

Executive Summary

With PIRLS 2006, the second in the PIRLS (Progress in International Reading Literacy Study) series of studies, the IEA (International Association for the Evaluation of Educational Achievement) continues its mission of conducting comparative studies of student achievement in school subjects to inform educational policies and practices around the world. For almost 50 years, the IEA has carried out studies on a wide range of topics and subjects including mathematics, science, civics, and technology, as well as reading. By providing a cross-national perspective on education systems and on school organizational and instructional practices, and by measuring trends in student achievement, IEA studies have made significant contributions to increasing understanding of the educational process.

Inaugurated in 2001 and conducted every 5 years, PIRLS is IEA's assessment of students' reading achievement at fourth grade. Administered in 35 countries in 2001, PIRLS in 2006 was implemented in 40 countries, including Belgium with 2 educational systems and Canada with 5 provinces (45 participants in total). The success of PIRLS depends on a collaborative effort among the research centers in each country responsible for data collection and implementing the key aspects of the project, as well as on the network of international centers responsible for managing the across-country tasks, such as training country representatives in standardized procedures, selecting comparable samples of schools and students, developing instruments, and conducting the various steps required for data processing and analysis.



Building on the PIRLS 2001 framework, PIRLS 2006 assessed a range of reading comprehension processes within two major reading purposes—literary and informational. The assessment included a variety of passages drawn from materials that students encounter in their everyday experiences inside and outside school. More than half the questions were in the constructed-response format, requiring students to generate and write their answers. Example passages, questions, and scoring guides can be found in Appendix D and the pocket at the back of this report.

To provide national contexts for understanding the reading achievement results, PIRLS 2006 collected a broad array of background information about students' home and school experiences in learning to read. Countries contributed chapters to the *PIRLS 2006 Encyclopedia* and completed questionnaires describing their education systems, reading curricula, and resources for teaching reading. Students' parents, teachers, and school principals, as well as the students themselves completed questionnaires covering various aspects of home literacy support, school environment, and classroom instruction.

All aspects of PIRLS 2006 were conducted with concerted attention to quality. Countries met rigorous standards for sampling designed to prevent bias and ensure comparability. Translating the tests and questionnaires involved a detailed iterative review process, and numerous training sessions were held in data collection and scoring procedures. Prior to analysis, each country's data were subjected to exhaustive checks for consistency and comparability across countries.

Fourth-grade Students' Reading Achievement in PIRLS 2006

- ▶ The Russian Federation, Hong Kong SAR, and Singapore were the three top-performing countries in PIRLS 2006. Luxembourg, Italy, Hungary, Sweden, Germany, the Netherlands, Belgium (Flemish), Bulgaria, and Denmark also had higher achievement than the majority of other participants. Three Canadian provinces (Alberta, British Columbia, and Ontario) were also among the highest achieving participants.

- ▶ Girls had significantly higher reading achievement than boys in all except two countries, Luxembourg and Spain, where average achievement was equivalent between the sexes.
- ▶ For about half the PIRLS 2006 participants, almost all (95% or more) of their students demonstrated at least some basic reading competencies, by achieving at or above the Low International Benchmark (e.g., could locate explicitly stated information in the texts and make some straightforward inferences). Six participants had 99 percent of their students reaching this level, including Luxembourg, Hong Kong SAR, Belgium (Flemish), the Netherlands, and Lithuania, as well as the Canadian province of Alberta.
- ▶ In general, about half the participants had three fourths of their students reach the Intermediate International Benchmark (e.g., could locate different parts of the texts and identify sequences), and about two fifths reach the High International Benchmark (e.g., could distinguish embedded details and provide explanations for overall messages or ideas).
- ▶ Singapore and the Russian Federation had the greatest percentages of high-achieving students, with nearly one fifth of students (19%) reaching the Advanced International Benchmark (e.g., could provide and support interpretations, integrate information across texts, and understand literary and organizational features). However, about half of the participants had 7 percent or fewer of their students reaching the highest benchmark.
- ▶ The PIRLS 2006 participants with the highest average achievement overall, also tended to have the highest average achievement when the results were examined separately for literary and informational reading and for the comprehension processes.
- ▶ Despite their level of reading achievement overall, however, most of the PIRLS 2006 participants had relative strengths and weaknesses: relatively higher achievement in reading for literary purposes compared to informational purposes or the reverse (relatively higher achievement in informational reading than literary reading), and relatively higher achievement either in the retrieving and straightforward inferencing processes or in the interpreting, integrating, and evaluating processes.

