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Knut Schwippert,
Jenny Lenkeit (Eds.)

Progress in Reading Literacy in National and International Context

International Association for the Evaluation of Educational Achievement

The Impact of PIRLS 2006 in 12 Countries

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PIRLS 2006
Progress in International Reading Literacy

A study under the auspices of International Association
for the Evaluation of Educational Achievement

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Foreword

The ability to read is universally regarded as a key foundational skill, the lynch-pin to future social and economic well-being for individuals as well as for nation states. The International Association for the Evaluation of Educational Achievement (IEA) has been at the forefront of large-scale assessments of student achievement in reading and other subject matter areas for more than 50 years. The aim of these assessments, as it was for the Progress in Reading Literacy Study of 2006 (PIRLS 2006), is to provide policymakers, educators, researchers, and the public with key insights into the scholastic performance of Grade 4 students and into the contextual and background variables apparently associated with excellence. The ultimate goal for these assessments is to provide part of the empirical basis that contributes to educational debate, improvement, and reform.

This volume examines empirically the ways in which participation in the PIRLS 2006 assessment has made an impact in 12 of the countries that participated in the study. Despite the limited number of country essays, the authors, among them, identify a wide range of influences that participation in large-scale assessments such as PIRLS tend to have. These reported impacts range from structural changes to education systems, including the establishment of dedicated research and evaluation units, to policy change (the elevation of concerns about quality in the educational debate) and curricular reforms. The country chapters also illustrate how the achievement data and the antecedent factors potentially implicated in explanations of achievement outcomes can be used not only to inform policy dialogue within institutions responsible for educational reform but also to generate public discourse on education.

While the authors provide compelling evidence that the goal of large-scale assessments—influencing educational reform and improvement—can be realized, they also identify challenges that may mitigate impact. These include the ease with which educational stakeholders, the media, and the public can access the information embedded in complex data and the need to invest in ways to communicate study outcomes more effectively.

This book is a useful contribution to the growing body of literature focused on the impact of large-scale assessments of student achievement. IEA values the work that Dr Knut Schwippert, Jenny Lenkeit, and their colleagues continue to make to our understanding of that impact.

Hans Wagemaker,
Executive Director, IEA

Chapter 1
Introduction

Knut Schwippert and Jenny Lenkeit

1.1 Overview

The *Impact of PIRLS 2006 in 12 Countries* is the second book portraying the apparent influence of the findings of the Progress in Reading Literacy Study (PIRLS) surveys in different national contexts. The book, which follows the conceptual design of its predecessor (Schwippert, 2007), presents a compilation of insights from 12 of the 35 countries that participated in PIRLS 2006. These insights relate to the impact of PIRLS on the systemic, governmental, administrative, and school-level aspects of the 12 education systems featured.

Ten years have passed since PIRLS was first conducted in 2001. These years have provided a considerable period of time for transformative processes to establish and become visible as changes in educational institutions, and in students' achievement evident in the results of the 2006 study. This book provides in-depth information on the various aspects of the national education systems represented in this book that have originated, been restructured, or otherwise been modified as a direct or indirect consequence of the results from the two PIRLS surveys.

Our intention in this introductory chapter is to give readers a basic description of the PIRLS program and its purpose, and to provide preliminary information about the countries that participated in the two surveys. We also outline the relevance of large-scale assessments for understanding and enhancing students' literacy achievement. We finish the chapter by setting out the purpose and the methodological approaches of the Impact of PIRLS 2006 project.

1.2 PIRLS 2001 and 2006

The PIRLS program encompasses a cycle of trend studies designed to monitor progress in reading achievement in an internationally comparative context (Wagemaker, 2001). PIRLS 2001, the first international reading literacy study conducted in the new millennium, assessed students in the primary school; the target grade in most participating countries was (and continues to be) Grade 4.

The second cycle of PIRLS in 2006 saw an increase in the number of participating countries (from 35 to 45), as depicted in Figure 1.1. However, as the figure also makes apparent, seven of the countries that participated in the 2001 cycle decided not to participate in the 2006 study. The overall increase nevertheless reflects a growing interest in the information that large-scale assessments such as PIRLS provide.

