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).

	4 (1.7)	432 (30.7)	21 (3.5)	433 (.1)	28 (4.1)	433 (.)	48 (4.6)	435 (7.2)
	34 (4.4)	542 (5.3)	30 (4.0)	520 (5.5)	21 (3.6)	510 (6.2)	15 (4.0)	473 (17.7)
)	5 (4.4)	525 (2.2)	27 (4.0)	518 (2.7)	7 (2.1)	4 7 (5.4)	7 (2.7)	487 (12.6)
	80 (3.4)	555 (2.1)	15 (3.0)	545 (3.8)	4 (1.5)	510 (13.1)	2 (0.)	
	58 (4.5)	486 (2.)	30 (4.4)	476 (4.8)	6 (2.2)	481 (8.2)	5 (1.1)	455 (10.0)
	38 (4.4)	565 (6.7)	25 (4.5)	537 (6.)	11 (3.0)	540 (12.3)	25 (4.2)	500 (.1)
	23 (4.4)	553 (6.8)	26 (3.5)	543 (5.5)	25 (4.)	545 (5.5)	25 (4.4)	530 (4.)
	15 (3.3)	554 (5.5)	24 (4.2)	540 (5.5)	31 (4.0)	52 (5.)	30 (3.6)	505 (5.)
	17 (3.5)	461 (13.3)	11 (3.2)	434 (.4)	22 (4.3)	417 (8.3)	50 (4.7)	3 3 (5.3)
	46 (4.1)	525 (4.1)	37 (3.8)	513 (6.5)	10 (2.4)	4 0 (10.1)	8 (1.6)	505 (18.6)
	74 (3.)	546 (1.8)	22 (3.6)	535 (2.8)	4 (1.5)	537 (7.1)	0 (0.0)	
	23 (3.7)	547 (5.4)	42 (4.8)	540 (4.)	22 (4.0)	516 (7.6)	14 (3.3)	504 (6.2)
	26 (3.8)	530 (4.4)	33 (4.5)	513 (4.5)	31 (3.8)	4 (4.3)	11 (2.)	501 (7.)
	10 (3.0)	482 (25.7)	17 (3.1)	4 (7.7)	31 (4.7)	502 (11.)	43 (5.2)	4 0 (6.6)
	3 (1.2)	301 (38.)	4 (1.5)	305 (16.0)	18 (3.5)	284 (16.5)	75 (3.8)	312 (7.6)
	64 (4.0)	534 (2.2)	17 (3.5)	526 (4.1)	8 (2.5)	508 (8.0)	10 (2.0)	488 (8.4)
	44 (3.2)	550 (3.8)	22 (3.5)	521 (6.1)	12 (2.3)	504 (.2)	22 (2.5)	473 (6.6)
	12 (2.7)	350 (31.8)	14 (3.5)	368 (30.1)	25 (3.)	303 (12.5)	48 (4.8)	315 (.8)
	18 (2.5)	542 (10.6)	33 (3.6)	525 (8.3)	26 (3.0)	528 (8.0)	23 (3.6)	511 (.1)
	36 (4.5)	521 (4.4)	31 (4.6)	502 (4.7)	17 (4.3)	482 (4.5)	15 (3.4)	468 (.2)
	64 (3.7)	580 (7.0)	25 (3.2)	540 (.3)	6 (1.7)	524 (22.2)	4 (1.6)	535 (17.7)
	24 (4.0)	4 8 (5.4)	43 (4.6)	4 0 (3.3)	22 (4.0)	480 (7.2)	11 (2.7)	4 (8.)
(.0) (. 1 1 -1)					0			

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%).

