipei	76 (3.4)	553 (2.1)	22 (3.4)	550 (4.2)	2 (1.4)	~ ~
Cyprus	76 (3.4)	482 (2.7)	22 (3.4)	473 (4.1)	2 (0.8)	~ ~
Slovenia	73 (4.1)	487 (3.3)	23 (4.0)	504 (5.0)	4 (1.7)	502 (10.6)
Russian Federation	72 (3.2)	528 (5.8)	26 (3.2)	524 (8.4)	1 (0.7)	~ ~
England	r 70 (4.0)	548 (4.4)	28 (4.0)	518 (7.6)	2 (1.2)	~ ~
Belgium (Flemish)	69 (2.9)	518 (1.8)	30 (2.8)	519 (3.7)	1 (0.4)	~ ~
Latvia	66 (3.6)	531 (3.5)	31 (3.6)	532 (5.8)	3 (1.4)	530 (17.1)
Italy	65 (3.5)	520 (4.5)	24 (3.0)	505 (8.3)	12 (2.2)	513 (12.5)
Moldova, Rep. of	63 (4.3)	493 (6.8)	32 (4.1)	504 (7.4)	4 (1.6)	481 (13.4)
Japan	57 (4.0)	548 (2.0)	36 (4.1)	538 (2.6)	7 (2.3)	539 (3.8)
Morocco	s 51 (4.7)	314 (11.8)	30 (5.0)	298 (9.5)	20 (4.0)	299 (17.9)
<b>International Avg.</b>	<b>76 (0.7)</b>	<b>492 (1.1)</b>	<b>20 (0.7)</b>	<b>478 (2.2)</b>	<b>4 (0.3)</b>	<b>446 (5.4)</b>
<b>Benchmarking Participants</b>						
Indiana State, US	87 (3.3)	555 (3.9)	11 (2.8)	547 (9.9)	2 (1.2)	~ ~
Ontario Province, Can.	90 (3.1)	542 (3.9)	10 (3.0)	520 (9.2)	0 (0.3)	~ ~
Quebec Province, Can.	80 (3.6)	503 (2.5)	18 (3.4)	495 (7.9)	2 (1.3)	~ ~

Background data provided by teachers.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A tilde (~) indicates insufficient data to report achievement.

An "r" indicates data are available for at least 70 but less than 85% of the students. An "s" indicates data are available for at least 50 but less than 70% of the students.

Exhibit 8.8: Index of Students' Perception of Being Safe in the Schools (SPBSS)