Figure 1.1: Countries participating in PIRLS 2001 and 2006

PIRLS 2001 and 2006 (28 countries)

Bulgaria	Canada (Ontario, Québec)[1]	England	France
Germany	Hong Kong SAR	Hungary	Iceland
Iran, Islamic Rep. of	Israel	Italy	Kuwait
Latvia	Lithuania	Macedonia, Rep. of	Moldova, Rep. of
Morocco	Netherlands	New Zealand	Norway
Romania	Russian Federation	Scotland	Singapore
Slovak Republic	Slovenia	Sweden	United States

PIRLS 2001 only (7 countries)

Argentina	Belize	Colombia	Cyprus
Czech Republic	Greece	Turkey	

PIRLS 2006 only (16 countries)

Austria	Belgium (Flemish)	Belgium (French)	Canada (Alberta)
Canada (British Columbia)	Canada (Nova Scotia)	Chinese Taipei	Denmark
Georgia	Indonesia	Luxembourg	Poland
Qatar	South Africa	Spain	Trinidad and Tobago

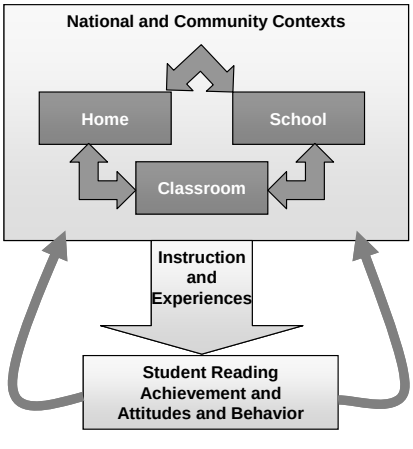
1 Canada is represented by the provinces of Ontario and Québec only.

PIRLS 2006 was conducted in autumn 2005 (southern hemisphere) and spring 2006 (northern hemisphere), five years after the first cycle in 2001. The findings were published in an international report the year following the survey (Mullis, Martin, Kennedy, & Foy, 2007). The study was directed by Ina V. S. Mullis and Michael O. Martin of the TIMSS and PIRLS International Study Center at Boston College in the United States and by members of the IEA Secretariat in Amsterdam, the Netherlands. They were supported in this task by Statistics Canada in Ottawa, the IEA Data Processing and Research Center in Hamburg, Germany, and Educational Testing Service in Princeton, the United States.

Large-scale assessments such as PIRLS do not focus on the individual student but on entire education systems. The instruments used to collect data from students, their parents, teachers of the sampled classes, and school principals are therefore designed to capture detailed information about the various contexts in which students learn to read. The PIRLS database thus provides extensive information on students' family backgrounds and on students' classroom and school environments, all of which feature factors known to significantly contribute to the development of reading literacy. An encyclopedia of reading education in the participating countries assembled by Kennedy, Mullis, Martin, and Trong (2007) provides information on the national contexts in which students learn to read.

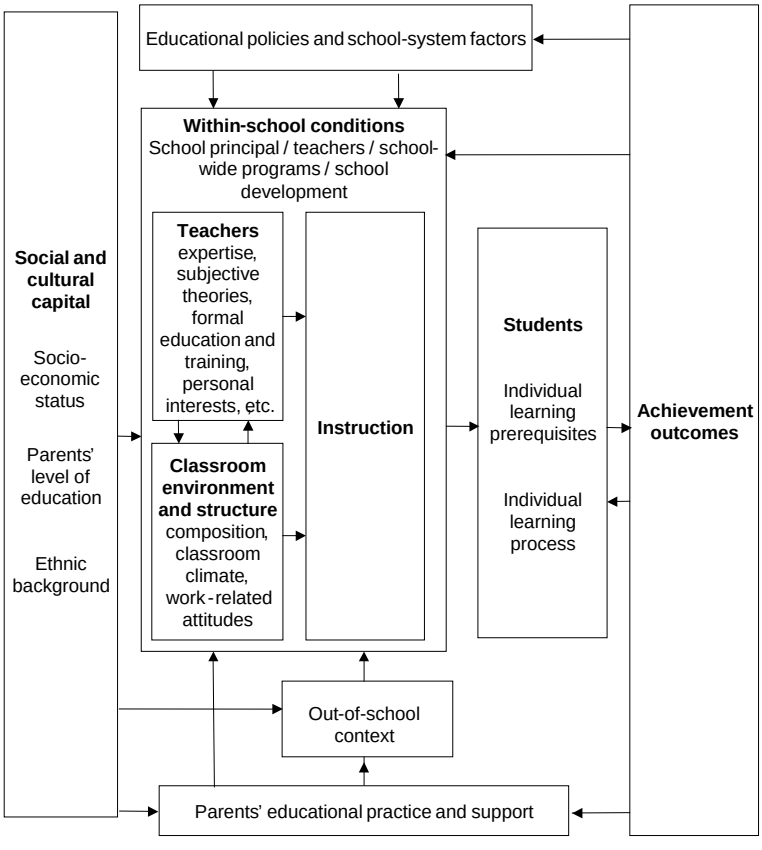
Figure 1.2 depicts the interrelationship of national, home, school, and class contexts relative to reading literacy. Figure 1.3, in turn, gives an example of this interrelationship by depicting the various factors within these contexts that appear to have influenced the reading literacy outcomes of the German Grade 4 students who participated in PIRLS 2001 and 2006. Both figures illustrate not only that a variety of contextual factors inside and outside educational structures influence achievement outcomes but also that the outcomes themselves retroactively influence the system.