	4 (2.5)	57 (4.7)	73 (4.0)	2 (2.5)	87 (3.1)
	6 (1.0)	71 (4.1)	64 (4.4)	8 (1.0)	0 (3.0)
	81 (0.2)	2 (0.2)	3 (0.2)	75 (0.2)	14 (0.1)
( )	65 (4.4)	18 (3.5)	44 (4.2)	8 (2.5)	7 (2.3)
	3 (2.6)	(1.0)	88 (3.0)	7 (1.4)	88 (3.1)
	3 (2.2)	71 (4.1)	65 (4.1)	84 (3.2)	71 (4.0)
	3 (2.1)	61 (3.6)	86 (2.5)	6 (1.7)	21 (3.4)
	(0.7)	75 (3.1)	7 (1.5)	8 (1.0)	86 (2.8)
	100 (0.0)	7 (0.1)	62 (0.3)	100 (0.0)	53 (0.3)
	78 (3.4)	37 (4.3)	61 (4.1)	70 (4.1)	55 (3.)
	8 (1.1)	27 (4.0)	87 (2.8)	5 (1.)	86 (3.4)
	3 (2.5)	3 (2.7)	82 (4.0)	1 (2.7)	84 (3.8)
	3 (2.5)	81 (3.6)	8 (3.1)	4 (2.5)	47 (4.8)
	85 (3.1)	53 (4.6)	87 (2.4)	1 (2.2)	48 (4.1)
	8 (2.6)	4 (2.3)	72 (3.8)	(0.)	66 (3.7)
	1 (2.2)	83 (3.0)	82 (3.1)	1 (2.2)	76 (3.6)
	6 (1.8)	46 (3.)	81 (3.1)	83 (3.5)	68 (4.0)
	7 (1.3)	38 (3.7)	58 (4.1)	7 (1.3)	67 (3.6)
	5 (1.7)	15 (2.7)	81 (3.3)	74 (3.7)	30 (3.)
	8 (3.0)	21 (3.5)	42 (4.6)	73 (3.)	25 (3.5)
	83 (3.5)	36 (4.0)	4 (4.1)	83 (2.)	82 (2.)
	1 (2.7)	55 (4.4)	73 (4.0)	82 (3.7)	84 (3.6)
	68 (4.0)	40 (4.2)	42 (4.7)	7 (3.0)	64 (4.5)
	(0.7)	70 (3.6)	0 (2.6)	2 (2.3)	3 (2.2)
	3 (2.2)	68 (4.0)	77 (3.7)	0 (2.8)	8 (1.2)
	3 (2.0)	83 (3.5)	87 (2.8)	6 (1.8)	23 (3.5)
	74 (4.6)	7 (3.5)	61 (4.5)	64 (4.8)	75 (4.4)
	87 (3.8)	80 (4.7)	81 (4.3)	70 (5.5)	50 (6.1)
	58 (4.8)	(2.3)	2 (4.7)	5 (1.8)	43 (5.3)
	88 (3.8)	53 (4.0)	67 (4.8)	5 (2.2)	72 (5.5)
	8 (2.4)	12 (2.3)	77 (3.8)	4 (2.1)	2 (2.6)
	5 (1.)	52 (4.1)	62 (4.3)	70 (4.1)	12 (3.0)
	1 (2.6)	85 (2.7)	86 (3.1)	8 (3.1)	53 (4.5)
	80 (3.8)	80 (3.2)	60 (4.0)	80 (3.7)	4 (3.8)
	4 (1.8)	64 (4.3)	8 (2.1)	84 (2.5)	83 (2.4)
	87 (2.1)	13 (3.3)	41 (5.1)	58 (3.)	44 (5.0)
	8 (1.4)	82 (4.6)	58 (4.7)	2 (3.2)	7 (4.2)
	6 (1.7)	73 (3.5)	8 (2.6)	87 (3.0)	7 (4.2)
	88 (0.0)	65 (0.0)	81 (0.0)	8 (0.0)	64 (0.0)
	83 (3.2)	80 (3.6)	2 (2.2)	5 (2.2)	85 (3.1)
	7 (1.4)	4 (5.0)	6 (3.7)	4 (1.)	60 (4.7)
	5 (1.5)	1 (2.2)	1 (2.0)	4 (2.1)	100 (0.3)
	85 (2.7)	(2.5)	65 (4.1)	8 (1.1)	63 (4.1)
	60 (4.4)	1 (3.2)	32 (3.)	40 (4.4)	(2.4)
	8 (0.)	63 (3.1)	0 (2.1)	8 (1.0)	74 (3.5)
‡					
	8 (0.4)	57 (0.5)	71 (0.5)	87 (0.4)	62 (0.5)
Benchmarking Participants					
	83 (3.5)	36 (5.3)	74 (4.5)	88 (3.4)	8 (3.6)
	8 (2.2)	63 (7.6)	88 (4.)	7 (2.3)	86 (5.4)
	6 (1.)	86 (3.2)	4 (2.3)	100 (0.0)	74 (4.5)
	2 (2.)	70 (4.8)	62 (4.6)	8 (1.0)	66 (4.8)

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

	92 (0.0)	56 (3.9)	▲	62 (4.8)	▲	7 (0.0)	40 (4.1)	▼	37 (4.7)	▼		
	66 (3.6)	19 (3.3)	▲	23 (5.4)	▲	32 (3.6)	73 (3.5)	▼	72 (5.7)	▼		
	59 (4.7)	37 (6.4)	▲	50 (7.5)		40 (4.8)	62 (6.4)	▼	50 (7.5)			
( )	57 (4.9)	60 (4.5)		52 (5.8)		41 (4.8)	40 (4.5)		48 (5.8)			
	55 (4.1)	36 (4.1)	▲			44 (4.1)	59 (4.1)	▼				
	55 (3.8)			42 (5.2)	▲	43 (3.8)			52 (5.4)			
	49 (3.8)	34 (3.3)	▲	16 (3.3)	▲	48 (3.8)	59 (3.2)	▼	77 (3.5)	▼		
	49 (4.0)	31 (3.8)	▲	25 (3.4)	▲	49 (4.0)	64 (4.1)	▼	67 (3.8)	▼		
	48 (3.8)			7 (2.5)	▲	50 (3.8)			74 (4.2)	▼		
	45 (4.8)	37 (4.1)		19 (3.3)	▲	52 (5.1)	62 (4.1)		74 (4.0)	▼		
	38 (4.0)			33 (4.8)		60 (3.9)			57 (5.2)			
	36 (5.3)					62 (5.4)						
	34 (3.6)					58 (3.7)						
	34 (4.4)					49 (4.3)						
	31 (3.4)	22 (3.1)				68 (3.5)	71 (3.8)					
	30 (4.0)	7 (2.2)	▲	2 (1.2)	▲	67 (3.9)	76 (3.7)		81 (3.0)	▼		
	26 (3.9)	24 (3.6)		22 (3.3)		72 (3.9)	69 (3.9)		77 (3.4)			
	26 (3.9)	5 (2.1)	▲			68 (4.0)	78 (3.4)					
	24 (3.6)					71 (3.9)						
	23 (4.0)			30 (4.0)		72 (4.3)			66 (4.2)			
	19 (2.7)	20 (3.0)				67 (3.3)	70 (3.3)					
	18 (3.3)	23 (3.7)				69 (3.7)	70 (4.1)					
	18 (0.2)					67 (0.2)						
	18 (5.6)					67 (6.2)						
	17 (3.6)	5 (1.9)	▲			69 (3.9)	58 (4.5)					
	16 (0.2)	15 (0.1)	▲	23 (0.5)	▼	66 (0.3)	80 (0.2)	▼	69 (0.6)	▼		
	13 (3.0)					77 (4.1)						
	13 (2.8)	5 (1.9)	▲			71 (3.9)	66 (4.3)					
	12 (2.6)	11 (2.6)				53 (4.5)	54 (4.1)					
	12 (3.0)					73 (4.0)						
	11 (2.6)	5 (2.0)		11 (2.5)		71 (4.0)	87 (3.1)	▼	86 (2.8)	▼		
	11 (2.9)					75 (4.3)						
	10 (2.9)	6 (2.1)		2 (1.4)	▲	80 (3.9)	71 (3.7)		78 (3.7)			
	10 (2.4)	5 (1.9)		2 (1.0)	▲							

