

# Progress in International Reading Literacy Study International Data Explorer Help Guide

## Contents

Contents .....	1
I. Background on the Progress in International Reading Literacy Study (PIRLS) and the PIRLS International Data Explorer (IDE) .....	3
II. General Overview .....	5
III. Computer Requirements for the International Data Explorer (IDE) .....	6
IV. Steps to Explore Data .....	7
1. Select Criteria .....	7
1.A. Overview .....	7
1.B. Choose Subject .....	8
1.C. Choose Measure and Year .....	8
1.D. Choose Jurisdiction .....	9
2. Select Variables .....	10
2.A. Overview .....	10
2.B. Search Using Category and Subcategory Lists .....	11
2.C. Search Function .....	12
3. Edit Reports .....	13
3.A. Overview .....	13
3.B. Preview Report .....	15
3.C. Edit Report .....	15
3.D. Create New Variables .....	17
3.E. Create New Report .....	19
3.F. Format Options .....	20
3.G. Statistics Options .....	22
3.H. Select Reports to Build .....	24
4. Build Reports .....	25
4.A. Overview .....	25
4.B. View Reports as Data Tables .....	26

4.C. Charts .....	27
4.D. Create Charts—Data Options .....	28
4.E. Create Charts—Chart Options .....	29
4.F. Significance Tests.....	32
4.G. Gap Analysis.....	36
4.H. Regression Analysis.....	39
4.I. Export Reports.....	42
V. PIRLS International Data Explorer (IDE) Definitions .....	44
1. Criteria.....	44
2. Variables.....	47
3. Statistics Options.....	47
4. Cross-tabulations.....	51
5. Statistical Notations and Other Notes .....	52
6. Glossary.....	54
6.A. Student and Family Characteristics .....	54
6.B. Student Reading Activities .....	56
6.C. Student Perception of Reading.....	58
6.D. Student Perception of School.....	61
6.E. Student Characteristics (Teacher) .....	63
6.F. English Language and Reading Instruction (Teacher) .....	64
6.G. Class Resources (Teacher).....	65
6.H. Homework Assignment (Teacher).....	65
6.I. Teacher Characteristics .....	65
6.J. School Characteristics.....	67
6.K. Curriculum (School) .....	68
6.L. Reading Instruction (School) .....	70
6.M. School Resources .....	71
6.N. Home-School Involvement.....	73
6.O. School Climate and Behavior Problems .....	74
6.P. Teacher Collaboration .....	75

# PIRLS International Data Explorer Help Guide

## I. Background on the Progress in International Reading Literacy Study (PIRLS) and the PIRLS International Data Explorer (IDE)

The Progress in International Reading Literacy Study (PIRLS) International Data Explorer (IDE) is a web-based application for accessing PIRLS data, supported by the U.S. National Center for Education Statistics (NCES). PIRLS is an international comparative study of the reading literacy of young students. PIRLS surveys the reading achievement and reading behaviors and attitudes of fourth-grade students in the United States and students in the equivalent of fourth grade in other participating countries.

PIRLS was first administered in 2001 in 35 jurisdictions and was administered again in 2006 in 45 jurisdictions (including countries and subnational education systems, such as Canadian provinces and Hong Kong, SAR), and in 2011 in 57 education systems. Most recently PIRLS was administered in 2016 in 61 education systems, which includes benchmarking education systems that assessed 3<sup>rd</sup>- and 5<sup>th</sup>-graders rather than 4<sup>th</sup>-graders, and systems that administered PIRLS Literacy, an easier version of the PIRLS assessment. PIRLS 2001, 2006, 2011, and 2016 results are available through the IDE. In 2016, for the first time, the IEA also coordinated the administration of ePIRLS: a computer-based extension of PIRLS designed to assess students' comprehension of online information. Some 16 education systems participated in ePIRLS. Results for ePIRLS are also available through the IDE. The next administration of PIRLS is scheduled for 2021. PIRLS is coordinated by the International Association for the Evaluation of Educational Achievement (IEA).

What aspects of PIRLS reading literacy can I explore?

- **PIRLS Reading Scale: Combined Reading:** Students are asked to construct meaning from a variety of fictional and nonfictional texts for varying purposes.
- **PIRLS Reading Scale: Acquire and Use Information:** Nonfictional texts are used to measure the ability of students to acquire and use information.
- **PIRLS Reading Scale: Literary Experience:** Fictional texts are used to measure the ability of students to read for literary experience.
- **PIRLS Reading Scale: Interpreting, Integrating, and Evaluating:** Items ask students to interpret and integrate text information that may draw on their background knowledge and experiences more than they do for straightforward inferences.
- **PIRLS Reading Scale: Retrieving and Straightforward Inferencing:** Items ask students to draw conclusions or connections that are based primarily on information contained in the text.

What aspects of ePIRLS online informational reading can I explore?

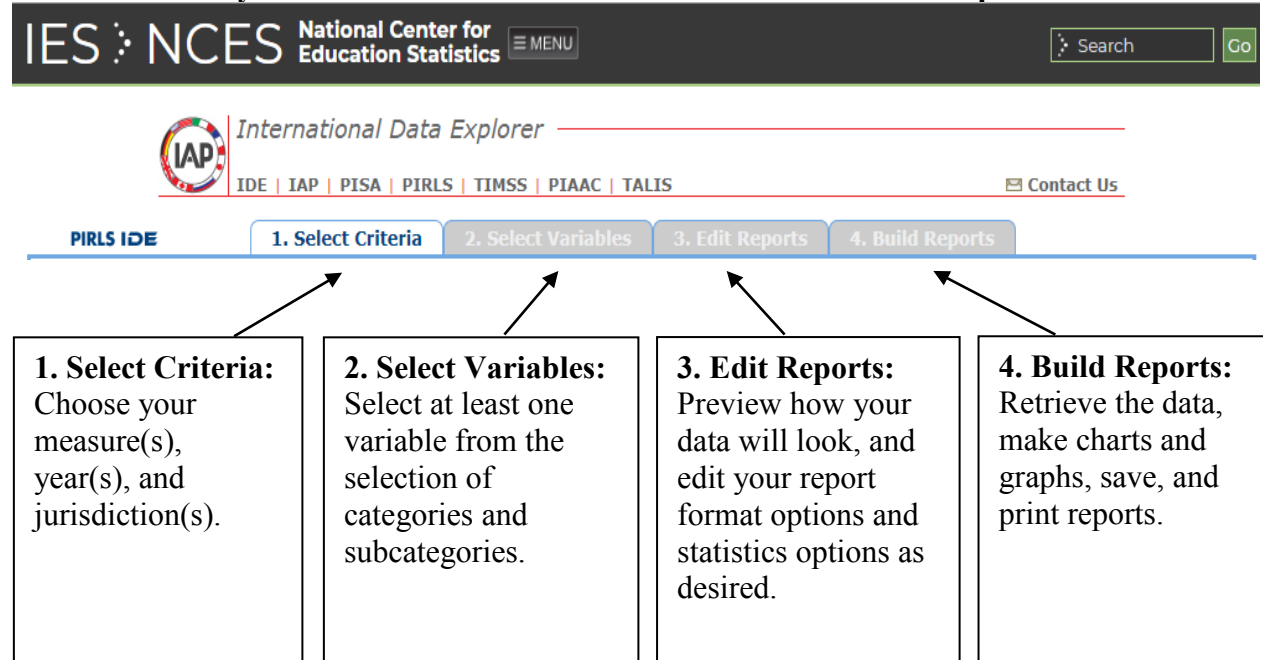
- **ePIRLS Reading Scale: Online Informational Reading:** Students are asked to construct meaning from a variety of online informational texts.
- **ePIRLS Reading Scale: Online Interpreting, Integrating, and Evaluating:** Items ask students to interpret and integrate online text information that may draw on their background knowledge and experiences more than they do for straightforward inferences.
- **ePIRLS Reading Scale: Online Retrieving and Straightforward Inferencing:** Items ask students to draw conclusions or connections that are based primarily on information contained in the online informational texts.

