

# Introduction

Reading is perhaps the most important skill that a child can develop, and it is important for parents to help their children develop the habit of reading at a young age. Fourth grade is an important transition point in children's development as readers, because at this stage most students should have learned to read, and are now reading to learn. Regardless of the subject matter taught, reading is crucial to success in school, and students need good reading comprehension to understand and learn the material being covered in their various classes.

Reading also can play an important role in self-realization, helping children learn about themselves and their potential. Reading makes students more knowledgeable, not just about school subjects but about many topics relevant to everyday life and society more generally. They will encounter new words, phrases, and idioms that will improve vocabulary and language skills, and learning about patterns and connections will increase thinking skills and creativity.

PIRLS (Progress in International Reading Literacy Study) has the goal of helping countries make informed decisions about how to improve teaching and learning in reading. This PIRLS 2011 report provides information about trends in how well fourth grade students around the world can read. It provides a wealth of information about changes over the past decade, which has seen

enormous growth in a myriad of ways for children to spend their spare time other than reading. Are fourth grade students reading better than ever? Or perhaps, have the many competing media activities (e.g., watching TV, social networking, listening to music on phones and computers, and playing video games) supplanted reading in children's lives to the point that reading skills are eroding? This report also contains important information about how well children's home environments are fostering reading skills, and about children's attitudes toward reading. Are parents encouraging children to improve their reading comprehension skills? Are more or fewer children enjoying reading than a decade ago?

Finally, the report includes information about the major factors contributing to effective school and classroom learning environments. Are schools well-resourced? Do they have climates conducive to learning? Are teachers well-prepared? Do they cover the content? Do they provide engaging instruction? Are classrooms equipped with books and technology?

## Countries Participating in PIRLS 2011

The PIRLS 2011 international reading assessment of fourth grade students in countries around the world continues the series of significant international studies in reading literacy conducted by the International Association for the Evaluation of Educational Achievement (IEA). Also, to meet the needs of the increasing number of developing countries wanting to participate in PIRLS 2011, IEA developed a less difficult assessment to bridge to PIRLS, called prePIRLS. IEA is an independent international cooperative of national research institutions and government agencies with nearly 70 member countries worldwide. IEA has a permanent secretariat based in Amsterdam, and a thriving data processing and research center in Hamburg (the IEA DPC). The decision to participate in an IEA study is coordinated through the IEA Secretariat in Amsterdam and made solely by each member country according to its own data needs and resources.

Exhibit 1 shows the PIRLS 2011 participants. Altogether, there were 49 countries in the PIRLS and prePIRLS assessments, including some distinct education systems within countries that have always participated separately throughout IEA's long history (e.g., the French-speaking part of Belgium and Hong Kong SAR). In addition, PIRLS 2011 included nine benchmarking participants, mostly regions of countries that also participated in PIRLS, including three Canadian provinces, two Emirates, the Andalusian region of Spain, and the US state Florida. However, Malta and South Africa used

Australia  
Austria  
Azerbaijan  
Belgium (French)  
Botswana  
Bulgaria  
Canada  
Chinese Taipei  
Colombia  
Croatia  
Czech Republic  
Denmark  
England  
Finland  
France  
Georgia  
Germany  
Honduras  
Hong Kong SAR  
Hungary  
Indonesia  
Iran, Islamic Rep. of  
Ireland  
Israel

Italy  
Kuwait  
Lithuania  
Malta  
Morocco  
Netherlands  
New Zealand  
Northern Ireland  
Norway  
Oman  
Poland  
Portugal  
Qatar  
Romania  
Russian Federation  
Saudi Arabia  
Singapore  
Slovak Republic  
Slovenia  
Spain  
Sweden  
Trinidad and Tobago  
United Arab Emirates  
United States

### **Benchmarking Participants**

Alberta, Canada  
Ontario, Canada  
Quebec, Canada  
Maltese - Malta  
English/Afrikaans - South Africa  
Andalusia, Spain  
Abu Dhabi, UAE  
Dubai, UAE  
Florida, USA

### **prePIRLS Participants**

Botswana  
Colombia  
South Africa

SOURCE: IEA's Progress in International Reading Literacy Study – PIRLS 2011

benchmarking to collected information relevant to their language of instruction policies. PIRLS 2011 also was pleased to welcome the inaugural prePIRLS participants—Botswana, Colombia, and South Africa.

In each country, nationally representative samples of approximately 4,000 students from 150–200 schools participated in each PIRLS or prePIRLS assessment. In total, approximately 325,000 students participated in PIRLS 2011, including countries assessing students at more than one grade, benchmarking assessments, and prePIRLS.

### The PIRLS Trend Assessments in Reading Comprehension

IEA pioneered international comparative assessments of educational achievement to gain a deeper understanding of the effects of policies and practices across countries' different systems of education. IEA has conducted a number of international reading literacy assessments during its 50-year history of educational research. Most recently, IEA marked the beginning of the 21<sup>st</sup> century by inaugurating PIRLS to measure children's reading achievement every five years, and to provide trends into the future. PIRLS is directed by IEA's TIMSS & PIRLS International Study Center at Boston College.