	1 (0.0)		4 (1.4)		1 (0.8)	
	2 (1.3)		8 (2.3)	▼	5 (2.6)	
	1 (1.0)		1 (0.8)		0 (0.0)	
( )	2 (1.2)		0 (0.0)		1 (0.8)	
	1 (0.9)		5 (1.7)			
	2 (1.3)				6 (2.3)	
	3 (1.2)		6 (2.4)		7 (0.9)	▼
	2 (1.0)		5 (1.9)		8 (2.5)	▼
	2 (1.3)				19 (3.6)	▼
	3 (1.7)		1 (1.0)		7 (2.4)	
	1 (1.0)				10 (3.3)	▼
	2 (1.3)					
	8 (2.1)					
	17 (3.2)					
	1 (0.9)		7 (2.0)	▼		
	2 (1.0)		17 (3.2)	▼	17 (2.9)	▼
	1 (1.0)		7 (2.3)	▼	1 (1.0)	
	6 (1.9)		17 (2.9)	▼		
	4 (1.8)					
	5 (1.9)				4 (1.8)	
	14 (2.4)		10 (2.2)			
	13 (2.7)		7 (2.0)			
	15 (0.2)					
	15 (2.9)					
	14 (2.8)		38 (4.4)	▼		
	18 (0.3)		5 (0.2)	▲	8 (0.4)	▲
	10 (3.2)					
	16 (2.9)		30 (3.8)	▼		
	35 (4.0)		35 (4.0)			
	15 (3.3)					
	17 (3.1)		8 (2.4)	▲	3 (1.6)	▲
	14 (3.3)					
	9 (2.7)		23 (3.6)	▼	20 (3.5)	▼
	23 (3.1)		23 (3.6)		31 (4.9)	
	28 (5.9)					
	39 (3.5)		48 (4.1)			
	6 (2.1)		12 (3.1)			
	15 (3.2)					
	25 (3.9)		39 (3.9)	▼		
	12 (2.6)		27 (3.5)	▼	24 (3.9)	▼
	26 (4.5)					
	26 (3.7)					
	27 (3.8)		53 (4.6)	▼	54 (4.4)	▼
	23 (4.5)		71 (3.9)	▼		
	11 (2.7)		35 (4.4)	▼		
‡	7 (3.3)		5 (2.1)		5 (1.7)	
	12 (0.4)		20 (0.6)	▼	12 (0.6)	
Benchmarking Participants						

	85 (2.8)	47 (4.1) ▲	15 (2.8)	53 (4.1) ▼	1 (0.5)	0 (0.0)	
	51 (4.7)		47 (4.9)		1 (1.1)		
	49 (4.1)	7 (2.6) ▲	49 (4.3)	73 (4.6) ▼	2 (1.4)	21 (4.2)	▼
	48 (3.8)	25 (3.6) ▲	49 (3.9)	70 (3.8) ▼	3 (1.3)	5 (2.0)	
	45 (4.9)	26 (4.5) ▲	55 (4.9)	66 (4.6)	0 (0.0)	8 (2.9)	▼
	40 (3.3)	20 (3.8) ▲	59 (3.3)	72 (4.3) ▼	1 (0.8)	7 (2.5)	▼
	38 (3.9)	24 (4.6) ▲	59 (4.0)	74 (4.5) ▼	3 (1.3)	2 (1.2)	
	36 (3.4)	24 (3.2) ▲	57 (3.5)	72 (2.7) ▼	6 (1.7)	4 (1.5)	
	36 (3.9)		62 (4.2)		3 (1.4)		
	35 (4.5)	21 (4.3) ▲	65 (4.5)	75 (4.5)	0 (0.0)	3 (1.6)	
	34 (4.0)	22 (3.7) ▲	66 (4.0)	76 (3.8)	1 (0.5)	2 (1.1)	
	29 (4.3)	28 (4.5)	67 (4.1)	69 (4.8)	3 (1.7)	3 (1.6)	
	27 (4.3)	16 (3.2) ▲	66 (4.6)	82 (3.4) ▼	7 (2.2)	1 (1.1)	▲
	25 (3.3)		72 (3.5)		3 (1.3)		
	21 (3.9)		73 (4.6)		7 (2.5)		
	20 (3.1)		75 (3.5)		5 (1.6)		
	14 (3.0)	15 (3.3)	70 (4.8)	83 (3.4) ▼	16 (4.0)	3 (1.2)	▲
	12 (3.4)	4 (1.9) ▲	65 (5.2)	68 (4.6)	23 (4.5)	27 (4.5)	
	11 (3.0)		66 (4.6)		23 (4.0)		
	11 (2.2)		78 (3.2)		11 (2.8)		
	7 (2.2)		69 (3.9)		24 (3.8)		
	7 (2.7)		54 (4.8)		40 (4.3)		
	6 (2.7)		70 (4.6)		24 (4.3)		
	4 (1.4)		73 (3.2)		23 (3.1)		
	2 (1.2)		75 (4.8)		23 (4.6)		
	28 (0.7)	22 (1.0) ▲	62 (0.8)	72 (1.1) ▼	11 (0.6)	7 (0.6)	▲