For more information on the PIRLS reading framework and aspects of reading literacy, please see Mullis, I.V., and Martin, M.O. (2015). [\*PIRLS 2016 Assessment Framework, 2<sup>nd</sup> Edition\*](#). Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College.

## II. General Overview

There are four general steps for exploring PIRLS data using the PIRLS IDE (see exhibit 1). Each step is described in more detail in the section IV “Steps to Explore Data”.

### Exhibit 1. What you will see in the IDE environment and what each step entails



### III. Computer Requirements for the International Data Explorer (IDE)

- Screen resolution should be 1024 × 768 pixels.
- Browsers: Internet Explorer (IE) version 10 or higher, Firefox 3.0 or higher, Google Chrome, and Apple Safari.
- Enable JavaScript and pop-ups in your browser.
- IDE requires Flash version 9.0.115 or higher (download Adobe Flash Player at <http://get.adobe.com/flashplayer/>).
- Exports of files to Microsoft Office require Office 2003 or later.
- Exports of files to PDF can be read with Adobe Acrobat Reader.
- Screen reader software should be Jaws 8.0 or higher.

If you encounter an error, please send us the details through the **Contact Us** button (located in the upper right portion of the screen on each page of the IDE website). When writing, include your browser version and operating system version, and as many other details as possible. Be sure to provide an e-mail address so that we can contact you.

## IV. Steps to Explore Data

To create your own custom tables, charts, and graphs, follow these steps when using the PIRLS International Data Explorer.

1. Select criteria
2. Select variables
3. Edit reports
4. Build reports

Each of these steps is discussed in detail throughout the remainder of this guide, beginning with the selection of criteria.

### *1. Select Criteria*

#### **1.A. Overview**

Your data query in the IDE begins on the **Select Criteria** screen (see exhibit 2).

Choose one **Subject**, and one or more **Measures, Years, and Jurisdictions** for the data you wish to view or compare.

Use the **Reset** button located in the upper right portion of the screen (just below the **Help** button) to erase your choices and begin again.

Click on a blue sideways facing arrow (▶) to open up a category and click on a blue downward facing arrow (▼) to close a category.

## Exhibit 2. Select criteria

**PIRLS IDE**    1. Select Criteria    2. Select Variables    3. Edit Reports    4. Build Reports

The PIRLS IDE includes data from both PIRLS and ePIRLS, the latter of which is an innovative, computer-based assessment of online reading.

**STEP 1:**  
Select criteria from each drop-down menu to begin. Additional options related to your selections will appear. Then select measures, jurisdictions, and years based on available data. [Help](#)

**Subject:** PIRLS    **Grade:** Grade 4    [Reset](#)

[View all \(94\)](#)    [View Selected \(1\)](#)    **Search:**  [Go](#)

Category	Sub Category	Measure	All Years	2016	2011	2006	2001
▼ Total	▼ Total	<input checked="" type="checkbox"/> PIRLS Reading Scale: Combined Reading <a href="#">details</a>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	▼ Subscales	<input type="checkbox"/> PIRLS Reading Scale: Acquire and use information <a href="#">details</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> PIRLS Reading Scale: Literary experience <a href="#">details</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> PIRLS Reading Scale: Interpreting, integrating, and evaluating <a href="#">details</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> PIRLS Reading Scale: Retrieving and straightforward inferencing <a href="#">details</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▶ Student and							
Group	Jurisdiction		All Years	2016	2011	2006	2001
▶ <input type="checkbox"/> Average			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
▼ <input type="checkbox"/> Countries	<input type="checkbox"/> Argentina		<input type="checkbox"/>	NO/ DATA	NO/ DATA	NO/ DATA	<input type="checkbox"/>
	<input type="checkbox"/> Australia		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NO/ DATA	NO/ DATA
	<input type="checkbox"/> Austria		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NO/ DATA
	<input type="checkbox"/> Azerbaijan		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NO/ DATA	NO/ DATA
	<input type="checkbox"/> Bahrain		<input type="checkbox"/>	<input type="checkbox"/>	NO/ DATA	NO/ DATA	NO/ DATA
	<input type="checkbox"/> Belgium (Flemish) - BEL		<input type="checkbox"/>	<input type="checkbox"/>	NO/ DATA	NO/ DATA	NO/ DATA

### 1.B. Choose Subject

Under **Subject**, you have the choice of **PIRLS** or **ePIRLS**. Once a subject is chosen, the screen resets and you can select **Year(s)**, **Measure(s)**, and **Jurisdiction(s)**.

### 1.C. Choose Measure and Year

Under **Measure**, you can choose the combined reading scale and/or any of the reading subscales. Note that the combined reading scale is the default (as shown in exhibit 2). The 2001 and 2006 reading subscales have been rescaled to allow for comparisons to 2011 and later years.

In addition, there are a number of variables other than scale scores that you may choose as a measure (see exhibit 3). These variables—such as age, teaching experience, and class size—are all continuous variables and are used as a measure of analysis.

You may also choose the survey year (All years, 2016, 2011, 2006, or 2001) at the top of either step 1 or 2. Notice for which years a measure, jurisdiction, or variable data are available by looking below each year for the grid of dots (which means data are available) or the “No data” slash.



## Exhibit 3. Measures

**PIRLS IDE**    1. Select Criteria    2. Select Variables    3. Edit Reports    4. Build Reports

The PIRLS IDE includes data from both PIRLS and ePIRLS, the latter of which is an innovative, computer-based assessment of online reading.

**STEP 1:**  
Select criteria from each drop-down menu to begin. Additional options related to your selections will appear. Then select measures, jurisdictions, and years based on available data. [Help](#)

Subject: PIRLS    Grade: Grade 4    [Reset](#)

View all (94)    View Selected (1)    Search:    Go

Category	Sub Category	Measure	All Years	2016	2011	2006	2001
▼ Total	▶ Total		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	▶ Subscales						
▼ Student and Family Characteristics	▶ Age						
	▶ Home Resources						
▼ Student Perception of	▶ Interest in Reading						

### 1.D. Choose Jurisdiction

With your measure selected, next choose at least one **Jurisdiction**.

Jurisdictions are found under the following groups: **Country** and **Benchmarking jurisdictions**, and **Off-Grade Level Participants**. There is also a group category called **Average**, with options to display the **Average of Countries** and the **Average of Selected Countries/Participants**.

Please note that selecting **Average of Countries** or **Average of Selected Countries/Participants** may produce an error message in the **Build Reports** step due to the high volume of information contained in these groups.

The general procedures for selecting one or more jurisdiction are as follows:

1. To open or close jurisdictions, click on the arrow. Jurisdictions in the group are open and can be selected when the blue arrow points down (see exhibit 4).
2. Click the checkboxes next to specific jurisdictions that you are interested in, or uncheck those jurisdictions that you wish to deselect. If you click the checkbox next to the group name (e.g., "Country"), you will select all the jurisdictions within that group. If desired, uncheck the group name to deselect all.
3. If you want to close a group (for example, close the list of countries in order to readily see the benchmarking jurisdictions), click the blue arrow next to the group name. The closed group's arrow points to the right. Be advised that closing the group will not deselect your choices.

## Exhibit 4. Choosing jurisdictions

**PIRLS IDE**    1. Select Criteria    2. Select Variables    3. Edit Reports    4. Build Reports

The PIRLS IDE includes data from both PIRLS and ePIRLS, the latter of which is an innovative, computer-based assessment of online reading.