Figure 1.2: Contexts within which students develop reading literacy



Source: Mullis et al. (2007).

Figure 1.3: Theoretical framework used to depict the two-way relationship between input and process factors and student achievement in reading literacy in Germany as determined through analysis of PIRLS data



Source: Adapted from Bos et al. (2007, p. 22).

1.3 Relevance and Benefit of Large-Scale Assessments in Education

Awareness of the relevance of international comparative studies has increased markedly in recent years. Although these studies have been and still are criticized for various reasons relating to, for example, methodology and conceptualization (Arnold, 1999; Bos & Schwippert, 2003; Brügelmann & Heymann, 2002), the essential benefits of them are obvious. The fact that many of the countries participating in the Impact of PIRLS project have taken part in international large-scale surveys for a good length of

time (see Table 1.1) indicates that policymakers, experts, and researchers in participating countries see merit in such participation.

In line with the use of standardized tests as an important mechanism for monitoring educational achievement, evidence-based decisionmaking has become, in many countries, an increasingly accepted part of educational innovation (Arbeitsgruppe Bildungsforschung/Bildungsplanung, 2007). The data collected during the PIRLS surveys on the reading achievement of students in Grade 4 and on students' home, classroom, and school environments have provided policymakers, researchers, and practitioners with information useful for identifying and then remedying structures and processes across the various levels of the education system that limit children's reading acquisition.

Table 1.1: Participation in international large-scale surveys conducted by various organizations from 1959 to 2009 of countries taking part the Impact of PIRLS 2006 study

Year(s) of data collection[+]	Name of survey	Organization in charge	Countries
1959–1962	The Pilot Twelve-Country Study	IEA	Belgium, England, Germany (FRG)
1963–1967	First International Mathematics Study (FIMS)	IEA	Belgium, England, Germany (FRG), Netherlands
	Six-Subject Survey		
1968–1972	First International Science Study (FISS)	IEA	Belgium (FL), England, Germany (FRG), Hungary, Netherlands, New Zealand
1968–1972	The Study of Reading Comprehension	IEA	Belgium (FL), England, Hungary, Netherlands, New Zealand,
1968–1973	The Study of Civic Education	IEA	England, Germany (FRG), Netherlands, New Zealand
1968–1973	The Study of French as a Foreign Language	IEA	England, Netherlands, New Zealand
1968–1973	The Study of English as a Foreign Language	IEA	Germany (FRG), Hungary, Netherlands
1968–1973	The Study of Literature Education	IEA	Belgium (FL), England, New Zealand
1977–1981	Second International Mathematics Study (SIMS)	IEA	Belgium (FL), England, Hong Kong, Hungary, Netherlands, New Zealand
1980–1985	Classroom Environment Study	IEA	Hungary, Netherlands, Germany (FRG)*
1982–1986	Second International Science Study (SISS)	IEA	England, Hong Kong, Hungary, Netherlands
1983–1988	Written Composition Study	IEA	England, Germany (FRG),# Hungary, Netherlands, New Zealand

Year(s) of data collection[+]	Name of survey	Organization in charge	Countries
1989	Computers in Education Study (COMPED)	IEA	Austria, Belgium (FL), Germany (FRG), Hungary, Netherlands, New Zealand
1992	Computers in Education Study (COMPED)	IEA	Austria, Germany, Latvia, Netherlands
1985–1994	Reading Literacy Study (RLS)	IEA	Germany (FRG), Germany (GDR), Hong Kong, Hungary, Netherlands, New Zealand
1991	International Assessment of Educational Progress-II (IAEP-II)	Educational Testing Service	England, Hungary, Russian Federation # #
1993–1996	Language Education Study	IEA	Austria, England, Hong Kong, Hungary, Latvia,** Netherlands, Russian Federation, Republic of South Africa
1995	Third International Mathematics and Science Study (TIMSS)	IEA	Austria, Belgium (FL), England, Germany, Hong Kong, Hungary, Latvia, Netherlands, New Zealand, Republic of South Africa, Russian Federation, Slovak Republic
1999	Third International Mathematics and Science Study Repeat (TIMSS-R)	IEA	Belgium (FL), England, Hong Kong, Hungary, Latvia, Netherlands, New Zealand, Russian Federation, Slovak Republic, Republic of South Africa
2003	Trends in International Mathematics and Science Study (TIMSS)	IEA	Belgium (FL), England, Hong Kong, Hungary, Latvia, Netherlands, New Zealand, Russian Federation, Slovak Republic, Republic of South Africa
2007	Trends in International Mathematics and Science Study (TIMSS)	IEA	Austria, England, Germany, Hong Kong, Hungary, Latvia, Netherlands, New Zealand, Russian Federation, Slovak Republic
1998–2004	Third International Mathematics and Science Study Repeat Video Project (TIMSS-R Video)	IEA	Hong Kong, Netherlands
1994	International Adult Literacy Survey (IALS)	OECD	Germany, Netherlands
1996	International Adult Literacy Survey (IALS)	OECD	Belgium (FL), England, Germany, Netherlands, New Zealand
1998	International Adult Literacy Survey (IALS)	OECD	Belgium (FL), England, Germany, Hungary, Netherlands