TIMSS & PIRLS INTERNATIONAL STUDY CENTER,

Index of Principals' Perception of School Climate (PPSC)

4

Countries	High		Medium		Low	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	57 (3.8)	556 (2.3)	41 (3.8)	547 (3.1)	2 (0.)	/ /
	51 (5.0)	513 (4.2)	45 (4.)	4 7 (4.5)	4 (1.8)	451 (14.3)
	48 (3.3)	543 (3.1)	48 (3.3)	505 (4.6)	4 (1.5)	477 (14.4)
	48 (3.5)	564 (3.4)	45 (3.5)	521 (4.1)	7 (1.6)	475 (.0)
	38 (4.6)	538 (4.5)	55 (5.1)	514 (4.4)	7 (3.6)	468 (36.6)
	34 (4.7)	556 (7.3)	64 (4.)	533 (5.)	2 (1.3)	/ /
	32 (4.1)	583 (7.7)	63 (4.1)	558 (7.0)	5 (1.6)	51 (15.1)
	30 (4.6)	551 (5.2)	65 (4.8)	540 (3.4)	5 (2.1)	52 (5.8)
	28 (4.0)	483 (5.6)	66 (4.3)	480 (2.8)	6 (2.3)	47 (5.1)
	27 (3.)	35 (17.7)	66 (4.2)	312 (8.5)	7 (2.2)	306 (26.1)
	26 (3.)	472 (4.6)	72 (4.0)	464 (3.0)	2 (1.0)	/ /
	25 (3.5)	517 (5.3)	72 (3.7)	510 (2.)	3 (1.4)	48 (.)
	25 (4.0)	438 (10.8)	67 (4.3)	411 (4.)	8 (2.6)	366 (13.2)
	21 (3.3)	527 (3.0)	77 (3.2)	518 (1.)	3 (1.4)	47 (32.8)
	20 (3.8)	528 (3.7)	7 (4.0)	526 (2.5)	2 (1.2)	/ /
	18 (3.1)	554 (3.7)	77 (3.3)	542 (1.8)	5 (1.8)	526 (6.4)
	15 (2.8)	525 (.0)	76 (3.4)	515 (4.4)	10 (2.4)	507 (12.7)
	(2.4)	367 (1 .2)	4 (3.)	331 (7.8)	42 (3.)	281 (8.2)
	8 (2.1)	4 (4.3)	85 (2.7)	4 2 (3.0)	7 (2.0)	46 (7.0)
	8 (2.2)	55 (8.6)	85 (3.0)	526 (3.4)	7 (2.3)	532 (16.7)
	6 (2.2)	543 (11.6)	83 (3.6)	532 (3.1)	11 (2.)	521 (7.)
	4 (1.3)	545 (1 .4)	84 (2.6)	526 (5.7)	12 (2.4)	524 (12.5)
	3 (1.4)	3 (11.6)	41 (4.7)	2 (.0)	57 (4.7)	308 (.)
	2 (1.3)	/ /	80 (3.7)	43 (4.)	18 (3.5)	408 (12.4)
	0 (0.0)	/ /	55 (5.0)	503 (6.3)	45 (5.0)	485 (8.8)
	23 (0.7)	510 (2.0)	66 (0.8)	486 (1.1)	11 (0.5)	457 (3.5)
Benchmarking Participants						
	55 (7.2)	568 (5.3)	42 (7.1)	53 (6.1)	3 (0.3)	480 (5.7)
	43 (4.5)	557 (6.2)	52 (4.6)	530 (4.1)	5 (2.4)	51 (12.6)
	25 (3.6)	510 (3.6)	70 (3.)	4 8 (2.)	5 (2.1)	483 (8.7)