Index of Students' Perception of Being Safe in the Schools	Countries	High SPBSS		Medium SPBSS		Low SPBSS	
		Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
	Sweden	78 (1.0)	524 (2.7)	20 (0.8)	533 (4.1)	3 (0.3)	524 (9.0)
	Armenia	72 (1.0)	468 (3.7)	23 (0.8)	460 (4.7)	6 (0.6)	445 (7.4)
	Bulgaria	69 (1.1)	483 (5.8)	25 (0.9)	477 (6.1)	6 (0.5)	464 (9.3)
	Serbia	67 (1.2)	471 (2.6)	27 (1.0)	469 (3.6)	5 (0.5)	454 (7.8)
	Netherlands	66 (1.4)	538 (3.2)	29 (1.1)	535 (4.1)	5 (0.5)	523 (8.5)
	Belgium (Flemish)	64 (1.1)	520 (2.6)	31 (1.0)	513 (3.0)	5 (0.4)	494 (7.1)
	Estonia	64 (1.2)	555 (2.6)	30 (1.0)	552 (3.3)	6 (0.5)	544 (5.5)
	Norway	63 (1.1)	498 (2.1)	30 (0.8)	493 (3.0)	6 (0.5)	479 (5.6)
	Korea, Rep. of	62 (1.1)	558 (1.7)	32 (0.8)	560 (2.4)	6 (0.5)	557 (4.9)
	Hungary	61 (1.2)	545 (3.1)	32 (1.0)	543 (3.5)	7 (0.5)	537 (6.0)
	Japan	61 (1.0)	552 (2.0)	31 (0.8)	555 (2.5)	8 (0.5)	542 (5.0)
	Lithuania	60 (1.1)	520 (2.5)	34 (0.8)	519 (2.9)	7 (0.5)	515 (6.0)
	Russian Federation	60 (0.9)	518 (3.8)	35 (0.9)	512 (4.2)	6 (0.4)	513 (5.2)
	Scotland	59 (1.2)	511 (3.4)	33 (1.0)	516 (4.2)	8 (0.6)	509 (8.5)
	Italy	56 (1.1)	496 (3.3)	35 (0.9)	489 (3.3)	9 (0.6)	473 (5.3)
	Latvia	56 (1.4)	520 (2.4)	36 (1.3)	508 (3.4)	7 (0.6)	500 (5.9)
	Macedonia, Rep. of	56 (1.2)	467 (3.9)	33 (0.9)	450 (4.5)	11 (0.8)	411 (7.0)
	Saudi Arabia	55 (1.9)	403 (4.2)	35 (1.4)	402 (4.4)	11 (0.8)	384 (6.5)
	Israel	53 (1.2)	494 (3.5)	35 (1.2)	495 (3.7)	11 (0.6)	462 (6.1)
	Slovenia	53 (1.3)	520 (2.0)	38 (1.3)	526 (2.8)	10 (0.6)	509 (4.1)
	Malaysia	51 (1.1)	514 (4.2)	41 (1.0)	508 (3.5)	8 (0.5)	500 (5.9)
	Slovak Republic	50 (1.2)	522 (3.8)	38 (0.9)	513 (3.6)	12 (0.7)	509 (4.4)
	Iran, Islamic Rep. of	49 (1.5)	460 (2.7)	39 (1.1)	449 (2.7)	11 (0.7)	442 (5.0)
	Romania	48 (1.4)	480 (5.5)	38 (1.0)	467 (4.6)	14 (0.9)	454 (8.2)
	Moldova, Rep. of	48 (1.2)	483 (4.1)	38 (1.0)	470 (3.6)	14 (0.8)	456 (5.3)
	Chinese Taipei	47 (0.9)	577 (3.8)	36 (0.7)	569 (3.6)	17 (0.6)	560 (4.4)
	Tunisia	47 (1.0)	405 (2.3)	40 (0.9)	402 (2.4)	13 (0.6)	410 (3.9)
	Hong Kong, SAR	46 (1.3)	557 (3.1)	42 (1.0)	558 (3.7)	12 (0.7)	548 (4.7)
	Singapore	44 (0.7)	589 (4.1)	43 (0.6)	576 (4.5)	13 (0.5)	548 (6.6)
	Australia	43 (1.2)	530 (4.2)	40 (1.0)	529 (4.1)	18 (0.9)	524 (4.3)
	Egypt	42 (1.3)	463 (3.3)	40 (1.0)	417 (4.3)	18 (0.9)	364 (6.1)
	Bahrain	41 (1.0)	449 (2.3)	42 (0.9)	440 (2.3)	17 (0.8)	417 (3.6)
	Cyprus	41 (0.9)	456 (2.9)	42 (0.8)	444 (2.1)	17 (0.8)	419 (4.0)
	Palestinian Nat'l Auth.	41 (1.3)	455 (2.8)	42 (0.9)	432 (3.7)	17 (0.9)	407 (4.9)
	New Zealand	40 (1.5)	529 (5.3)	41 (1.3)	518 (5.4)	19 (1.2)	512 (6.4)
	Indonesia	39 (1.2)	429 (3.9)	45 (1.1)	422 (4.3)	16 (0.8)	409 (5.8)
	Lebanon	36 (1.8)	431 (6.0)	37 (0.9)	396 (4.5)	26 (1.8)	348 (5.6)
	Morocco	35 (1.2)	401 (3.7)	48 (1.1)	400 (3.8)	17 (0.8)	393 (4.4)
	Chile	31 (1.0)	420 (3.7)	51 (0.7)	413 (3.5)	18 (0.8)	400 (3.8)
	Jordan	17 (2.3)	494 (8.8)	22 (1.6)	461 (5.8)	61 (3.2)	482 (3.5)
	Philippines	15 (0.9)	422 (7.8)	47 (0.9)	384 (5.8)	38 (1.1)	354 (6.0)
	Ghana	13 (1.0)	300 (8.3)	49 (1.0)	273 (6.0)	38 (1.3)	231 (6.7)
	South Africa	13 (0.9)	339 (16.3)	47 (0.9)	257 (6.5)	40 (1.2)	200 (5.2)
	Botswana	12 (0.6)	389 (5.9)	56 (0.8)	372 (3.6)	32 (0.9)	351 (3.1)
	United States	--	--	--	--	--	--
	‡ England	51 (1.4)	545 (5.2)	37 (1.0)	551 (4.6)	12 (1.0)	542 (7.0)
	International Avg.	48 (0.2)	484 (0.8)	37 (0.1)	474 (0.7)	15 (0.1)	458 (1.0)
	<b>Benchmarking Participants</b>						
	Basque Country, Spain	62 (2.0)	494 (2.9)	32 (1.6)	487 (3.8)	6 (0.7)	456 (5.8)
	Indiana State, US	--	--	--	--	--	--
	Ontario Province, Can.	45 (1.4)	532 (3.3)	40 (1.1)	536 (2.7)	15 (1.1)	530 (5.0)
	Quebec Province, Can.	55 (1.2)	532 (3.4)	36 (1.0)	532 (3.6)	9 (0.6)	528 (5.7)

Background data provided by students.