Year(s) of data collection[+]	Name of survey	Organization in charge	Countries
1996/1997	Civic Education Study (CivEd)	IEA	England, Germany, Hong Kong, Hungary, Netherlands
1999/2000	Civic Education Study (CivEd)	IEA	England, Germany, Hong Kong, Hungary, Latvia, Russian Federation, Slovak Republic
1997–1999 (Module 1)	Second Information Technology in Education Study (SITES)	IEA	Hong Kong, Hungary, Latvia, New Zealand, Russian Federation, Slovak Republic, Republic of South Africa
1999–2002 (Module 2)	Second Information Technology in Education Study (SITES)	IEA	England, Germany, Hong Kong, Latvia, Netherlands, Slovak Republic, Republic of South Africa
2006	Second Information Technology in Education Study (SITES)	IEA	Hong Kong, Russian Federation, Slovak Republic, Republic of South Africa
1999	Monitoring Learning Achievement	UNESCO/ UNICEF	Republic of South Africa
2000	Program for International Student Assessment (PISA)	OECD	Austria, Belgium, England, Germany, Hong Kong, Hungary, Latvia, Netherlands, New Zealand, Russian Federation
2003	Program for International Student Assessment (PISA)	OECD	Austria, Belgium, England, Germany, Hong Kong, Hungary, Latvia, Netherlands, New Zealand, Russian Federation, Slovak Republic
2006	Program for International Student Assessment (PISA)	OECD	Austria, Belgium, England, Germany, Hong Kong, Hungary, Latvia, Netherlands, New Zealand, Russian Federation, Slovak Republic
2009	Program for International Student Assessment (PISA)	OECD	Austria, Belgium, England, Germany, Hong Kong, Hungary, Latvia, Netherlands, New Zealand, Russian Federation, Slovak Republic
2001	Southern African Consortium for the Monitoring of Educational Quality II (SACMEQ)	IIEP, UNESCO	Republic of South Africa
2001	Progress in International Reading Literacy Study (PIRLS)	IEA	England, Germany, Hong Kong, Hungary, Latvia, Netherlands, New Zealand, Russian Federation, Slovak Republic

Year(s) of data collection[+]	Name of survey	Organization in charge	Countries
2006	Progress in International Reading Literacy Study (PIRLS)	IEA	Austria, Belgium (FL), England, Germany, Hong Kong, Hungary, Latvia, Netherlands, New Zealand, Russian Federation, Slovak Republic, Republic of South Africa
2006–2009	Teacher Education and Development Study in Mathematics (TEDS-M)	IEA	Germany, Russian Federation
2009	Citizenship Education Study ICCS	IEA	Austria, Belgium (FL), England, Hong Kong, Latvia, Netherlands, New Zealand, Russian Federation, Slovak Republic

Organization abbreviations: ETS (Educational Testing Service); IEA (International Association for the Evaluation of Educational Achievement); IEEP (International Institute for Educational Planning); OECD (Organisation for Economic Co-operation and Development); UNESCO (United Nations Educational, Scientific and Cultural Organization); UNICEF (United Nations Children's Fund)

Notes:
[+] The time of data collection differed for countries in the southern hemisphere. See the official IEA website for more detailed information: http://www.iea.nl/completed_studies.html
* The Federal Republic of Germany conducted the study two years later.
** Latvia carried out only the first stage (gathering information on language education at the national level).
[#] Only the federal state of Hamburg participated.
[##] Former Soviet Union.

Another important attribute of studies such as PIRLS is that individual countries can assess the educational achievement of their students against the achievement of students in other countries. This process gives governments as well as educational policymakers and practitioners a better sense of the functioning and effectiveness of their own education systems than they could gain by studying their particular system in isolation (Porter & Gamoran, 2002).

In similar vein, PIRLS and other cross-national studies of educational achievement provide those responsible for developing education systems with opportunity to carefully examine the merit of implemented changes to those systems (Schwippert & Goy, 2008). The cyclical nature of PIRLS also enables the participating countries to gain a snapshot understanding of the state of their education system at one point in time and to follow developments across time.

In addition to gathering an increasing amount of data-based information (from both national and international contexts), many countries have made changes to their education systems that have steered them away from the traditional input orientation of educational governance toward an orientation that is increasingly output focussed (Schwippert & Goy, 2008). The Impact of PIRLS project has also been useful with respect to this change because it documents how the various participating countries have achieved it.