Changes in Reading Achievement: PIRLS 2001 to PIRLS 2006

- ▶ Of the 26 countries and 2 Canadian provinces that also participated in PIRLS 2001, eight countries showed significant gains in average reading achievement in PIRLS 2006, including the Russian Federation, Hong Kong SAR, Singapore, Slovenia, the Slovak Republic, Italy, Germany, and Hungary. Countries with significant decreases since 2001 were Lithuania, the Netherlands, Sweden, England, Romania, and Morocco.
- ▶ Typically, in the countries with higher average achievement in 2006 than in 2001, achievement in 2006 was higher for both girls and boys, and, in the countries with lower average achievement, achievement was lower for both. Exceptions were Germany and Hungary where boys but not girls had significant gains, and the Netherlands where the decrease seemed to be primarily attributable to girls' lower achievement.
- ▶ In general, higher average achievement in 2006 than 2001 involved increases spanning the performance distributions. Singapore, Hong Kong SAR, and Slovenia had significant improvement across the four PIRLS 2006 International Benchmarks (low, intermediate, high, and advanced). The Russian Federation, the Slovak Republic, and Germany had improvement at all except the low benchmark, and Italy had improvements at all except the advanced benchmark. Hungary showed improvement at the advanced level.
- ▶ For countries with decreases since PIRLS 2001, Lithuania and the Netherlands had decreases at the two highest benchmarks, England and Sweden had decreases at all except the low benchmark, and Romania had decreases across the distribution.
- ▶ Countries with higher average reading achievement in 2006 than 2001 tended to have higher average achievement in both the reading purposes and processes of comprehension, and, similarly, those with lower reading achievement in 2006 than 2001 tended to have lower achievement in both the reading purposes and processes. For example, the eight countries with overall increases in average reading achievement between PIRLS 2001 and PIRLS 2006 all improved in literary reading and the majority improved in informational reading (Hong Kong SAR,

the Russian Federation, Singapore, Slovenia, Germany, and Italy). Most improved in retrieving and straightforward inferencing processes (except Italy and Hungary) and all improved in interpreting, integrating, and evaluating processes.

Home Activities Fostering Reading Literacy

- ▶ In both PIRLS 2001 and PIRLS 2006, there was a positive relationship between students' reading achievement at the fourth grade and parents having engaged their children in early literacy activities before starting school (e.g., reading books, telling stories, singing songs, playing with alphabet toys, and playing word games). Although parents generally reported a fairly high level of engagement in PIRLS 2001, it was encouraging that parents in 14 countries reported increases in PIRLS 2006.
- ▶ The presence of children's books in the home also continued to show a strong positive relationship with reading achievement. The average reading achievement difference between students from homes with many children's books (more than 100) and those from homes with few children's books (10 or fewer) was very large (91 score points, almost 1 standard deviation). On average across countries, there was a slight decrease in parents' reports of the number of children's books in the home, perhaps reflecting increased access to Internet-based literacy media.
- ▶ As was the case in PIRLS 2001, average reading achievement in PIRLS 2006 was highest among students whose parents were frequent readers. However, 13 of the participants in both assessments had decreases in the percentages of students whose parents reported reading for more than 5 hours a week, and none had increases. In PIRLS 2006, on average across countries, 37 percent of the fourth-grade students had parents who read more than 5 hours a week, 43 percent for 1 to 5 hours, and 20 percent for less than 1 hour a week.
- ▶ In both PIRLS 2001 and PIRLS 2006, reading achievement was highest for students whose parents had favorable attitudes toward reading. In PIRLS 2006, on average across countries, the majority of students (52%) had parents with favorable attitudes. Decreases for six participants in the

percentages of students whose parents had favorable attitudes towards reading were balanced by increases for seven participants.