PIRLS 2011 is the third in the trend series, following PIRLS 2001 and PIRLS 2006. For each PIRLS 2011 participant, Appendix A shows participation in earlier PIRLS assessments. All of the countries, institutions, and agencies involved in successive PIRLS assessments have worked collaboratively in building the most comprehensive and innovative measure of reading comprehension possible, beginning in 2001 and improving with each cycle since then. Performance on PIRLS represents the “gold standard” internationally for reading comprehension at the fourth grade. Students with high performance in PIRLS can read, comprehend, and interpret relatively complex information in stories and articles of 800 to 1,000 words.

### New Policy-relevant Context Questionnaire Scales

PIRLS 2011 provides extensive information about home supports for literacy and school environments for teaching and learning. In particular, in 2011 the trend cycles of IEA's PIRLS and TIMSS international assessments came together, producing a synergy that led to advancements in the quality of background data collected by both projects. Because TIMSS (Trends in International Mathematics and Science Study) also assess students at the fourth grade (as well as at the eighth grade), the alignment of the two projects provided the opportunity for

countries to assess the same fourth grade students in reading, mathematics, and science in conjunction with collecting the extensive background data characteristic of IEA assessments—most notably the *PIRLS Learning to Read Survey*, completed by students’ parents or caregivers.

Having almost 40 countries participate in both assessments required a great deal of coordination, innovation, and creativity, most notably in the area of background data collection. The *PIRLS 2011 Student Questionnaire*, *Teacher Questionnaire*, *School Questionnaire*, *Home Questionnaire*, and *Curriculum Questionnaire* were developed jointly by PIRLS and TIMSS participants, including several joint meetings of the PIRLS 2011 Questionnaire Development Group and the TIMSS Questionnaire Item Review Committee. This effort yielded nearly 20 new context questionnaire scales about learning and teaching developed in parallel across reading, mathematics, and science. Underpinning a new approach to interpreting the questionnaire data, each context questionnaire scale was created using IRT methods, and results presented for three regions of the scale (most to least desirable) using scale score equivalents of response combinations to determine the cutpoints for the regions.

## New Initiatives for Developing Countries

As a new initiative in 2011, prePIRLS (a less difficult version of PIRLS) makes it possible for a range of developing countries to assess their children’s reading comprehension at the end of the primary school cycle. The prePIRLS assessment has shorter and easier reading texts than PIRLS, and places less emphasis on higher-order reading skills. Depending on a country’s educational development, prePIRLS can be given at the fourth, fifth, or sixth grade.

prePIRLS is based on the same view of reading comprehension as PIRLS but is designed to test basic reading skills that are prerequisites for success on PIRLS. In prePIRLS, students read and answer questions about stories and articles just like in PIRLS, except the stories and articles are shorter, with easier vocabulary as well as simpler grammar and syntax.

As another new initiative, PIRLS 2011 also could be given to students in the fifth or sixth grade in countries where the assessment might be too difficult for fourth grade students. With the two new initiatives, PIRLS and prePIRLS together now meet the needs of a broader range of countries, providing new options for developing countries to assess reading at the end of the primary school cycle.

## The PIRLS 2011 Assessment of Reading Comprehension

The PIRLS reading assessment is based on a comprehensive framework developed collaboratively with the participating countries. The framework specifies in some detail the types of texts and reading comprehension strategies to be assessed.

As described in the *PIRLS 2011 Assessment Framework* (Mullis, Martin, Kennedy, Trong, & Sainsbury, 2009), the PIRLS and prePIRLS assessments measure two purposes for reading that account for most of the reading done by young students in and out of school:

- ◆ For literary experience; and
- ◆ To acquire and use information.

Within each of these two major reading purposes, four processes of comprehension are assessed:

- ◆ Focus on and retrieve explicitly stated information;
- ◆ Make straightforward inferences;
- ◆ Interpret and integrate ideas and information; and
- ◆ Examine and evaluate content, language, and textual elements.

Both PIRLS and prePIRLS devote half of the assessment to reading for literary experience and half to reading to acquire and use information. Both also assess reading comprehension processes across the two purposes for reading, although prePIRLS places more emphasis on children being able to comprehend and retrieve information from text.

PIRLS and prePIRLS employ the same assessment approach whereby students are given reading passages (texts) and asked 13 to 16 questions about each passage. PIRLS and prePIRLS contain 135 and 123 questions, respectively, with approximately half being multiple choice questions and half being in a constructed response format where students write their answers (see Appendix B for further information).

The passages in both PIRLS and prePIRLS were accompanied by colorful illustrations to help engage student interest, and a number of the informational articles had non-continuous text features such as text boxes or diagrams. In PIRLS 2011, the reading purposes and comprehension processes were assessed based on ten passages—five for the literary purpose, and five for the informational purpose—ranging in length from approximately 800 to 1,000 words. Six of the ten passages and item sets (three literary and three

informational) were retained from previous assessments to provide a foundation for measuring trends in reading achievement; the remaining four passages and item sets (two literary and two informational) were developed for PIRLS 2011.