1.4 The Impact of PIRLS Project

The Impact of PIRLS project began when a small group of researchers from 13 of the participating PIRLS countries decided, after the first PIRLS cycle in 2001, to record the reactions of their respective government agencies, researchers, schools, and members of the public to the results of the study. The outcome was the aforementioned report by Schwippert (2007). After the second PIRLS cycle in 2006, researchers again agreed to assess the impact of PIRLS in their national contexts. The 12 countries that contributed to the project in 2006 were:

- Austria
- Belgium (FL)
- England
- Germany
- Hong Kong SAR
- Hungary
- Latvia
- Netherlands
- New Zealand
- Russian Federation
- Slovak Republic
- South Africa.

Of these countries, five had participated in the first impact study. The seven that were new to the impact project were Austria, Belgium (FL), Latvia, the Netherlands, New Zealand, the Russian Federation, and South Africa.

The researchers' work culminated in a report from each participating country, and it is these reports that form much of the content of this present publication. Because the reports are written from an insider perspective, they are each informed by different backgrounds, experiences, and opinions. These differences need to be taken into account when reading the single reports. As is evident from Table 1.2, the home institutions of the authors vary greatly with regard to their influence, interest, and purpose within the respective education systems.

The primary aim of the Impact of PIRLS project has been to explore the opportunities that the findings from PIRLS hold for the development of different education systems. Those of us involved with the present iteration of the project were particularly interested in its potential for yielding information on transformation processes, programs, and initiatives—information that we considered would be even more useful than that obtained from PIRLS 2001 simply because the passage of time has allowed implementation of actions informed by the 2001 data. This lapse in time has, indeed, enabled us to consider if those actions facilitated changes in the 2006 student achievement results.

Table 1.2: Home institutions of the authors of the country reports

Country	Authors and institutions	Status of institution
Austria	Birgit Suchań, Christina Wallner-Paschon, Cornelia Rieß *Federal Institute for Educational Research, Innovation & Development of the Austrian School System (BIFIE)*	Division in the Ministry of Education
Belgium (FL)	Hongqiang Liu, Heidi Knipprath, Jan Van Damme *Research Centre for Educational Effectiveness and Evaluation, Katholieke Universiteit Leuven*	University department
England	Liz Twist *Department for Research in Assessment and Measurement, National Foundation for Educational Research*	Independent educational research institute
Germany	Knut Schwippert, Jenny Lenkeit *Department for Evaluation of Educational Systems, University of Hamburg* Martin Goy *Institute for School Development Research, TU Dortmund University*	University department
Hong Kong SAR	Shek Kam Tse *Center for Advancement of Chinese Language Education and Research and Faculty of Education, University of Hong Kong* Elizabeth Ka Yee Loh *Faculty of Education, University of Hong Kong*	University department
Hungary	Péter Balkányi *Educational Authority*	Division in the Ministry of Education
Latvia	Antra Ozola *Faculty of Education, Psychology, and Art, University of Latvia*	University department
Netherlands	Andrea Netten *National Center for Language Education*	Independent educational research institute
New Zealand	Megan Chamberlain *Comparative Education Research Unit*	Division in the Ministry of Education
Russian Federation	Isak Froumin *Europe and Central Asia Human Development Unit, The World Bank, Institute of Education, National Research University, Higher School of Economics* Marina Kuznetsova *Center of Primary Education, Institute of Content and Methods of Learning, Russian Academy of Education* Galina Kovaleva *Center for Evaluating the Quality of Education, Russian Academy of Education* Andrey Melnikov *ICT in Education Department, National Training Foundation* Marina Pinskaya, Tatiana Timkova, Yulia Tumeneva *Institute for Educational Studies of the University Higher School of Economics* Galina Zuckerman *Psychology Institute, Russian Academy of Education*	
Slovak Republic	Eva Ladányiová, Paulína Koršňáková, Daniela Heldová *Department of International Measurements, National Institute for Certified Educational Measurements*	Independent educational research institute
South Africa	Sarah Howie, Elsie Venter *Centre for Evaluation and Assessment, University of Pretoria*	University department

The Impact of PIRLS project maintains that improvements to one's own education system are likely to be more effective if they are informed by comparison of and reflection on developments in other countries. To allow this comparison, we provided the authors with an analytical framework for structuring their reports. We asked them to provide the following:

1. A short description of their country and its characteristics;
2. An outline of the structure and nature of their national education system;
3. An indication of their country's experience with national and international large-scale surveys;
4. A summation of their national results for PIRLS 2001 and/or 2006 and a report of the current and the anticipated long-term impact of those results on the education system and on students' reading literacy achievement; and
5. An account of expected future activities, including research.