Students' Attitudes and Reading Habits

- ▶ In PIRLS 2001, and again in PIRLS 2006, students with the most positive attitudes toward reading had the highest reading achievement. In PIRLS 2006, internationally, about half the students (49%), on average, agreed with five statements about enjoying reading and appreciating books. However, this reflected decreases in nine countries compared to four countries with increases. (There also was a decrease in the Canadian province of Ontario.)
- ▶ There was a good deal of agreement between students' perceptions of themselves as good or poor readers and their reading achievement. Internationally, about the half the students, on average, had "high" self-concepts of themselves as readers, agreeing with four statements about their reading ability. Ten participants showed increased percentages of students with positive self-concepts in 2006 compared with 2001, and eight participants (including both Canadian provinces) had decreased percentages.
- ▶ In PIRLS 2006, on average across countries, students reported reading stories and novels outside of school more frequently than informational materials (e.g., magazines, catalogs, and instructions), with more decreases than increases in daily reading for both the literary and informational categories. On average, nearly one third of students (32%) reported reading stories or novels outside of school every day or almost every day (reflecting decreases for 12 countries and increases for eight), and an additional one third (31%) reading them at least once a week (reflecting three decreases and four increases). In contrast, 16 percent of the students, on average, reported reading informational materials on a daily basis (reflecting seven decreases compared to two increases), and 43 percent reading such materials on a weekly basis (one decrease and three increases). (The Canadian province of Quebec increased in daily literary reading, but decreased in both daily and weekly informational reading, and Ontario decreased in daily informational reading.)

- ▶ On average across countries, in PIRLS 2006, students reported spending more time in a typical day reading stories and articles in books or magazines than on the Internet (1.4 hours vs. 1.0 hours). On average, girls reported more time than boys reading from books or magazines (1.5 hours vs. 1.3 hours) and this difference was found for almost every participant. In comparison, on average, boys reported more time than girls reading on the Internet (1.0 hours vs. 0.9 hours), a pattern found for approximately half the participants.
- ▶ In PIRLS 2006, on average across countries, 40 percent of the students reported reading for fun on a daily basis, and 28 percent at least weekly. However, almost one third of students (32%) internationally reported reading for fun only twice a month or less. Although there were decreases for four participants, unfortunately, seven countries had increases in the percentages of students who reported reading for fun only twice a month or less.

School Curriculum and Organization for Teaching Reading

- ▶ Internationally, in PIRLS 2006, there was a positive relationship between fourth-grade students' reading achievement, on average, and the amount of time spent in preprimary education. According to parents' reports, 81 percent of the students, on average, had attended more than 1 year of preprimary education, although there was considerable variation from country to country.
- ▶ In both PIRLS 2001 and PIRLS 2006, parents' assessments of their children's early literacy skills corresponded well with reading achievement at the fourth grade. According to their parents, nearly one third of the students in PIRLS 2006, on average across countries, entered school able to perform early literacy activities very well (i.e., recognize most of the alphabet, read some words, read sentences, write letters of the alphabet, and write some words).
- ▶ This represented increased percentages for 17 participants since PIRLS 2001, and no decreases (except for the Canadian province of Ontario).