**STEP 1:**  
Select criteria from each drop-down menu to begin. Additional options related to your selections will appear. Then select measures, jurisdictions, and years based on available data. [Help](#)

Subject:     Grade:     [Reset](#)

[View all \(94\)](#)    [View Selected \(1\)](#)    Search:     [Go](#)

Category	Sub Category	Measure	All Years	2016	2011	2006	2001
▼ Total	▼ Total	<input checked="" type="checkbox"/> PIRLS Reading Scale: Combined Reading <a href="#">details</a>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	▼ Subscales	<input type="checkbox"/> PIRLS Reading Scale: Acquire and use information <a href="#">details</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> PIRLS Reading Scale: Literary experience <a href="#">details</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> PIRLS Reading Scale: Interpreting, integrating, and evaluating <a href="#">details</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> PIRLS Reading Scale: Retrieving and straightforward inferencing <a href="#">details</a>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Group	Jurisdiction	All Years	2016	2011	2006	2001
▼ <input type="checkbox"/> Average	<input checked="" type="checkbox"/> Average of Countries <a href="#">details</a>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/> Average of Selected Countries/Participants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▼ <input checked="" type="checkbox"/> Countries	<input checked="" type="checkbox"/> Argentina	<input checked="" type="checkbox"/>	NO DATA	NO DATA	NO DATA	NO DATA
	<input checked="" type="checkbox"/> Australia	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/> Austria	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/> Azerbaijan	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NO DATA	NO DATA
	<input checked="" type="checkbox"/> Bahrain	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NO DATA	NO DATA	NO DATA
	<input checked="" type="checkbox"/> Belgium (Flemish) - BEL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NO DATA	NO DATA	NO DATA
	<input checked="" type="checkbox"/> Belgium (French) - BEL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	NO DATA	NO DATA	NO DATA
	<input checked="" type="checkbox"/> Belize	<input checked="" type="checkbox"/>	NO DATA	NO DATA	NO DATA	NO DATA

[2. Select Variables](#)

To continue in the IDE, click the **Select Variables** button at the bottom of the page or the tab at the top of the page to go to the next screen (see exhibit 4 above).

## 2. Select Variables

### 2.A. Overview

Step 2, **Select Variables**, can only be accessed after choosing criteria at step 1, **Select Criteria**.

To continue your data query and edit a report, *you must choose at least one variable on this screen*. You can browse for variables either by using the **Category** and **Sub Category** lists or by using the **Search** function (see exhibit 5). You can return to this screen to change variable selections at any time.

## Exhibit 5. Selecting variables overview

**PIRLS IDE**    1. Select Criteria    2. Select Variables    3. Edit Reports    4. Build Reports

**STEP 2:**  
Select at least one variable from the category list below. View the list of all available variables, view by selected variables only, or search variables by keywords. Years selected will override previous selections. Help

**Subject, Grade:** PIRLS, Grade 4 Reset

**Jurisdictions:** Average of Countries, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - BEL, Belgium (French) - BEL, Belize, Bulgaria, Canada, Chile, Chinese Taipei - CHN, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, England - GBR, Finland, France, Georgia, Germany, Greece, Hong Kong - CHN, Hungary, Iceland, Indonesia, Iran, Islamic Rep. of, Ireland, Israel, Italy, Kazakhstan, Kuwait, Latvia, Lithuania, Luxembourg, Macao - CHN, Macedonia, Rep. of, Malta, Moldova, Rep. of, Morocco, Netherlands, New Zealand, Northern Ireland - GBR, Norway (4), Norway, Oman, Ontario, Quebec - CAN, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Scotland, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Trinidad and Tobago, Turkey, United Arab Emirates, United States

**Measure:** PIRLS Reading Scale: Combined Reading  
**Years:** 2016, 2006, 2001

View all (820)    View Selected (0)    Search:     Go

Category	Sub Category	Variable	All Years	2016	2011	2006	2001
▼ Total	▼ Total	<input type="checkbox"/> All students <a href="#">details</a>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▶ Student and Family Characteristics							
▶ Student Reading Activities							

### 2.B. Search Using Category and Subcategory Lists

Choose at least one variable on this screen for your report. One way to do this is to search for variables using the **Category** and **Sub Category** lists. If you don't wish to choose from any of the specified categories and subcategories, then select **All students**.

The variables shown are tied to the criteria you selected at step 1 (**Measure, Year** and **Jurisdiction**), which are indicated at the top of the screen. To change any of these criteria, return to step 1, **Select Criteria**.

To browse for variables, get details about them, select them, and view them:

1. Click the blue arrows to open and close categories and subcategories of variables (see exhibit 6).
2. Click **details** or **hide details** to show or hide the full title of a given variable, the PIRLS ID, and the values (i.e., variable labels). Note that some variables have the same or similar short titles but comparing details will show you how they differ. See the example in exhibit 6, which shows general things in the student's home (ASBGBOOK and ASBGTA1).
3. Click the checkbox next to a variable to select it for your analysis/report. You will see the count increase next to **View Selected**.
4. Click the **View Selected** tab to see the variables you have chosen. To return to the full list of variables by category, click the **View All** tab.
5. Remember to select the year for which you wish to build a report and make sure that data are available for your chosen year and variables.
6. Searching variables is an option from the Search box. See section 2.C, page 12, for more details about this function.

## Exhibit 6. Select variables using category and subcategory lists

**PIRLS IDE** 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

**STEP 2:** Select at least one variable from the category list below. View the list of all available variables, view by selected variables only, or search variables by keywords. Years selected will override previous selections. [Help](#)

**Subject, Grade:** PIRLS, Grade 4 [Reset](#)

**Jurisdictions:** Average of Countries, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - BEL, Belgium (French) - BEL, Belize, Bulgaria, Canada, Chile, Chinese Taipei - CHN, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, England - GBR, Finland, France, Georgia, Germany, Greece, Hong Kong - CHN, Hungary, Iceland, Indonesia, Iran, Islamic Rep. of, Ireland, Israel, Italy, Kazakhstan, Kuwait, Latvia, Lithuania, Luxembourg, Macao - CHN, Macedonia, Rep. of, Malta, Moldova, Rep. of, Morocco, Netherlands, New Zealand, Northern Ireland - GBR, Norway (4), Norway, Oman, Ontario, Quebec - CAN, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Scotland, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Trinidad and Tobago, Turkey, United Arab Emirates, United States

**Measure:** PIRLS Reading Scale: Combined Reading

**Years:** 2016, 2006, 2001

View all (820) View Selected (0) Search:  Go

Category	Sub Category	Variable	All Years	2016	2011	2006	2001
▼ Total	▼ Total	<input type="checkbox"/> All students <a href="#">details</a>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▼ Student and Family Characteristics	▶ Sex						
	▶ Age						
	▶ Race/Ethnicity						
	▶ Language and Family Characteristics						
	▼ Home Resources	<input type="checkbox"/> Number of Home Study Supports <a href="#">details</a>				NO DATA	NO DATA
		<input type="checkbox"/> Gen/how many books at home <a href="#">hide details</a> About how many books are there in your home? ID: ASBGBOOK 0-10 books; 11-25 books; 26-100 books; 101-200 books; More than 200 books					
		<input type="checkbox"/> Gen/things at home/pc <a href="#">hide details</a> Do you have a computer at your home? ID: ASBGTA1 Yes; No			NO DATA		

When you have selected the variable(s) you want to include, continue by clicking the **Edit Reports** button at the bottom of the page or the tab at the top of the page to go to the next screen.

### 2.C. Search Function

The second way to search for variables is to use the **Search** function on the **Select Variables** screen.

Type a term in the **Search** box and click **Go** (or hit “Enter” on your keyboard) to find variables by keywords in the question and/or details for the variable (see exhibit 7). If you use multiple keywords, “and” is assumed. You can also narrow your search by using “or,” “not,” or “and not.” The search function operates on an exact phrase if it is contained in quotes. The variable(s) that include the search term(s) in the question or its details will be listed.