The first three sections provide readers with contextual information necessary for understanding and interpreting the content of the two remaining sections. These two sections form the heart of each chapter because they cover the PIRLS findings and their reporting, reactions to those findings from different interest groups and policymakers, and the impact of the findings in relation to dissemination, educational governance, and the functioning and work of schools. Readers will note that the emphasis the authors give to each of these sections varies across the chapters. Despite this variation, we consider that the analytical framework is sufficiently robust to enable cross-country comparison of the content in each chapter.

That said, researchers conducting large-scale assessments rarely claim to comprehensively capture the nature of education systems on the basis of methodological research criteria derived to benefit an empirical examination. This claim and approach are, however, fundamental to the comparative tradition in educational research, wherein experts perform in-depth descriptions and comparisons of different education systems (Schwippert & Goy, 2008). Because the Impact of PIRLS project extends the significance of international surveys from mere descriptions of achievement outcomes toward an analysis of historical, societal, and cultural aspects, and because it also endeavors to place PIRLS and its impact within broader national contexts, it embraces both traditions of educational research. The project furthermore has the advantage of highlighting the limited value of viewing the impact of large-scale assessments solely from the perspective of cross-national league tables. Greater understanding about the contexts and conditions that give rise, across countries, to patterns of educational achievement comes from the type of comparative discussion that consideration of the chapters of this book permit.

However enriching it may be to follow and assess the developments of other countries in regard to one's own educational transformation processes, we agree with Fuchs (2005) that borrowing ideas and practices from other education systems when seeking to develop one's own is rarely fruitful. As we have already noted, countries

vary markedly in the nature of their political, financial, control, and governmental systems, making it illusory to expect a "one size fits all" response to the educational demands of the different countries (Smith, 2002).

1.5 Structure of the Book

Chapter 2, which follows this introductory chapter, is primarily directed at readers unfamiliar with PIRLS. In it, the authors outline the design and major findings of the two PIRLS cycles, as well as developments in reading achievement evident across the participating countries during the years between the two iterations. The country reports (Chapters 3 to 14) are ordered alphabetically by country name. Chapter 15 presents a summary and discussion of the information contained in the 12 country reports. The last chapter (16) offers a brief reflection on the anticipated and tangible implications that the findings presented in this publication have for policymaking, pedagogy, and research relating to children's literacy achievement.

Readers interested in further reading or background information will find a bibliography of international PIRLS literature toward the end of the book. The final section of the book provides information on the authors of the country reports.

We wish to conclude this chapter by acknowledging the work of the authors who contributed to the book. It is their continuous commitment that makes the Impact of PIRLS project a reality and the publications arising out of it possible. We would also like to thank Paula Wagemaker for proofreading this book with great care, and Juliane Pfeiffer for skillfully assisting us with the layout.

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Chapter 2
PIRLS 2006 in Brief

Martin Goy, Irmela Tarelli, and Wilfried Bos

2.1 Introduction

This chapter provides an overview of the design and several of the main results of the PIRLS 2006 assessment of reading literacy. Our intention, in this chapter, is to give readers unfamiliar with the PIRLS 2006 assessment some background information sufficient to aid their interpretation of the detailed information contained in the 12 national reports included in this book. In the following sections, we briefly describe the theoretical framework used in PIRLS to assess reading literacy, give an account of the population tested in PIRLS, and overview the assessment procedures and central assessment results.

We emphasize that this brief introduction to PIRLS 2006 and its results is relatively general. Our presentation is based on two central PIRLS 2006 publications, the *PIRLS 2006 Assessment Framework and Specifications* (Mullis, Kennedy, Martin, & Sainsbury, 2006) and the *PIRLS 2006 International Report* (Mullis, Martin, Kennedy, & Foy, 2007), which together provide a comprehensive account of the PIRLS assessment. In addition to introducing PIRLS 2006, we cover some aspects of the PIRLS 2001 assessment in order to allow comparisons of the results of both surveys. Readers seeking in-depth information on the 2001 cycle of the PIRLS assessment will find it in the *Framework and Specifications for PIRLS 2001 Assessment* (Campbell, Kelly, Mullis, Martin, & Sainsbury, 2001) and the *PIRLS 2001 International Report* (Mullis, Martin, Gonzalez, & Kennedy, 2003).

We begin this chapter by introducing the theoretical framework that forms the foundation of the PIRLS reading tests. We then describe the PIRLS 2006 target population, provide some additional information on the countries participating in this assessment, and introduce the core findings from PIRLS 2006. We pay particular attention to differences in the distribution of the results for reading ability found between and within the participating countries and regions, which include Belgium, with its two education systems, and Canada, with its five provincial education systems. The differences between the countries are presented with regard to the different subscales of reading comprehension distinguished in PIRLS 2006.

As the *PIRLS 2006 Assessment Framework* details, purposes for reading and processes of comprehension are the foundation of the PIRLS 2006 assessment of reading comprehension (see Section 2.2.2 below). However, in this chapter, we present the results on the subscale of purposes for reading only, as these are the results reported in detail in the national reports contained in this volume. The full set of PIRLS 2006 results relating to comprehension can be found in the *PIRLS 2006 International Report*.