As noted previously, the prePIRLS passages were similar to the PIRLS passages but shorter—approximately 400 words—and there were slightly fewer of them—eight passages, four literary and four informational. Of course, all eight passages and item sets were newly developed for this first prePIRLS assessment in 2011. Many of the items were in the short constructed response format because field testing indicated that students had the most success with short answer items requiring a word or phrase. Also, the format interspersed questions throughout the passages so that students could read short portions of text and then answer questions, then read a little more and answer more questions, with several questions about the entire passage at the end.

Developing the materials for the 2011 PIRLS and prePIRLS assessments was a cooperative venture, involving the National Research Coordinators (NRCs) from the participating countries throughout the entire process. Identifying prospective passages began even before the first NRC meeting for PIRLS 2011, so that initial review could take place and consensus established about the characteristics of desirable texts. To develop the items based on the text passages identified for the field test, the TIMSS & PIRLS International Study Center conducted an item-writing workshop for NRCs and their colleagues with particular backgrounds in reading assessment and item development. Participating countries field tested the items and scoring guides with representative samples of students, and the results were scrutinized internally by the PIRLS 2011 Reading Development Group of internationally recognized experts.

## Quality Assurance

The PIRLS and prePIRLS reading assessments were given to carefully selected and well-documented probability samples of students. The student sampling for PIRLS 2011 was conducted with careful attention to quality and comparability. Staff from Statistics Canada and the IEA DPC worked with the participants on all phases of the sampling activities. The Statistics Canada sampling experts, in conjunction with the PIRLS 2011 sampling referee (Keith Rust, Westat, Inc.), evaluated the quality of the samples and found excellent adherence to sampling and participation requirements, with the exception of a few cases that

are annotated in the report. Appendix C provides detail about national target population coverage and sampling participation rates.

PIRLS 2011 made every effort to attend to the quality and comparability of the data through careful planning and documentation, cooperation among participating countries, standardized procedures, and rigorous attention to quality control throughout. For example, an extensive series of verification checks was conducted to ensure the comparability of the text translations as well as the translations of the items and questionnaires, detailed documentation was required to satisfy adherence to the sampling standards, and an ambitious quality assurance program was conducted during data collection.

## PIRLS 2011 Reports

The results from PIRLS 2011 are presented in a series of major reports.

- ◆ This present report, *PIRLS 2011 International Results in Reading*, summarizes fourth grade students' reading achievement on the PIRLS and prePIRLS achievement scales and at the PIRLS International Benchmarks of achievement for each of the 49 countries and nine benchmarking participants of PIRLS and prePIRLS 2011. Achievement results also are presented for reading purposes and comprehension processes. The report includes trends in reading achievement for participants in the PIRLS 2001 and 2006 assessments. It presents a rich array of information about students' home environments and attitudes toward reading, school environments for learning and instruction, teachers' education and training, and classroom characteristics and activities.
- ◆ The *PIRLS 2011 Encyclopedia: Education Policy and Curriculum in Reading, Volumes 1 and 2* (Mullis, Martin, Minnich, Drucker, & Ragan, 2012) describes national contexts for the teaching and learning of reading. Each PIRLS 2011 country and benchmarking participant prepared a chapter summarizing the structure of its education system, the reading curriculum and reading instruction in primary school, teacher education requirements, and assessment and examination practices. Together with selected introductory data about the countries collected via online questionnaires, the chapters comprising the two volumes of the *PIRLS 2011 Encyclopedia* provide an important resource for helping to understand the teaching and learning of reading around the world. The Encyclopedia reveals a number of themes across countries, including the growing importance of preprimary education,

rising teacher education requirements, and the impact that participating in PIRLS has had on countries' education policies and curricula.

- ◆ The online publication, *Methods and Procedures in TIMSS and PIRLS 2011* (Martin & Mullis, 2012), describes the methods and procedures used to develop, implement, and analyze the results from PIRLS 2011 and is available from the TIMSS & PIRLS International Study Center's website: <http://timssandpirls.bc.edu>.

The fully documented PIRLS 2011 international database can be downloaded from the TIMSS & PIRLS International Study Center's website.

In addition, special analyses are being conducted using the TIMSS and PIRLS database of fourth grade students. This report, *TIMSS and PIRLS 2011: Relationships among Reading, Mathematics, and Science Achievement—Implications for Early Learning* consists of in-depth analyses of fourth grade student achievement in reading, mathematics, and science in the countries that administered TIMSS and PIRLS to the same students in 2011. The report addresses four issues:

- ◆ Are primary schools providing a solid foundation in core subjects—reading, mathematics, and science?
- ◆ How does reading ability impact mathematics and science achievement?
- ◆ What are the characteristics of effective schools in reading, mathematics, and science? and
- ◆ How do homes support literacy and numeracy?