See Section 2.B. Search Using Category and Subcategory Lists (page 11) for information on how to get details about variables, selecting variables, and viewing variables.

## Exhibit 7. Select variables using the search function

**PIRLS IDE**    1. Select Criteria    2. Select Variables    3. Edit Reports    4. Build Reports

**STEP 2:**  
Select at least one variable from the category list below. View the list of all available variables, view by selected variables only, or search variables by keywords. Years selected will override previous selections. [Help](#)

**Subject, Grade: PIRLS, Grade 4** [Reset](#)

**Jurisdictions:** Average of Countries, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - BEL, Belgium (French) - BEL, Belize, Bulgaria, Canada, Chile, Chinese Taipei - CHN, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, England - GBR, Finland, France, Georgia, Germany, Greece, Hong Kong - CHN, Hungary, Iceland, Indonesia, Iran, Islamic Rep. of, Ireland, Israel, Italy, Kazakhstan, Kuwait, Latvia, Lithuania, Luxembourg, Macao - CHN, Macedonia, Rep. of, Malta, Moldova, Rep. of, Morocco, Netherlands, New Zealand, Northern Ireland - GBR, Norway (4), Norway, Oman, Ontario, Quebec - CAN, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Scotland, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Trinidad and Tobago, Turkey, United Arab Emirates, United States

**Measure:** PIRLS Reading Scale: Combined Reading

**Year:** 2016

View all (820)    View Selected (0)    Search: (3) attitudes or self concept    Go

Category	Sub Category	Variable	All Years	2016	2011	2006	2001
Student Perception of Reading	Interest in Reading	<input type="checkbox"/> Index students' reading attitudes (SATR) <a href="#">details</a>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Index of students' reading self-concept (SRSC) (2006) <a href="#">details</a>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Index of students' reading self-concept (SRSC) (2001) <a href="#">details</a>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

When you have selected the variable(s) you want to include, continue by clicking the **Edit Reports** button at the bottom of the page or the tab at the top of the page to go to the next screen.

### 3. Edit Reports

#### 3.A. Overview

You can access step 3, **Edit Reports**, after choosing criteria at step 1, **Select Criteria**, and choosing at least one variable at step 2, **Select Variables**. The IDE will automatically build reports based on your selections from steps 1 and 2. However, at step 3, the **Edit Reports** phase, you may modify your selections for each report.

At this step, you can:

- Preview and edit the layout of your reports;
- Copy reports or create new reports based on the variables selected;
- Change formatting options, such as the number of decimal places to display, for all reports (these may also be changed in individual reports, but formatting options can overwrite previous edits);
- Change statistics options, such as averages and achievement levels, for all reports (these may also be changed in individual reports, but statistics options can overwrite previous edits);
- Select reports to be built into tables and charts at step 4, **Build Reports**; and
- Delete reports.

Using your chosen criteria, the IDE will return a separate data report for each variable you have chosen. If you have selected two or three variables (not counting **All Students**), you will also see a cross-tabulated report that crosses these variables. If your selected criteria include more than one measure (e.g., combined reading scale and age), a separate set of data reports will be generated for each measure (see exhibit 8, page 14).

### Exhibit 8. Edit reports overview

**PIRLS IDE**
1. Select Criteria
2. Select Variables
3. Edit Reports
4. Build Reports

**STEP 3:**  
Preview and edit existing reports using the action links next to each report name. Create new reports, set format and statistic options. (New and copied reports will appear at the bottom of the report list.)

**Subject, Grade:** PIRLS, Grade 4 [Reset](#)

**Jurisdictions:** Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - BEL, Belgium (French) - BEL, Belize, Bulgaria, Canada, Chile, Chinese Taipei - CHN, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, England - GBR, Finland, France, Georgia, Germany, Greece, Hong Kong - CHN, Hungary, Iceland, Indonesia, Iran, Islamic Rep. of, Ireland, Israel, Italy, Kazakhstan, Kuwait, Latvia, Lithuania, Luxembourg, Macao - CHN, Macedonia, Rep. of, Malta, Moldova, Rep. of, Morocco, Netherlands, New Zealand, Northern Ireland - GBR, Norway (4), Norway, Oman, Ontario, Quebec - CAN, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Scotland, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Trinidad and Tobago, Turkey, United Arab Emirates, United States

**Measures:** PIRLS Reading Scale: Combined Reading, Student age

**Variables:** All students, Sex of students, Index students' reading attitudes (SATR)

**Years:** 2016, 2011, 2006, 2001

Create New Report		Format Options		Statistics Options		
Report	All <input checked="" type="checkbox"/> Action	Measure	Variable	Year	Jurisdiction	Statistic
Report 1	<input checked="" type="checkbox"/> <a href="#">Preview</a>   <a href="#">Edit</a> <a href="#">Delete</a>   <a href="#">Copy</a>	PIRLS Reading Scale: Combined Reading	All students	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages B...
Report 2	<input checked="" type="checkbox"/> <a href="#">Preview</a>   <a href="#">Edit</a> <a href="#">Delete</a>   <a href="#">Copy</a>	PIRLS Reading Scale: Combined Reading	Sex of students	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages B...
Report 3	<input checked="" type="checkbox"/> <a href="#">Preview</a>   <a href="#">Edit</a> <a href="#">Delete</a>   <a href="#">Copy</a>	PIRLS Reading Scale: Combined Reading	Index students' reading attitudes (SATR)	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages B...
Cross-Tabulated Report 1	<input checked="" type="checkbox"/> <a href="#">Preview</a>   <a href="#">Edit</a> <a href="#">Delete</a>   <a href="#">Copy</a>	PIRLS Reading Scale: Combined Reading	Sex of students, Index students' reading attitudes (SATR)	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages B...
Report 4	<input checked="" type="checkbox"/> <a href="#">Preview</a>   <a href="#">Edit</a> <a href="#">Delete</a>   <a href="#">Copy</a>	Student age	All students	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages B...
Report 5	<input checked="" type="checkbox"/> <a href="#">Preview</a>   <a href="#">Edit</a> <a href="#">Delete</a>   <a href="#">Copy</a>	Student age	Sex of students	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages B...
Report 6	<input checked="" type="checkbox"/> <a href="#">Preview</a>   <a href="#">Edit</a> <a href="#">Delete</a>   <a href="#">Copy</a>	Student age	Index students' reading attitudes (SATR)	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages B...
Cross-Tabulated Report 2	<input checked="" type="checkbox"/> <a href="#">Preview</a>   <a href="#">Edit</a> <a href="#">Delete</a>   <a href="#">Copy</a>	Student age	Sex of students, Index students' reading attitudes (SATR)	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages B...

4. Build Reports

[About PIRLS IDE](#)
[Important Legal Information](#)
[Accessible Version](#)

The **Edit Reports** step shows detailed information on the layout of your reports (see exhibit 8). The **Report** column indicates the report, or cross-tabulation report, number based on the variable(s) chosen during the criteria selection. The **Action** column gives you the option to **Preview**, **Edit**, **Delete**, or **Copy** the report. Here, reports may be chosen for the report-building phase under the **All** tab, either by selecting **All** or selecting individual reports. The **Variable** column indicates the variable(s) included in the report. The **Year** column shows which years you have selected for comparison. The **Jurisdiction** column labels the countries and subnational education systems for comparison, and the **Statistic** column provides the type of statistic output that will be generated in the report-building phase.

### 3.B. Preview Report

Select **Preview** under the **Action** column to see how your report will be laid out (see exhibit 8). The preview will not provide actual data, but will show how the data will be arranged in rows and columns (see exhibit 9, page 15). You can select **Preview** at any time to see how your changes will affect the report's final layout.