We also present in this chapter the PIRLS 2006 results for a number of factors relevant to discussion on the impact of PIRLS: student gender, immigrant background, and sociocultural and socioeconomic background. Our particular purpose in this regard is that of comparing the results of the two PIRLS surveys in order to provide an initial tentative account of changes in Grade 4 students' reading literacy over time.

2.2 Assessing Reading Literacy in PIRLS 2006

2.2.1 Definition, Relevance, and Dimensions of Reading Literacy

Reading is a fundamental cultural technique that enables students to become competent and successful members of society. Within this sociocultural view, reading refers not only to the ability to decode words but also to the ability to reflect on what is read and to use the understanding gained from that reflection as a tool for attaining individual and societal goals. Accordingly, IEA chose, in their 1991 study of reading achievement, to join the terms *reading* and *literacy* to convey a broad sociocultural notion of reading ability (Mullis et al., 2006). With explicit reference to the reading experience of young children, IEA defines reading literacy as

> ... the ability to understand and use those written language forms required by society and/or valued by the individual. Young readers can construct meaning from a variety of texts. They read to learn, to participate in communities of readers, and for enjoyment. (Mullis et al., 2006, p. 3)

For young readers, acquiring reading literacy, as defined here, is essential to their success in education, and in life in general. Children in their fourth year of formal schooling (i.e., typically 9- to 10-year-olds) are the target population of PIRLS. Most students of this age are at a point in their reading development where they have stopped learning to read and have begun reading to learn. Students who fail to achieve to learn to read—let alone read to learn—experience considerable difficulty coping with the demands of school and society. Only by reading to learn can children become autonomous learners and thereby sustain their participation in a global society that increasingly requires people to engage in lifelong learning.

This view of reading literacy is based on theories that regard reading as a constructive and interactive process. According to this view, readers actively construct meaning from text, employing reading strategies to do so and reflecting on what they read. Literate readers, in this sense, are those who hold positive attitudes toward reading and who read for information as well as for recreation. When endeavoring to acquire knowledge about the world and themselves, literate readers use a range of different types of text, from traditional written books to electronic texts presented on the internet (Mullis et al., 2006).

2.2.2 The Components of the Theoretical Framework

With these considerations in mind, the research team responsible for PIRLS 2006, like the team responsible for PIRLS 2001, designed the study to assess three core aspects of reading literacy (Mullis et al., 2006, p. 4):

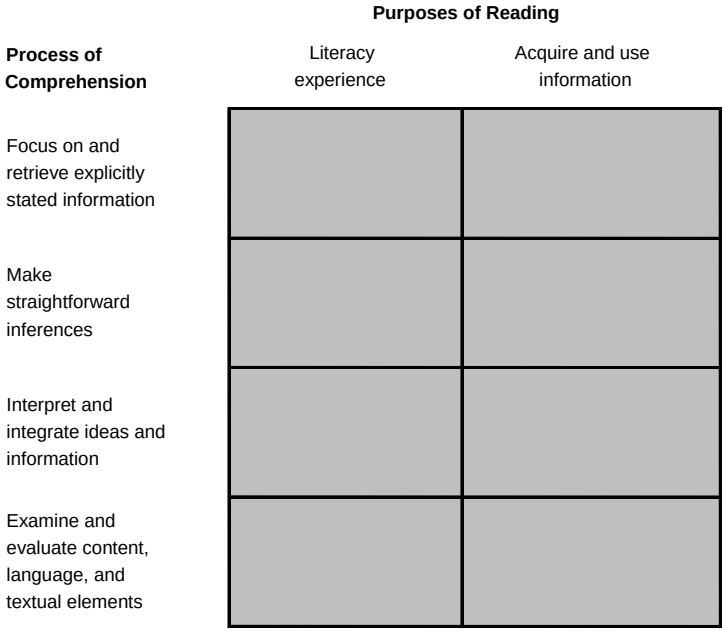
1. Processes of comprehension
2. Purposes of reading
3. Students' reading behaviors and attitudes.

The team used tests to assess the first two aspects and administered a student background questionnaire to obtain the third set of information.

Figure 2.1 illustrates the theoretical framework within which the test of reading ability was developed. This figure shows that the PIRLS 2006 reading literacy test rested on two purposes of reading and four processes of comprehension. *Purposes of reading* relate to the two types of reading that students of the age group assessed in PIRLS most commonly engage in across classroom, school, and home contexts. These are (1) reading for literary experience, and (2) reading to acquire and use information. In the test, narrative fiction was used to assess the former while various informational texts were used to assess the latter. *Processes of comprehension* concern how readers construct meaning from a text. Text comprehension involves cognitive processes wherein readers focus on and retrieve specific explicit information, make inferences, interpret and integrate ideas and information, and examine and evaluate content, language, and textual elements (Mullis et al., 2006, pp. 11 ff.).