- ▶ Principals generally agreed with parents, but were a little less positive about these same early literacy skills for students entering their schools, and reported somewhat less improvement. Internationally, principals reported that 20 percent of the students, on average, were in schools where most children (more than 75%) entered school with these skills. There were increases for five participants together with a decrease in Slovenia (and the two Canadian provinces). At the other end of the continuum, principals reported that 44 percent of the students, on average, were in schools where relatively few children (less than 25%) entered school able to perform these literacy skills. There were decreases for nine participants compared to three increases.
- ▶ Internationally, schools placed considerable emphasis on the reading curriculum and instruction. In PIRLS 2006, four fifths of students, on average across countries, were in schools that had informal initiatives to encourage students to read, and half in schools with programs to help teachers improve instruction and with guidelines for coordinating instruction across grades. Almost three fourths of students, on average, were in schools that placed more emphasis on reading than on other school subject areas.
- ▶ In PIRLS 2006, 78 percent of students, on average, were taught reading by teachers who reported frequent use of a variety of organizational approaches. Among the various approaches, however, the most popular one was teaching reading as a whole-class activity—used always or almost always, on average across countries, for 35 percent of the students.
- ▶ Across the PIRLS 2006 countries, the average class size for fourth-grade reading instruction was 24 students. The range in average class size varied from 17 students in Luxembourg to 42 in South Africa. Among the participants in both PIRLS 2001 and PIRLS 2006, more than half had a reduction in average class size of between one and three students since 2001.
- ▶ In PIRLS 2006, teachers reported that 17 percent of their students, on average across countries, were in need of remedial reading instruction. In nearly every country, the percentage of students needing remedial

reading instruction exceeded the percentage who received remedial instruction. On average across countries, 60 percent of the fourth-grade students were attending schools without access to a remedial reading specialist.

Teachers and Reading Instruction

- ▶ In PIRLS 2006, the majority of students (57%), on average across countries, were taught reading by teachers whose studies emphasized a combination of pedagogy, language, and literature. Another 19 percent, on average, had teachers whose studies emphasized language and/or literature, and 7 percent an emphasis on pedagogy.
- ▶ Across countries in PIRLS 2006, the students' teachers had been teaching for an average of 17 years. Most of the students (91%), on average, were taught reading by full-time teachers.
- ▶ In PIRLS 2006, both principals and teachers reported that textbooks were the foundation of reading instruction, supplemented by other materials. Internationally, 90 percent of the students, on average, had teachers who used textbooks at least once or twice a week. Workbooks and worksheets also were used weekly (for 82% of students, on average) as were reading series (60% of students) and children's books (55% of students).
- ▶ In PIRLS 2006, on average across countries, the percentage of students whose teachers asked them to read literary texts (e.g., short stories and chapter books) at least once a week was greater than the percentage asked to read informational texts (e.g., descriptions and explanations) that frequently (84% vs. 58%). Across countries, teachers reported that 70 percent of students, on average, were asked to read short stories at least weekly and 36 percent were asked to read chapter books.
- ▶ Across the countries participating in PIRLS 2006, teachers reported asking students to use a variety of reading skills and strategies at least once or twice a week, including identifying main ideas (90% of students, on average), supporting understanding with evidence from the text (91% of students), comparing reading with their own experiences (72%

of students), and making generalizations and drawing inferences (71% of students).

- ▶ In PIRLS 2006, both teachers and students agreed that independent silent reading was a frequent classroom activity. Internationally, 65 percent of fourth-grade students, on average, reported reading silently on their own as a daily activity, and a further 27 percent reading silently at least weekly. Across countries, students reported reading aloud less frequently, with 20 percent, on average, reporting reading aloud daily and 34 percent weekly.
- ▶ In PIRLS 2006, teachers reported using various techniques to query students about their reading. About three fourths of the students, on average, were asked to write answers in workbooks or worksheets at least weekly, and 62 percent were asked to answer questions aloud. More than half (57%), on average, wrote responses to what they read at least weekly. Only about one fourth were given a weekly written quiz or text about what they had read.
- ▶ Internationally, almost all students (89%), on average, attended schools with libraries, and 69 percent had access to classroom libraries. In PIRLS 2006, teachers reported that about half the students, on average, could borrow books from their classroom library to take home, and that 50 percent of the students were given opportunities to visit a library other than the classroom library at least weekly. On average, 40 percent of the students reported borrowing library books on a weekly basis, and another 28 percent reported borrowing library books once or twice a month.
- ▶ On average across the countries in PIRLS 2006, 65 percent of the students had access to computers in school, and 57 percent were in schools with Internet access. Since PIRLS 2001, there was a substantial increase, primarily in the Eastern European countries, in the percentages of students having access to computers and the Internet. However, the percentage of fourth-grade students with computer access differed greatly across countries.