#### Exhibit 9. Using preview report

Index of Students like Reading	Years	Jurisdictions	Sex of students			
			Female		Male	
			Averages	Standard Errors	Averages	Standard Errors
Like reading	2016	Argentina				
		Australia				
		Austria				
		Azerbaijan				
		Bahrain				
		Belgium (Flemish) - BEL				
		Belgium (French) - BEL				
		Belize				

### 3.C. Edit Report

To edit the report, select the command under the **Action** column next to the report (see exhibit 8 above). Another way to edit a report is to select the **Edit** tab when you are previewing a report. The following can be done using this function (see exhibit 10).

## Exhibit 10. Editing reports

The screenshot shows the 'Edit Report' window with the following configuration:

- Name:** Report 1
- Measure:** PIRLS Reading Scale: Combined Reading
- Jurisdiction:** Average of Countries, Average of Selected Countries/Participants, Australia, Austria, Azerbaijan
- Variable:** Gen/rdg statements/read only if have to
- Year:** 2011, 2006, 2001
- Statistic:** Averages

The 'TABLE LAYOUT' section shows the following arrangement:

Row	Column
Years	Gen/rdg statements/read only if have to
Jurisdictions	

1. Name your report. You have the option of giving each report a distinctive name, up to a limit of 50 characters, using only letters, numbers, spaces, underscores, and hyphens. (Otherwise, the default name is Report 1, Report 2, etc., and Cross-Tabulated Report 1, Cross-Tabulated Report 2, etc.).
2. Select a measure. You can choose a measure if more than one was selected at step 1.
3. Select which jurisdictions, variables, years (if applicable), and statistics to include (out of the selections previously made at steps 1 and 2). You can select up to two statistics options from the following: averages, percentages, achievement levels—discrete, achievement levels—cumulative, percentiles, and standard deviations. (For further information, see Section 3.G. Statistics Options, page 19.)
4. To create a new variable while editing a report, click on **Create New...** under the **Variable** heading. Section 3.D below further explains the process for creating a new variable.
5. Change the table layout by dragging elements to determine which items will appear in rows and which will appear in columns. Some of the arrangements will not be permissible, but a pop-up alert will explain this.

To save changes, make sure to select **Done** in the upper or lower right portion of the screen before closing the **Edit Report** window.



### 3.D. Create New Variables

To create a new variable, select **Edit** under the **Action** column and select **Create new...** under **Variable** (see exhibit 10). The new variable is created by combining values for an existing variable. The steps are as follows:

1. Click **Create New** under the **Variable** heading.
2. Select the variable for which you wish to combine values.
3. Select the values you want to combine by checking the boxes to the left of the values (see exhibit 11).
4. Create a name for the new value, and press **Create**. The collapsed values will appear in gray to indicate that they have already been used.
5. Wait for the screen to refresh, and press **Done**.
6. The new variable will appear in the **Variable** list (in the **Edit Report** window, if you access it that way, or else in the **Create New Report** window) with the new variable name designated as “(Collapsed)”. How the new variable displays will depend upon how it was created originally from the two options mentioned above.
7. Check the box next to the new (collapsed) variable to view it in the report. You can click **Preview** to see how the table will be laid out before retrieving data.

### Exhibit 11. Creating new variables

The screenshot shows a 'Create Variables' dialog box with three main sections:

- 1. Select a Variable group:** A dropdown menu is set to 'Index students' reading attitudes (SATR)'. A 'Help' button is located to the right.
- 2. Select values to create new Variable:** Three checkboxes are listed: 'High' (unchecked), 'Medium' (checked), and 'Low' (checked).
- 3. Create a name for the new Value:** A text input field contains 'medium\_low' and is highlighted in yellow. A 'Create' button is to its right.

At the bottom of the dialog are three buttons: 'Reset', 'Cancel', and 'Done'.

A new variable that you create is applicable to that specific report; it does not apply to the other reports appearing in the **Edit Reports** screen. For example, if you selected multiple measures of reading literacy for analysis, then you would need to create the new variable for each measure or create a copy of the report and edit it accordingly. To do the latter, click on **Copy** report in the **Edit Reports** screen (copied reports appear at the end of the list of reports) and then **Edit** the new copy (using the above example, you can change the measure and give the report a new name).

You can repeat the process and combine different values of a variable to create additional new variables. Using the **Create New Report** function, you can create a new report for each new variable that you create. (For further information, see Section 3.E. Create New Report, page 19.)

If you selected two or three variables from which to create new variables, you can repeat the process for each of them. Using the **Create New Report** or **Edit Report** function, these collapsed variables will be listed and available for cross-tabulation (see exhibit 12). You can click **Preview** to see how the table will be laid out before retrieving data.

## Exhibit 12. Edit report with collapsed variables

x
Edit Report

Edit
Preview
Cancel
Done

1. Create a name and select a measure for the new report. Help

Name:  Measure:

2. Select available options from each of the columns below, then preview results.

Jurisdiction	Variable <small><a href="#">Create new ...</a></small>	Year	Statistic
<input type="checkbox"/> Select All <input checked="" type="checkbox"/> Average of Countries <input checked="" type="checkbox"/> Average of Selected Countries/Participants <input checked="" type="checkbox"/> Argentina <input type="checkbox"/> Australia <input checked="" type="checkbox"/> Austria <input type="checkbox"/> Azerbaijan	<input type="checkbox"/> Sex of students <input type="checkbox"/> Gen/how many books at home <input type="checkbox"/> Gen child born in country age of coming <input type="checkbox"/> Gen/rdg statements/read only if have to <input type="checkbox"/> Gen/things at home/own room <input checked="" type="checkbox"/> Index students' reading attitudes (SATR)	<input type="checkbox"/> Select All <input type="checkbox"/> 2016 <input type="checkbox"/> 2011 <input checked="" type="checkbox"/> 2006 <input checked="" type="checkbox"/> 2001	<input checked="" type="checkbox"/> Averages <input type="checkbox"/> Percentages <input type="checkbox"/> Achievement levels - discrete <input type="checkbox"/> Achievement levels - cumulative <input type="checkbox"/> Percentiles <input type="checkbox"/> Standard deviations

3. Drag and drop header elements between Row and Column to custom design the report.

TABLE LAYOUT	
Row	Column
Years	Index students' reading attitudes (SATR)
Jurisdictions	

### 3.E. Create New Report

From the main **Edit Reports** screen, clicking on **Create New Report** brings up the same options as **Edit Report**, but with no checkboxes marked and without any new variables you may have created. Thus, **Create New Report** provides a clean slate for your selections from the first two steps, **Select Criteria** and **Select Variables** (see exhibit 13). Each new report you create will appear at the end of the list of reports. If you do not give the report a specific name, it will be called “New Report.”