Under this schema, the German PIRLS group and the TIMSS and PIRLS international study center for PIRLS 2001 conceived reading comprehension as a skill requiring two main abilities: (1) the ability to use text-based information, and (2) the ability to draw upon general or external knowledge (Bos et al., 2003; Bos, Valtin, Voss, Hornberg, & Lankes, 2007; Mullis et al., 2007). The former relies not only on extracting information from the text but also on identifying relationships between the parts and passages of the text. The latter requires ability to reflect on the content and the structure of the text. Each of these abilities, in turn, relates directly to the processes of comprehension (see Figure 2.2). In similar vein, members of the PIRLS international study center distinguished separate scales for the two main processes of comprehension: a scale for retrieval and straightforward inferencing for the two less complex reading processes, and a scale for interpreting, integrating, and evaluating for the two more complex processes (Mullis, Martin, & Gonzalez, 2004; Mullis et al., 2007).

Figure 2.1: The PIRLS 2006 assessment—reading purposes and processes



Source: Campbell et al. (2001, p. 4). See also Mullis et al. (2006, p. 5).

2.2.3 Testing Reading Achievement

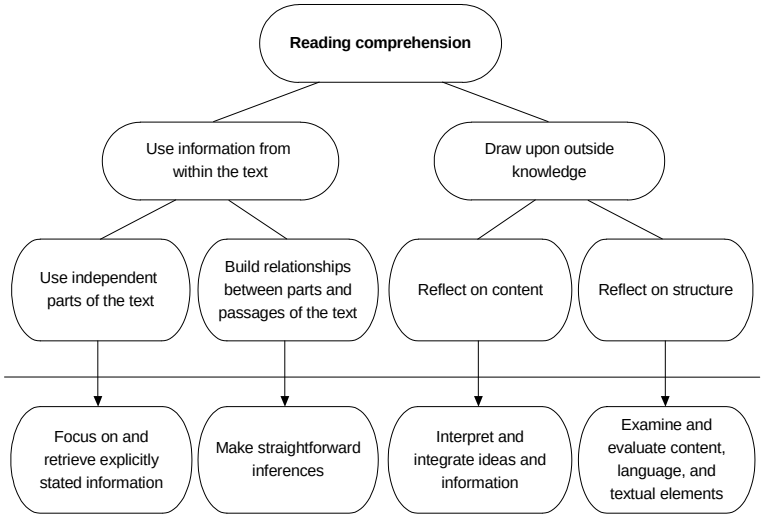
The tests of reading achievement administered in PIRLS 2006 were designed to determine the achievement levels of the tested students and to distinguish relative strengths and weaknesses within the whole population tested and between different subpopulations. The design of the assessment had to take conflicting stipulations into account. The first stipulation was that the tests should be administered on one single school day and not be of a length that would subject fourth-grade students to long testing periods. The second was that the tests should allow for a thorough assessment of the different purposes and processes of reading comprehension.

In order to meet both these demands and provide a comprehensive picture of the reading achievement of fourth-grade students in the participating countries, PIRLS 2006 employed a matrix sampling technique, which meant that although each student would have to work on two reading passages only, the reading achievement of the population tested could still be precisely estimated. Kennedy and Sainsbury (2007) provide further information on the matrix sampling and the time allocated for the reading tests.

The reading tests consisted of both multiple-choice and constructed-response items. For details on item development and scoring procedures, see Kennedy and

Sainsbury (2007). The PIRLS 2006 assessment data were scaled using three distinct item response theory (IRT) models, which were chosen according to item type and scoring procedure. Further details on the test construction and the three IRT models distinguished appear in Foy, Galia, and Li (2007).

Figure 2.2: Reading comprehension abilities assessed in PIRLS and their relationship to the purposes and processes of reading



Source: Adapted from Bos, Valtin, Voss, Hornberg, and Lankes (2007, p. 85) and Bos et al. (2003, p. 79). The depicted model was proposed by the German PIRLS group and based on the theoretical framework of reading comprehension assessment used in PIRLS 2001 and 2006.

2.3 The PIRLS 2006 Target Population

The formal definition of the target population of PIRLS 2006 drew on UNESCO's International Standard Classification of Education (ISCED) in order to identify the appropriate target grade. In line with this classification, the target population was defined as:

> … all students enrolled in the grade that represents four years of schooling, counting from the first year of ISCED Level 1, providing the mean age at the time of testing is at least 9.5 years. (Joncas, 2007, p. 36)

The target grade was thus Grade 4, or its national equivalent, in most of the countries participating in PIRLS. However, because the age of formal school entry and the age at which schools introduce children to formal reading are not the same in all these countries, the selected grade and the average age of the students assessed in PIRLS varied slightly across them.