- ▶ In PIRLS 2006, teachers reported that 30 percent of the students, on average across countries, had used instructional software to develop their reading skills (reflecting increases in 14 countries), and 39% had read stories or other texts on the computer (reflecting increases in 17 countries).

School Contexts

- ▶ Internationally, the reading achievement of students in schools with few disadvantaged students (no more than 10%) was much higher (56 scale score points, more than half a standard deviation) than for students with a high percentage of disadvantaged classmates (more than 50% disadvantaged economically). According to school principals, in PIRLS 2006 about two fifths of students (39%), on average across countries, were in schools with few students from disadvantaged homes. This average percentage reflected an increase in seven countries and one decrease since PIRLS 2001. On average, 18 percent of students were in schools with a high percentage of disadvantaged students, reflecting a decrease in four countries, but also an increase in three countries.
- ▶ In PIRLS 2006, principals reported that about half the students (52%), on average across countries, were attending schools that were not hampered by resource shortages. However, 15 percent, on average, were attending schools where principals reported that resource shortages greatly affected the provision of reading instruction. Although the situation varied from country to country, on average, there was a positive relationship between an absence of school resource shortages and average reading achievement.
- ▶ Internationally, according to principals' reports in PIRLS 2006, nearly half the students (48%), on average, attended schools emphasizing home-school involvement, whereas about one fourth (27%) attended schools with little communication between the school and the home and little parental participation in the life of the school. There was a modest positive relationship between the level of home-school involvement and average reading achievement.

- ▶ On average across countries, in PIRLS 2006 most students were in schools where principals reported that absenteeism either was not a problem (37% of students) or was a minor problem (40%). As was the case in PIRLS 2001, students in these schools had higher average reading achievement than students attending schools where absenteeism was a serious problem (9% of students on average). Across the categories, absenteeism was less of a problem in the Russian Federation, Iceland, and Macedonia in PIRLS 2006 than PIRLS 2001. On the other hand, the attendance problem appears to have grown worse in France, Latvia, Romania, and Morocco.
- ▶ Internationally, the majority of teachers had a positive view of the teaching profession and their career as a teacher. In PIRLS 2006, on average, 64 percent of students had teachers who agreed with five positive statements about their careers and teaching. Interestingly, there was a correspondence with parents' views. On average, 60 percent of the students had parents who reported a good deal of satisfaction with their child's school, agreeing with four positive statements about the quality of education and attention provided by the school.
- ▶ In PIRLS 2006, students who agreed that they felt safe in their schools and reported minimal, if any, incidents of stealing, bullying, and injury had higher reading achievement than those who did not agree that they felt safe and reported at least several such incidents involving themselves and their classmates. Across countries, 47 percent of the students, on average, reported an atmosphere of safety, 50 percent a moderately safe school, and only a small percentage (3%) reported being in unsafe schools.
- ▶ Complementing students' perceptions, on average across countries, principals reported a fairly high level of school safety. In PIRLS 2006, principals reported that 60 percent of students were in schools where safety was not a problem, and 32 percent were in schools where it was a minor problem at most. On average, and, in many countries, there was a positive relationship between principals' perception of school safety and average reading achievement.