### Exhibit 13. Creating new reports

**Edit Report**

Edit Preview Cancel Done

1. Create a name and select a measure for the new report. Help

Name:  Measure:

2. Select available options from each of the columns below, then preview results.

Jurisdiction	Variable <a href="#">Create new ...</a>	Year	Statistic
<input type="checkbox"/> Select All <input type="checkbox"/> Average of Countries <input type="checkbox"/> Average of Selected Countries/Participants <input type="checkbox"/> Argentina <input type="checkbox"/> Australia <input type="checkbox"/> Austria <input type="checkbox"/> Azerbaijan	<input type="checkbox"/> Sex of students <input type="checkbox"/> Gen/how many books at home <input type="checkbox"/> Gen child born in country age of coming <input type="checkbox"/> Gen/rdg statements/read only if have to <input type="checkbox"/> Gen/things at home/own room <input type="checkbox"/> Index students' reading attitudes (SATR)	<input type="checkbox"/> Select All <input checked="" type="checkbox"/> 2016 <input checked="" type="checkbox"/> 2011 <input checked="" type="checkbox"/> 2006 <input checked="" type="checkbox"/> 2001	<input type="checkbox"/> Averages <input type="checkbox"/> Percentages <input checked="" type="checkbox"/> Achievement levels - discrete <input checked="" type="checkbox"/> Achievement levels - cumulative <input checked="" type="checkbox"/> Percentiles <input type="checkbox"/> Standard deviations

3. Drag and drop header elements between Row and Column to custom design the report.

TABLE LAYOUT	
Row	Column
<input type="text" value="Years"/> <input type="text" value="Jurisdictions"/>	

### 3.F. Format Options

From the main **Edit Reports** screen, clicking on **Format Options** will allow you to make formatting changes applicable to *all* the reports listed. The following formatting options are available using this function (see exhibit 14):

1. **Variable Labels (Long)** displays a more detailed description of the variables selected in a query than the default short label. For variables from questionnaires, the full text of the question is displayed. Be advised that the length of the extra detail may sometimes interfere with table formatting.
2. **Show data for values categorized as “missing”** will include the percentage of students in the total sample or in a reporting group for whom membership in a particular response category is unknown because no response was given by the students, their teacher, or their school. The percentage of “missing” will be shown in the right-most table column. Missing data are available only for queries that involve percentages as the statistic type. Unless you check this option, the default is for missing responses not to be included in the percentage distribution shown.

3. **Decimal Places** allows you to specify a greater level of precision for a particular statistic (one or two decimal places) than does the default, which is whole numbers. Note that only integer-level precision is allowed for percentages; that is, the number of decimal places is fixed at “none” for percentages. Also, standard errors will be shown to one more decimal place than is shown for a particular statistic. For example, if you request that the averages be displayed to one decimal place, the corresponding standard errors will be displayed to two decimal places. If you export to Excel, you will be able to increase the number of decimal places in most cases.
4. **Include** gives you the option to show standard errors of the estimates and, if you choose to show them, the option to show them inside parentheses/brackets. Unless you indicate otherwise, the default is to show standard errors inside parentheses. You can preview the effects of your selection in the Sample Display area (see the blue-shaded box at the bottom of exhibit 14).

#### Exhibit 14. Format options

Format Options

Choose options that will apply to all reports. View selected format in Sample Display. [Help](#)

**Variable Labels:**

Short (e.g. Education-Highest qualification-Level)

Long (e.g. What is the highest level of education you have completed?)

Show data for values categorized as Missing (this applies only when percentages are displayed).

Show variable name in titles (e.g. [ITSEX])

**Decimal Places:**  None  1  2

(For row percents, the number of decimal places is fixed at "None")

**Include:**

Standard Errors  none

Use parentheses/brackets

**Sample Display: ### (##)**

[Cancel](#) [Done](#)

Be advised that choices you make in the **Format Options** window will apply to all reports (i.e., they cannot be changed for individual reports). Use the **Reset** button located in the upper right portion of the screen (just below the **Help** button) to restore the **Format Options** to the default settings (a word of caution: as this will also delete any new reports that you have created).

### 3.G. Statistics Options

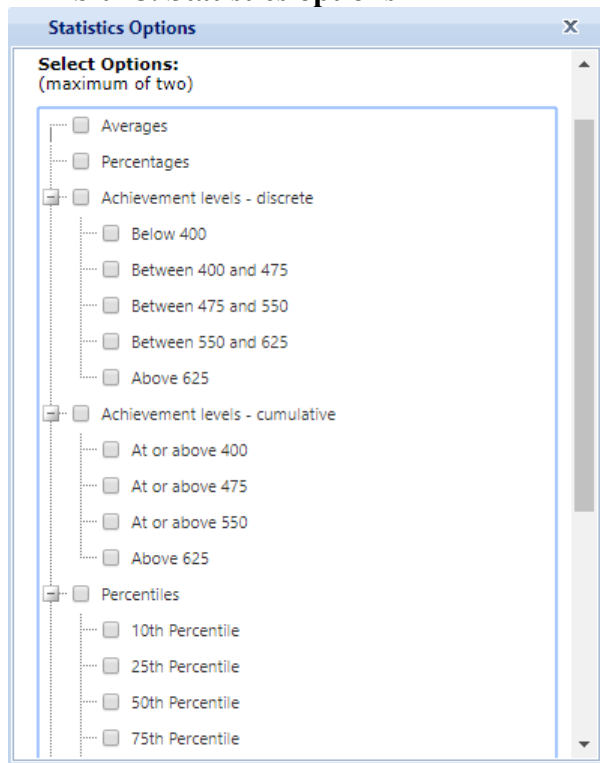
Available only from the main **Edit Reports** screen, clicking on **Statistics Options** allows you to designate up to two statistics. The selections made are applicable to *all* the reports listed, although you can also change the statistics for an individual report when you edit that report. (For further information, see Section 3.C. Edit Report, page 15.)

The following statistics options are available (see exhibit 15):

1. **Averages.** This statistic provides the average value for a selected continuous variable or the average scale score for the combined reading scale or one of the reading subscales. For the PIRLS assessment, student performance is reported on scales that range from 0 to 1,000. PIRLS reports the average scale score for a variety of demographic samples of the student population (e.g., the average scale score in reading for literary purposes for female students).
2. **Percentages.** This statistic shows the percentage of students as a row percentage. For example, if the first column lists countries, then each country will display its own percentage distribution across its row. If the table cell for Black female students in the United States is 9 percent, then Black females constituted 9 percent of U.S. fourth-graders. By default, percentage distributions do not include missing data. For information on how to show data for values categorized as missing, see Section 3.F. Format Options, above.
3. **Achievement levels—discrete.** Discrete achievement levels are reported as the percentage of students performing *at* each international benchmark (*low*, *intermediate*, *high*, or *advanced*), counted separately from the other benchmarks:
  - *Below low*—below 400
  - *At low*—between 400 and 475
  - *At intermediate*—between 475 and 550
  - *At high*—between 550 and 625
  - *At advanced*—above 625
4. **Achievement levels—cumulative.** Cumulative achievement levels are reported as the percentage of students performing *at or above* each international benchmark:
  - *At or above low*—at or above 400
  - *At or above intermediate*—at or above 475
  - *At or above high*—at or above 550
  - *At advanced*—above 625
5. **Percentiles.** This statistic shows the threshold (or cutpoint) score for the following:
  - 10<sup>th</sup> percentile—the bottom 10 percent of students
  - 25<sup>th</sup> percentile—the bottom quarter of students
  - 50<sup>th</sup> percentile—the bottom half of students (half the students scored at or below the cutpoint and half scored above it)

- 75<sup>th</sup> percentile—the top quarter of students
  - 90<sup>th</sup> percentile—the top 10 percent of students
6. **Standard deviations.** The standard deviation is a measure of how widely or narrowly dispersed scores are for a particular dataset. Under general normality assumptions, 95 percent of the scores are within two standard deviations of the mean. For example, if the average score of a dataset is 500 and the standard deviation is 100, it means that 95 percent of the scores in this dataset fall between 300 and 700. The standard deviation is the square root of the variance.

### Exhibit 15. Statistics options



The selections you make in **Statistics Options** will be applied automatically to all reports, although you can change the statistics for an individual report when you edit it. Be advised that if you use **Statistics Options** after editing the statistics in one or more of your individual reports, the statistics options selected will overwrite your previously edited selections. If you wish to use the same criteria and variables in a report with a different selection of statistics, consider using the **Create New Report** function to generate a new report with different statistics. (For further information, see Section 3.E. Create New Report, page 19.) You can also make a copy of an individual report.

You can use the **Reset** button located in the upper right portion of the screen (just below the **Help** button) to restore the **Statistics Options** to the default setting, which is **Averages** for all reports (this will also delete any new reports that you have created).