( ) ff f 0 5% f

	32 (4.5)	402 (10.4)	5 (4.)	372 (7.7)	(1.)	358 (11.1)
	25 (3.0)	514 (7.1)	61 (3.6)	487 (3.8)	14 (2.4)	452 (8.1)
	24 (2.6)	564 (5.5)	52 (3.0)	531 (4.0)	24 (2.6)	4 (5.8)
	22 (4.3)	534 (6.6)	60 (5.3)	523 (6.6)	18 (4.1)	503 (12.0)
	20 (2.8)	415 (7.3)	55 (3.6)	402 (6.3)	25 (3.2)	360 (7.6)
	20 (3.0)	441 (8.7)	60 (4.1)	41 (4.4)	20 (3.2)	406 (11.5)
	1 (3.5)	587 (8.0)	66 (4.2)	56 (4.0)	15 (3.1)	551 (6.7)
	15 (3.1)	531 (11.)	71 (4.0)	510 (4.3)	14 (3.3)	4 4 (8.4)
	15 (1.8)	450 (8.7)	6 (3.1)	41 (4.)	16 (2.6)	413 (8.6)
	14 (3.3)	307 (21.5)	61 (4.6)	247 (7.5)	25 (4.0)	241 (10.2)
	13 (2.1)	55 (7.2)	57 (3.)	534 (5.5)	30 (3.)	4 (6.6)
	13 (2.0)	453 (11.0)	70 (2.6)	455 (4.1)	16 (2.0)	427 (.1)
	12 (1.8)	536 (10.0)	60 (3.0)	522 (4.)	28 (2.)	4 3 (6.8)
	12 (2.3)	317 (33.7)	44 (4.1)	244 (12.4)	44 (4.2)	226 (8.6)
	12 (0.7)	453 (3.5)	5 (1.0)	43 (2.4)	2 (1.1)	437 (3.0)
	11 (2.1)	45 (4.8)	50 (3.5)	440 (2.6)	3 (3.5)	430 (3.0)
	11 (1.5)	475 (.2)	65 (2.1)	464 (3.8)	24 (2.2)	455 (5.1)
	10 (1.6)	507 (8.2)	61 (2.7)	472 (5.6)	2 (2.8)	452 (6.1)
	10 (2.8)	452 (11.3)	67 (3.)	435 (4.0)	23 (3.6)	428 (7.8)
	10 (1.7)	448 (10.7)	53 (3.5)	420 (4.1)	37 (3.4)	3 3 (4.3)
	(2.3)	48 (8.3)	43 (4.0)	456 (4.5)	48 (3.8)	445 (3.0)
	(1.5)	625 (16.2)	71 (2.6)	583 (5.3)	20 (2.0)	542 (.4)
	(2.2)	573 (13.4)	62 (4.0)	554 (2.7)	30 (3.7)	542 (3.2)
	7 (1.1)	468 (6.8)	63 (2.1)	470 (3.0)	30 (2.2)	461 (3.8)
	7 (2.1)	501 (13.1)	85 (3.1)	4 4 (2.2)	8 (2.2)	486 (6.7)
	7 (2.0)	513 (13.2)	54 (4.3)	481 (4.)	3 (3.)	460 (6.)
( )	7 (1.5)	551 (8.1)	68 (3.0)	525 (3.0)	25 (2.8)	482 (8.2)
	7 (2.3)	58 (15.0)	66 (4.7)	561 (4.1)	28 (4.5)	537 (7.4)
	6 (1.1)	527 (7.0)	84 (1.7)	520 (2.2)	10 (1.4)	505 (4.0)
	6 (1.7)	540 (4.8)	65 (3.2)	52 (3.1)	2 (2.8)	513 (4.7)
	6 (2.0)	408 (.3)	54 (4.2)	404 (2.8)	40 (3.8)	401 (3.0)
	6 (1.6)	560 (6.0)	70 (3.1)	561 (2.3)	25 (3.0)	556 (4.2)
	5 (1.7)	3 5 (13.)	52 (5.)	406 (5.0)	43 (5.)	387 (6.0)
	5 (1.0)	570 (.5)	7 (2.1)	545 (2.7)	17 (2.0)	518 (5.4)
	4 (1.3)	540 (.4)	77 (2.8)	520 (2.0)	1 (2.6)	523 (3.0)
	4 (1.8)	4 (33.3)	4 (4.2)	4 7 (4.3)	48 (3.)	484 (4.4)
	4 (1.2)	487 (17.3)	54 (3.0)	486 (5.4)	43 (3.2)	46 (6.4)
	2 (1.2)	/ /	58 (3.0)	51 (3.4)	40 (3.1)	50 (3.7)
	1 (1.1)	/ /	30 (4.)	407 (7.0)	68 (5.1)	3 6 (3.6)
	1 (0.6)	/ /	68 (3.2)	515 (3.1)	31 (3.2)	508 (4.0)
	1 (0.6)	/ /	52 (2.5)	521 (3.8)	47 (2.6)	504 (4.4)
	1 (0.4)	/ /	46 (2.)	476 (4.2)	53 (2.)	467 (4.)

	42 (2.8)	557 (3.3)	47 (2.8)	531 (3.4)	12 (1.5)	486 (6.5)
	41 (5.1)	518 (4.)	58 (5.0)	500 (4.2)	2 (1.1)	/ /
	37 (2.)	533 (5.1)	57 (3.1)	516 (3.5)	5 (1.2)	461 (.5)
	34 (4.5)	35 (22.3)	57 (4.7)	320 (10.5)	(2.8)	306 (20.4)
	34 (3.4)	517 (4.1)	65 (3.4)	508 (2.)	0 (0.0)	/ /
	34 (4.4)	557 (3.1)	63 (4.6)	550 (2.5)	3 (1.3)	53 (23.4)
	31 (3.6)	532 (7.3)	5 (3.7)	526 (3.3)	11 (2.5)	466 (25.7)
	2 (4.4)	552 (6.6)	63 (4.)	533 (5.2)	8 (2.4)	53 (15.4)
	25 (4.0)	437 (10.0)	60 (4.6)	408 (5.7)	15 (3.5)	402 (8.6)
	23 (3.4)	486 (5.0)	68 (3.8)	481 (2.7)	(2.1)	460 (6.6)
	20 (3.5)	5 6 (.5)	71 (3.)	558 (6.5)	(2.1)	534 (20.7)
)	1 (2.6)	518 (3.6)	75 (3.2)	521 (1.7)	6 (1.)	4 0 (13.4)
	18 (3.6)	477 (5.)	76 (3.7)	464 (3.2)	6 (1.)	45 (10.7)
	18 (4.0)	452 (12.1)	60 (5.6)	451 (7.8)	23 (5.5)	431 (11.4)
	16 (3.6)	4 0 (7.0)	80 (4.0)	4 1 (3.2)	4 (1.8)	4 0 (2.1)
	15 (2.8)	535 (7.)	7 (3.2)	531 (3.1)	7 (2.1)	4 2 (15.8)
	13 (2.8)	557 (4.6)	75 (3.5)	543 (1.8)	12 (2.8)	532 (3.3)
	11 (2.8)	555 (6.)	76 (4.2)	540 (3.4)	13 (3.3)	544 (7.6)