‡ Did not satisfy guidelines for sample participation rates (see Exhibit A.9).

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

Exhibit 8.8: Index of Students' Perception of Being Safe in the Schools (SPBSS)

Countries	High SPBSS		Medium SPBSS		Low SPBSS	
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement
Armenia	58 (1.4)	454 (5.4)	37 (1.4)	430 (4.8)	5 (0.4)	406 (8.5)
Norway	53 (1.2)	480 (2.5)	34 (1.0)	470 (3.6)	13 (0.7)	440 (5.5)
Japan	45 (1.2)	549 (1.9)	39 (0.9)	546 (1.9)	17 (0.8)	527 (3.5)
Lithuania	44 (1.2)	523 (2.6)	43 (1.1)	508 (3.4)	13 (0.7)	500 (5.5)
Netherlands	44 (1.5)	533 (2.3)	40 (1.1)	524 (2.4)	17 (1.0)	513 (3.8)
Latvia	41 (1.3)	544 (2.5)	45 (1.0)	531 (2.8)	14 (0.8)	504 (5.6)
Russian Federation	40 (1.3)	539 (5.8)	46 (1.0)	524 (5.3)	14 (0.8)	508 (7.1)
Hong Kong, SAR	40 (1.5)	552 (3.3)	40 (0.9)	540 (3.2)	21 (1.1)	529 (4.0)
Slovenia	40 (1.4)	501 (2.8)	40 (1.1)	491 (3.2)	20 (1.2)	474 (4.4)
Hungary	37 (1.2)	542 (3.2)	43 (1.0)	531 (3.5)	20 (0.8)	514 (4.7)
Moldova, Rep. of	37 (2.0)	518 (5.8)	43 (1.4)	492 (5.0)	20 (1.3)	474 (7.3)
Belgium (Flemish)	35 (1.2)	527 (2.0)	41 (0.8)	517 (2.4)	24 (0.9)	510 (2.8)
Iran, Islamic Rep. of	33 (2.2)	423 (5.9)	44 (1.4)	413 (5.1)	23 (1.6)	412 (6.0)
Italy	33 (1.1)	524 (5.5)	42 (0.9)	518 (4.0)	25 (1.0)	507 (4.7)
Scotland	33 (1.4)	517 (3.9)	40 (1.0)	503 (3.2)	27 (1.2)	485 (4.0)
England	32 (1.2)	558 (4.0)	42 (0.9)	545 (4.0)	26 (1.2)	514 (4.0)
Australia	29 (1.0)	535 (3.9)	39 (1.0)	525 (4.9)	32 (1.4)	508 (4.8)
Chinese Taipei	28 (1.0)	562 (2.6)	37 (0.8)	555 (1.8)	35 (1.0)	539 (2.3)
Cyprus	27 (1.0)	497 (3.1)	47 (0.8)	484 (2.8)	25 (1.0)	462 (3.2)
New Zealand	26 (0.8)	542 (2.8)	42 (1.0)	523 (3.0)	32 (0.9)	503 (3.6)
Singapore	25 (0.9)	585 (5.1)	47 (0.7)	568 (5.6)	28 (0.9)	545 (6.7)
Morocco	25 (2.1)	324 (12.2)	52 (1.7)	307 (6.7)	23 (1.4)	301 (10.2)
Tunisia	23 (1.8)	342 (10.6)	50 (1.2)	323 (6.0)	27 (1.4)	307 (7.1)
Philippines	7 (0.8)	370 (28.7)	43 (1.1)	336 (10.2)	50 (1.5)	327 (8.0)
United States	--	--	--	--	--	--
<b>International Avg.</b>	<b>35 (0.3)</b>	<b>502 (1.7)</b>	<b>42 (0.2)</b>	<b>488 (1.0)</b>	<b>23 (0.2)</b>	<b>471 (1.3)</b>
<b>Benchmarking Participants</b>						
Indiana State, US	--	--	--	--	--	--
Ontario Province, Can.	30 (1.1)	555 (5.4)	40 (1.0)	541 (3.8)	29 (1.1)	528 (3.8)
Quebec Province, Can.	34 (1.1)	511 (3.2)	42 (0.8)	501 (2.8)	24 (1.1)	488 (4.0)

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

Background data provided by students.

( ) Standard errors appear in parentheses. Because results are rounded to the nearest whole number, some totals may appear inconsistent.

A dash (–) indicates comparable data are not available.

An "r" indicates data are available for at least 70 but less than 85% of the students.