Not all statistics are available for all reports. Their availability depends on other selections you have made to define the content and format of your report:

- Percentages will not display if jurisdictions or years appear in columns.
- Achievement-level results cannot be displayed in both columns and rows.
- Achievement-level results are available only for the composite or overall scale.
- If achievement levels are selected as a variable, only percentages will be displayed.

Please note that the statistics produced by the IDE may not match the statistics shown in reports published by the International Association for the Evaluation of Educational Achievement (IEA) due to differences in certain statistical standards. In particular, organizations such as NCES and the IEA differ in the minimum sample sizes required for publishing student scores. Furthermore, in IEA reports, if a student has more than one teacher, estimates for teacher variables are calculated as an average of data reported by all of the teachers. In comparison, in the IDE, a student is randomly assigned one teacher, and the teacher estimate represents the data reported by the teacher assigned to the student.

### 3.H. Select Reports to Build

As you edit your reports, you can give them distinct names (up to 50 characters) to differentiate them, as well as make changes to the jurisdictions and variables previously selected, the statistics, and the layout of the rows and columns. (For further information, see Section 3.C. Edit Report, page 15.) You may make copies of reports with these changes. In order to proceed to step 4, **Build Reports**, each report for which you want to retrieve data should be previewed/inspected using the **Preview** function. To decrease processing time as you move to step 4, you can uncheck any reports for which you do not wish to retrieve data. By default, all reports are checked. To uncheck one or more reports, you can either uncheck the reports individually or click on the **All** box. Doing the latter will uncheck all of the reports and allow you to check only those for which you wish to retrieve data. In the example that follows (see exhibit 16), data will be retrieved only for the combined reading measure.



## Exhibit 16. Selecting reports to build

**PIRLS IDE**    1. Select Criteria    2. Select Variables    3. Edit Reports    4. Build Reports

**STEP 3:**  
Preview and edit existing reports using the action links next to each report name. Create new reports, set format and statistic options. (New and copied reports will appear at the bottom of the report list.)

**Help**    **2**

**Reset**

**Subject, Grade:** PIRLS, Grade 4  
**Jurisdictions:** Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - BEL, Belgium (French) - BEL, Belize, Bulgaria, Canada, Chile, Chinese Taipei - CHN, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, England - GBR, Finland, France, Georgia, Germany, Greece, Hong Kong - CHN, Hungary, Iceland, Indonesia, Iran, Islamic Rep. of, Ireland, Israel, Italy, Kazakhstan, Kuwait, Latvia, Lithuania, Luxembourg, Macao - CHN, Macedonia, Rep. of, Malta, Moldova, Rep. of, Morocco, Netherlands, New Zealand, Northern Ireland - GBR, Norway (4), Norway, Oman, Ontario, Quebec - CAN, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Scotland, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Trinidad and Tobago, Turkey, United Arab Emirates, United States  
**Measure:** PIRLS Reading Scale: Combined Reading  
**Variables:** Sex of students, Gen/how many books at home, Gen child born in country age of coming, Gen/rdg statements/read only if have to, Gen/things at home/own room  
**Years:** 2016, 2011, 2006, 2001

Create New Report		Format Options			Statistics Options		
Report	All <input checked="" type="checkbox"/>	Action	Measure	Variable	Year	Jurisdiction	Statistic
Report 1	<input checked="" type="checkbox"/>	<a href="#">Preview</a>   <a href="#">Delete</a>   <a href="#">Edit</a>   <a href="#">Copy</a>	PIRLS Reading Scale: Combined Reading	Sex of students	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages
Report 2	<input checked="" type="checkbox"/>	<a href="#">Preview</a>   <a href="#">Delete</a>   <a href="#">Edit</a>   <a href="#">Copy</a>	PIRLS Reading Scale: Combined Reading	Gen/how many books at home	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages
Report 3	<input checked="" type="checkbox"/>	<a href="#">Preview</a>   <a href="#">Delete</a>   <a href="#">Edit</a>   <a href="#">Copy</a>	PIRLS Reading Scale: Combined Reading	Gen child born in country age of coming	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages
Report 4	<input checked="" type="checkbox"/>	<a href="#">Preview</a>   <a href="#">Delete</a>   <a href="#">Edit</a>   <a href="#">Copy</a>	PIRLS Reading Scale: Combined Reading	Gen/rdg statements/read only if have to	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages
Report 5	<input checked="" type="checkbox"/>	<a href="#">Preview</a>   <a href="#">Delete</a>   <a href="#">Edit</a>   <a href="#">Copy</a>	PIRLS Reading Scale: Combined Reading	Gen/things at home/own room	2016, 2011, 2006, 2001	Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - B...	Averages

**1**    **3**    **4. Build Reports**

If you wish to delete a report from the list of reports, click **Delete** (see 1 above) in the **Action** column. Use the **Reset** button (see 2 above) located in the upper right portion of the screen (just below the **Help** button) to restore the deleted reports (a word of caution: this will also delete any new reports that you have created and restore the Format Options and Statistics Options to the default settings).

To continue to the last step in the IDE, click the **Build Reports** button at the bottom of the page or the tab at the top of the page to go to the next screen (see 3 above).

## 4. Build Reports

### 4.A. Overview

You can access step 4, **Build Reports**, after choosing criteria at step 1, **Select Criteria**, in which case the default report built will provide **Averages** data for the **All Students** variable. After step 1, you may also go on to steps 2 and 3, where you can select additional variables and edit reports, before moving on to **Build Reports**. In **Build Reports**, you can do the following:

1. Generate a data table for each report selected in step 3, as shown by the **Select Reports** drop-down feature (see 1 in exhibit 17). By default, all reports are checked, though you

can uncheck any reports for which you do not wish to retrieve data. (For further information, see Section 3.H. Select Reports to Build, page 24.)

2. Export and save data tables into various formats using the **Export Reports** button (see 2 in exhibit 17). The output formats include HTML (print-friendly), Microsoft Word, Microsoft Excel, and Adobe PDF.
3. Select the **Chart** tab (see 3 in exhibit 17) to create and customize charts for each report and save them for export in the above formats.
4. Select the **Significance Test** tab (see 4 in exhibit 17) to run a significance test on your results, customize it, and export it.

### Exhibit 17. Building reports overview

**PIRLS IDE** 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

**STEP 4:**  
View each report table by selecting the report name from the drop-down menu. Create report types to edit and preview, each tab created represents one report type to export. [Help](#)

**Subject, Grade:** PIRLS, Grade 4  
**Jurisdictions:** Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - BEL, Belgium (French) - BEL, Belize, Bulgaria, Canada, Chile, Chinese Taipei - CHN, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, England - GBR, Finland, France, Georgia, Germany, Greece, Hong Kong - CHN, Hungary, Iceland, Indonesia, Iran, Islamic Rep. of, Ireland, Israel, Italy, Kazakhstan, Kuwait, Latvia, Lithuania, Luxembourg, Macao - CHN, Macedonia, Rep. of, Malta, Moldova, Rep. of, Morocco, Netherlands, New Zealand, Northern Ireland - GBR, Norway (4), Norway, Oman, Ontario, Quebec - CAN, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Scotland, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Trinidad and Tobago, Turkey, United Arab Emirates, United States  
**Measure:** PIRLS Reading Scale, Combined Reading  
**Variables:** Sex of student, Gen/rdg statements/read only if have to, Gen/things at home/own room, Index students' reading habits (SATR)  
**Years:** 2016, 2011

Select Report: Report 2 [Export Reports](#)

Table [Chart](#) [Significance Test](#) [Gap Analysis](#) [Regression Analysis](#)

Progress: 0% [Cancel](#)

Some queries may take up to two minutes to process.  
Please do not hit the "Back" button while processing.