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-

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

	66 (4.2)		31 (4.1)		2 (1.1)		
	56 (3.5)	35 (3.2) ▲	39 (3.6)	57 (3.3) ▼	5 (1.5)	9 (2.2)	
	51 (3.8)	31 (3.7) ▲	48 (3.8)	62 (3.9) ▼	1 (0.7)	7 (2.2)	▼
	51 (3.9)	28 (3.7) ▲	45 (4.0)	62 (3.6) ▼	4 (1.6)	10 (2.6)	▼
( )	47 (4.5)	51 (4.4)	47 (4.4)	46 (4.4)	6 (2.0)	3 (1.0)	
	47 (4.4)		37 (4.2)		16 (2.6)		
	41 (0.0)	32 (4.1) ▲	55 (0.0)	64 (4.0) ▼	4 (0.0)	3 (1.6)	
	36 (3.9)	39 (4.7)	56 (3.8)	58 (4.8)	8 (2.0)	2 (1.2)	▲
	34 (4.2)	40 (4.3)	52 (4.5)	56 (4.4)	14 (3.1)	4 (1.8)	▲
	34 (3.8)		56 (4.3)		10 (2.3)		
	31 (3.8)	32 (4.2)	54 (3.8)	56 (4.4)	16 (3.6)	12 (3.2)	
	30 (4.0)		55 (4.3)		15 (2.5)		
	30 (3.9)	22 (3.6)	55 (4.3)	62 (4.1)	16 (2.7)	16 (2.9)	
	29 (3.6)		53 (4.0)		18 (3.3)		
	27 (4.1)	25 (3.9)	69 (4.1)	68 (4.3)	4 (1.8)	7 (2.5)	
	26 (5.5)		56 (6.0)		18 (4.7)		
	26 (4.5)		61 (4.4)		13 (2.6)		
	25 (0.2)		58 (0.2)		16 (0.2)		
	24 (3.7)	32 (4.4)	54 (4.3)	49 (4.5)	22 (3.3)	19 (3.1)	
	22 (3.5)	18 (3.1)	64 (3.8)	69 (3.8)	15 (2.4)	13 (2.7)	
	22 (3.7)	15 (3.3)	56 (4.4)	55 (4.3)	22 (3.2)	30 (4.1)	
	22 (0.2)	19 (0.1) ▲	65 (0.3)	54 (0.2) ▲	14 (0.3)	27 (0.2)	▼
	21 (3.6)		64 (4.8)		15 (3.8)		
	20 (4.1)		71 (4.5)		8 (2.5)		
	18 (2.7)	19 (3.0)	72 (3.3)	68 (3.5)	10 (2.0)	13 (2.5)	
	18 (3.5)	6 (2.4) ▲	68 (4.2)	69 (4.1)	14 (3.1)	25 (3.8)	▼
	17 (4.1)	30 (7.3)	64 (4.7)	46 (7.3) ▲	19 (3.5)	24 (7.5)	
	17 (3.2)	16 (3.1)	60 (4.3)	59 (3.8)	23 (3.4)	25 (3.6)	
	16 (3.2)		57 (4.5)		27 (3.7)		
	15 (3.5)	1 (1.0) ▲	60 (4.6)	63 (3.8)	26 (4.1)	35 (3.8)	
	14 (3.7)		69 (5.3)		16 (4.0)		
	13 (3.0)	7 (2.3)	72 (3.6)	58 (4.7) ▲	16 (3.1)	36 (4.5)	▼
	12 (2.3)	9 (2.1)	45 (4.4)	50 (4.0)	44 (4.2)	41 (3.7)	
	11 (3.3)	15 (2.9)	64 (5.0)	69 (3.7)	26 (4.1)	16 (2.5)	▲
	9 (2.5)	10 (1.7)	70 (3.6)	70 (3.8)	21 (2.9)	20 (3.4)	
	9 (2.4)	10 (2.6)	58 (4.6)	59 (4.6)	33 (4.3)	32 (4.1)	
	8 (2.2)		56 (4.1)		36 (3.8)		
	8 (2.4)		69 (3.6)		23 (3.2)		
	8 (2.3)		48 (3.9)		45 (4.0)		
	7 (2.2)		58 (4.1)		35 (4.1)		
	7 (2.2)	8 (2.4)	69 (4.1)	72 (3.9)	24 (3.5)	20 (3.4)	
	6 (1.9)	3 (1.3)	50 (3.8)	44 (3.9)	44 (3.6)	53 (4.0)	
	6 (2.1)	12 (2.6)	52 (4.4)	56 (4.2)	43 (4.4)	32 (3.7)	
	5 (1.9)		62 (4.7)		33 (4.6)		
	4 (1.5)	24 (5.6) ▼	59 (4.0)	60 (5.4)	37 (4.1)	16 (3.1)	▲
‡	16 (4.2)		72 (5.6)		12 (4.6)		
	23 (0.5)	21 (0.7) ▲	58 (0.6)	59 (0.8)	19 (0.5)	20 (0.6)	
Benchmarking Participants							
	25 (4.4)		65 (5.1)		10 (3.2)		
	14 (5.3)	27 (7.8)	78 (6.4)	66 (8.4)	8 (3.7)	7 (3.7)	
	23 (3.5)	24 (4.1)	71 (4.0)	72 (4.5)	6 (2.2)	4 (2.1)	
	16 (3.2)	7 (3.7) ▲	68 (4.6)	79 (5.8)	15 (3.4)	14 (4.4)	

Index of Good School and Class Attendance (GSCA)

4

Countries			
	2003	2003	2003
	81 (3.8)	18 (3.7)	2 (1.1)
	79 (3.5)	21 (3.5)	0 (0.0)
	72 (3.4)	26 (3.3)	2 (1.1)
	69 (4.1)	31 (4.1)	0 (0.0)
	65 (4.3)	33 (4.3)	1 (0.6)
	64 (5.1)	36 (5.1)	0 (0.0)
	54 (3.9)	45 (4.0)	1 (0.8)
	53 (5.4)	43 (5.4)	4 (1.6)
	52 (3.7)	41 (4.0)	7 (1.6)
	51 (4.3)	48 (4.2)	0 (0.0)
	49 (5.0)	51 (5.0)	0 (0.0)
	46 (3.6)	45 (3.9)	9 (2.2)
	46 (4.0)	51 (4.0)	3 (1.3)
	46 (4.2)	53 (4.2)	2 (1.0)
	45 (4.7)	53 (4.9)	2 (1.3)
	41 (4.4)	55 (4.6)	4 (2.0)
	41 (4.3)	52 (4.8)	7 (2.4)
	39 (4.8)	41 (5.3)	20 (3.9)
	38 (4.9)	58 (5.1)	4 (1.4)
	35 (3.1)	63 (3.3)	2 (0.9)
	33 (4.1)	55 (4.6)	11 (3.4)
	28 (3.5)	68 (3.7)	4 (1.4)
	26 (4.0)	56 (4.6)	19 (3.7)
	21 (2.8)	71 (2.8)	8 (1.8)
	11 (2.7)	74 (3.9)	15 (3.3)
	47 (0.8)	47 (0.9)	5 (0.4)
Benchmarking Participants			
	29 (5.9)	68 (5.8)	3 (2.3)
	35 (4.4)	61 (4.4)	3 (2.2)
	43 (3.9)	53 (4.1)	4 (2.1)

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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

- 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.

	1 (1.5)	578 (4.8)	8 (1.5)	574 (16.2)	1 (0.6)	
	88 (2.)	55 (3.1)	12 (2.)	535 (16.6)	0 (0.0)	
	85 (2.7)	424 (4.3)	13 (2.7)	408 (10.8)	2 (1.1)	
	85 (2.5)	423 (4.4)	12 (2.2)	425 (7.7)	3 (1.3)	408 (26.3)
	84 (2.2)	543 (3.1)	14 (2.0)	538 (4.7)	2 (0.7)	
	82 (2.8)	4 1 (3.3)	15 (2.5)	482 (11.2)	3 (1.1)	481 (11.1)
	82 (3.5)	3 8 (4.7)	15 (3.4)	3 5 (4.4)	4 (1.5)	3 0 (10.0)
	81 (2.2)	518 (3.5)	17 (2.0)	511 (5.4)	2 (0.8)	
	81 (2.6)	405 (5.0)	17 (2.6)	351 (8.4)	2 (0.8)	
	81 (2.)	4 5 (2.2)	1 (2.)	48 (6.3)	0 (0.0)	
	80 (2.3)	538 (3.3)	18 (2.3)	506 (8.3)	2 (0.8)	
	80 (3.0)	517 (3.1)	18 (2.7)	512 (7.6)	2 (1.2)	
	7 (2.4)	53 (3.4)	18 (2.1)	535 (8.0)	2 (1.2)	
	7 (2.6)	520 (2.3)	1 (2.5)	512 (4.1)	2 (0.7)	
	78 (5.2)	522 (5.7)	18 (4.6)	523 (11.4)	3 (2.8)	515 (7.4)
	78 (2.7)	528 (2.7)	21 (2.6)	515 (5.2)	1 (0.7)	
	78 (2.4)	471 (5.3)	1 (2.3)	466 (8.2)	3 (0.8)	445 (23.)
	75 (2.6)	467 (2.6)	17 (2.2)	470 (5.6)	8 (1.4)	45 (4.8)
	75 (4.0)	384 (7.1)	20 (3.7)	365 (12.6)	5 (2.0)	377 (22.6)
	75 (3.4)	406 (2.3)	21 (3.2)	3 6 (4.1)	4 (1.7)	401 (11.6)
	74 (1.3)	440 (2.4)	22 (1.3)	444 (3.8)	4 (0.2)	42 (4.6)
	74 (2.0)	441 (2.2)	21 (1.)	431 (3.)	5 (1.6)	42 (7.1)
	73 (3.4)	455 (3.2)	23 (3.4)	453 (3.6)	3 (1.4)	435 (13.7)
	73 (4.1)	515 (4.3)	21 (3.6)	504 (8.0)	6 (2.3)	4 3 (11.0)
	73 (2.6)	522 (2.0)	21 (2.2)	521 (2.6)	6 (1.4)	516 (5.3)
	72 (3.6)	477 (4.8)	25 (3.6)	46 (8.5)	3 (1.4)	463 (21.5)
	71 (2.)	450 (4.0)	25 (2.5)	450 (7.0)	4 (1.1)	448 (10.6)
	70 (3.6)	527 (4.5)	26 (3.5)	52 (.0)	3 (1.3)	501 (14.0)
	6 (3.4)	482 (5.3)	24 (3.0)	473 (6.1)	7 (1.7)	468 (15.6)
	6 (2.5)	551 (2.7)	2 (2.3)	556 (3.5)	2 (0.5)	
	68 (3.3)	4 (3.3)	23 (3.0)	473 (5.8)	(2.2)	480 (11.8)
	66 (3.0)	463 (4.1)	30 (2.6)	464 (5.5)	5 (1.2)	460 (8.3)
	63 (2.)	511 (3.1)	31 (2.6)	517 (3.5)	6 (1.3)	511 (8.)
	63 (4.3)	578 (4.0)	32 (4.0)	55 (6.0)	4 (1.7)	543 (8.5)
	61 (3.1)	523 (5.0)	35 (3.0)	50 (6.1)	4 (1.4)	461 (27.1)
	60 (2.3)	514 (4.0)	34 (2.3)	511 (4.7)	6 (1.3)	515 (12.0)
	5 (350.3((2.5))	_(ı.2(511)-387.5((47	0))(24)062.3(5-34	7.3 (1.3))-3057.2(527)-387.)	14.3(25 0.)	v(28)-350.38(1.4)

.7 Index of Science Teachers' Perception of Safety in the Schools (TPSS)

4

Countries	High		Medium		Low	
	t t t	l t	t t	l t	t t	l t
	1 (2.8)	466 (2.7)	(2.7)	467 (12.4)	1 (0.7)	
	88 (2.5)	568 (5.6)	12 (2.5)	542 (17.4)	0 (0.0)	
	88 (3.0)	528 (3.2)	11 (2.8)	538 (12.6)	1 (1.0)	
	88 (1.)	524 (2.8)	12 (1.)	484 (.4)	0 (0.3)	
	85 (2.2)	531 (2.0)	13 (2.1)	4 7 (7.7)	2 (1.5)	
	83 (2.1)	545 (2.5)	14 (1.)	4 (7.6)	2 (0.7)	
	83 (3.8)	542 (3.5)	15 (3.6)	547 (6.1)	2 (1.3)	
	82 (4.7)	44 (6.2)	15 (4.5)	424 (14.2)	3 (1.6)	506 (28.8)
	81 (4.3)	416 (4.8)	16 (4.1)	406 (11.3)	2 (1.5)	
	81 (3.1)	513 (2.7)	17 (2.8)	502 (5.4)	3 (1.1)	505 (.7)
	7 (3.8)	31 (6.7)	11 (2.6)	2 0 (25.4)	10 (2.8)	2 (18.0)
	7 (3.5)	52 (3.)	20 (3.5)	4 4 (15.6)	1 (0.7)	
	78 (3.7)	340 (11.8)	17 (3.3)	307 (13.)	5 (2.1)	288 (24.0)
	77 (3.2)	513 (3.8)	22 (3.1)	486 (5.8)	1 (0.0)	
	76 (3.4)	553 (2.1)	22 (3.4)	550 (4.2)	2 (1.4)	
	76 (3.4)	482 (2.7)	22 (3.4)	473 (4.1)	2 (0.8)	
	73 (4.1)	487 (3.3)	23 (4.0)	504 (5.0)	4 (1.7)	502 (10.6)
	72 (3.2)	528 (5.8)	26 (3.2)	524 (8.4)	1 (0.7)	
	70 (4.0)	548 (4.4)	28 (4.0)	518 (7.6)	2 (1.2)	
	6 (2.)	518 (1.8)	30 (2.8)	51 (3.7)	1 (0.4)	
	66 (3.6)	531 (3.5)	31 (3.6)	532 (5.8)	3 (1.4)	530 (17.1)
	65 (3.5)	520 (4.5)	24 (3.0)	505 (8.3)	12 (2.2)	513 (12.5)
	63 (4.3)	4 3 (6.8)	32 (4.1)	504 (7.4)	4 (1.6)	481 (13.4)
	57 (4.0)	548 (2.0)	36 (4.1)	538 (2.6)	7 (2.3)	53 (3.8)
	51 (4.7)	314 (11.8)	30 (5.0)	2 8 (.5)	20 (4.0)	2 (17.)
	76 (0.7)	4 2 (1.1)	20 (0.7)	478 (2.2)	4 (0.3)	446 (5.4)
Benchmarking Participants						
	87 (3.3)	555 (3.)	11 (2.8)	547 (.)	2 (1.2)	
	0 (3.1)	542 (3.)	10 (3.0)	520 (.2)	0 (0.3)	
	80 (3.6)	503 (2.5)	18 (3.4)	4 5 (7.)	2 (1.3)	

( ) f 0 5% f
( ) f 50 0% f .

	58 (1.4)	454 (5.4)	37 (1.4)	430 (4.8)	5 (0.4)	406 (8.5)
	53 (1.2)	480 (2.5)	34 (1.0)	470 (3.6)	13 (0.7)	440 (5.5)
	45 (1.2)	54 (1.)	3 (0.)	546 (1.)	17 (0.8)	527 (3.5)
	44 (1.2)	523 (2.6)	43 (1.1)	508 (3.4)	13 (0.7)	500 (5.5)
	44 (1.5)	533 (2.3)	40 (1.1)	524 (2.4)	17 (1.0)	513 (3.8)
	41 (1.3)	544 (2.5)	45 (1.0)	531 (2.8)	14 (0.8)	504 (5.6)
	40 (1.3)	53 (5.8)	46 (1.0)	524 (5.3)	14 (0.8)	508 (7.1)
	40 (1.5)	552 (3.3)	40 (0.)	540 (3.2)	21 (1.1)	52 (4.0)
	40 (1.4)	501 (2.8)	40 (1.1)	4 1 (3.2)	20 (1.2)	474 (4.4)
	37 (1.2)	542 (3.2)	43 (1.0)	531 (3.5)	20 (0.8)	514 (4.7)
	37 (2.0)	518 (5.8)	43 (1.4)	4 2 (5.0)	20 (1.3)	474 (7.3)
( )	35 (1.2)	527 (2.0)	41 (0.8)	517 (2.4)	24 (0.)	510 (2.8)