#### 4.B. View Reports as Data Tables

Once you click on **Build Reports**, the words “Processing Data” will appear on your screen (see exhibit 17). Some reports will take longer than others to process, so please do not hit the “Back” button during this stage. To view a table, go to the **Select Report** drop-down menu (see 1 in exhibit 17) and choose a table of interest. Your table will appear once the processing is complete (see exhibit 18). To change the formatting or statistics options of a table or to generate a table from a report not included in your selection, return to step 3, **Edit Reports**.

## Exhibit 18. Viewing reports as data tables

**PIRLS IDE**    1. Select Criteria    2. Select Variables    3. Edit Reports    4. Build Reports

**STEP 4:** View each report table by selecting the report name from the drop-down menu. Create report types to edit and preview, each tab created represents one report type to export. Help

**Subject, Grade:** PIRLS, Grade 4  
**Jurisdictions:** Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - BEL, Belgium (French) - BEL, Belize, Bulgaria, Canada, Chile, Chinese Taipei - CHN, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, England - GBR, Finland, France, Georgia, Germany, Greece, Hong Kong - CHN, Hungary, Iceland, Indonesia, Iran, Islamic Rep. of, Ireland, Israel, Italy, Kazakhstan, Kuwait, Latvia, Lithuania, Luxembourg, Macao - CHN, Macedonia, Rep. of, Malta, Moldova, Rep. of, Morocco, Netherlands, New Zealand, Northern Ireland - GBR, Norway (4), Norway, Oman, Ontario, Quebec - CAN, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Scotland, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Trinidad and Tobago, Turkey, United Arab Emirates, United States  
**Measure:** PIRLS Reading Scale: Combined Reading  
**Variables:** Sex of students, Gen/how many books at home, Gen child born in country age of coming, Gen/rdg statements/read only if have to, Gen/things at home/own room, Index students' reading attitudes (SATR)  
**Years:** 2016, 2011

Select Report: Report 2 Export Reports

Table

Chart    Significance Test    Gap Analysis    Regression Analysis

Averages for PIRLS, grade 4 by Gen/how many books at home [ASBGBOOK], year and jurisdiction: 2016 and 2011

Year	Jurisdiction	0-10 books		11-25 books		26-100 books		101-200 books		More than 200 books	
		Average	Standard Error	Average	Standard Error	Average	Standard Error	Average	Standard Error	Average	Standard Error
2016	Average of Countries	465	(0.7)	500	(0.5)	524	(0.5)	537	(0.8)	533	(0.9)
	Average of Selected Countries/Participants	465	(0.7)	500	(0.5)	524	(0.5)	537	(0.8)	533	(0.9)
	Argentina	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
	Australia	468	(6.5)	512	(3.2)	548	(2.5)	568	(3.3)	578	(4.3)
	Austria	486	(4.0)	517	(3.4)	546	(2.6)	566	(2.6)	576	(3.5)
	Azerbaijan	453	(5.3)	485	(3.6)	499	(5.1)	496	(11.1)	490	(7.9)
	Bahrain	425	(4.0)	444	(3.4)	467	(3.2)	470	(5.8)	449	(5.4)
	Belgium (Flemish) - BEL	484	(4.9)	510	(2.8)	530	(2.1)	547	(2.6)	549	(3.7)
	Belgium (French) - BEL	449	(4.8)	476	(3.7)	501	(2.8)	524	(3.3)	525	(3.8)
	Belize	—	(†)	—	(†)	—	(†)	—	(†)	—	(†)
	Bulgaria	480	(7.0)	547	(5.0)	581	(3.2)	599	(4.1)	589	(5.0)
	Canada	494	(4.8)	522	(2.2)	550	(2.2)	568	(2.2)	561	(3.9)

### 4.C. Charts

Go to **Select Report** to choose the report of interest from the drop-down menu, and then click the **Chart** link (see exhibit 19).

You will be able to create many types of charts and customize them. Section 4.E. Create Charts—Chart Options (page 29) provides a summary of the available features and how they can be customized.

## Exhibit 19. Viewing reports as charts

**PIRLS IDE** 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

**STEP 4:** View each report table by selecting the report name from the drop-down menu. Create report types to edit and preview, each tab created represents one report type to export. [Help](#)

**Subject, Grade:** PIRLS, Grade 4

**Jurisdictions:** Average of Countries, Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - BEL, Belgium (French) - BEL, Belize, Bulgaria, Canada, Chile, Chinese Taipei - CHN, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, England - GBR, Finland, France, Georgia, Germany, Greece, Hong Kong - CHN, Hungary, Iceland, Indonesia, Iran, Islamic Rep. of, Ireland, Israel, Italy, Kazakhstan, Kuwait, Latvia, Lithuania, Luxembourg, Macao - CHN, Macedonia, Rep. of, Malta, Moldova, Rep. of, Morocco, Netherlands, New Zealand, Northern Ireland - GBR, Norway (4), Norway, Oman, Ontario, Quebec - CAN, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Scotland, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Trinidad and Tobago, Turkey, United Arab Emirates, United States

**Measure:** PIRLS Reading Scale: Combined Reading

**Variables:** Sex of students, Gen/how many books at home, Gen/child born in country age of coming, Gen/rdg statements/read only if have to, Gen/things at home/own room, Index students' reading attitudes (SATR)

**Years:** 2016, 2011

Select Report: Report 2 [Export Reports](#)

Table **Chart** Significance Test Gap Analysis Regression Analysis

### 4.D. Create Charts—Data Options

When you click **Chart**, your screen will present **Data Options** pertaining to **Statistic**, **Year**, and **Jurisdiction**. All are selected by default, except that you can have only one statistic (see exhibit 20). Uncheck any of the criteria that you do not wish to chart, as long as you have one selected in each category.

Once you are finished with the Data Options, click the **Chart Options** button in the lower right corner of the screen.

## Exhibit 20. Data options for charts

Table Chart 1 X

Chart Significance Test Gap Analysis Regression Analysis

**Data Options**

Select a single statistic and any combination of jurisdictions and years/studies. Continue to Chart Options.

Statistic	Year/Study	Jurisdiction
<input checked="" type="radio"/> Averages <input type="radio"/> Percentages <input type="radio"/> Achievement levels - cumulative <input type="radio"/> Achievement levels - discrete <input type="radio"/> Percentiles	<input checked="" type="checkbox"/> Year/Study <input checked="" type="checkbox"/> 2011 <input checked="" type="checkbox"/> 2016	<input checked="" type="checkbox"/> Average <input checked="" type="checkbox"/> Average of Countries <input checked="" type="checkbox"/> Average of Selected Countries/Participants <input checked="" type="checkbox"/> Countries <input checked="" type="checkbox"/> Argentina <input checked="" type="checkbox"/> Australia <input checked="" type="checkbox"/> Austria <input checked="" type="checkbox"/> Azerbaijan

[Chart Options](#)

#### 4.E. Create Charts—Chart Options

On the Chart Options screen, select **Bar Chart**, **Column Chart**, or **Line Chart** (see exhibit 21). For data on achievement levels, you also have the option of selecting a **Discrete** or **Cumulative Chart**.

After selecting a chart type, change any data dimensions from the drop-down menus for **Bar**, **Column**, or **Line Values** and **Values Grouped by**. Any new variables that you created at step 3, **Edit Reports**, will be available for selection, but only if you selected the variables (i.e., placed a check mark next to them) and clicked on **Done** after you edited the report.

Enter a **Chart Name** limited to 25 characters, using only letters, numbers, spaces, underscores, and hyphens (otherwise, the default name is “Chart 1”).

Preview your chart by clicking the **Preview** button in the lower right corner or go back to the data options and make different selections by clicking the **Data Options** button in the lower left corner.

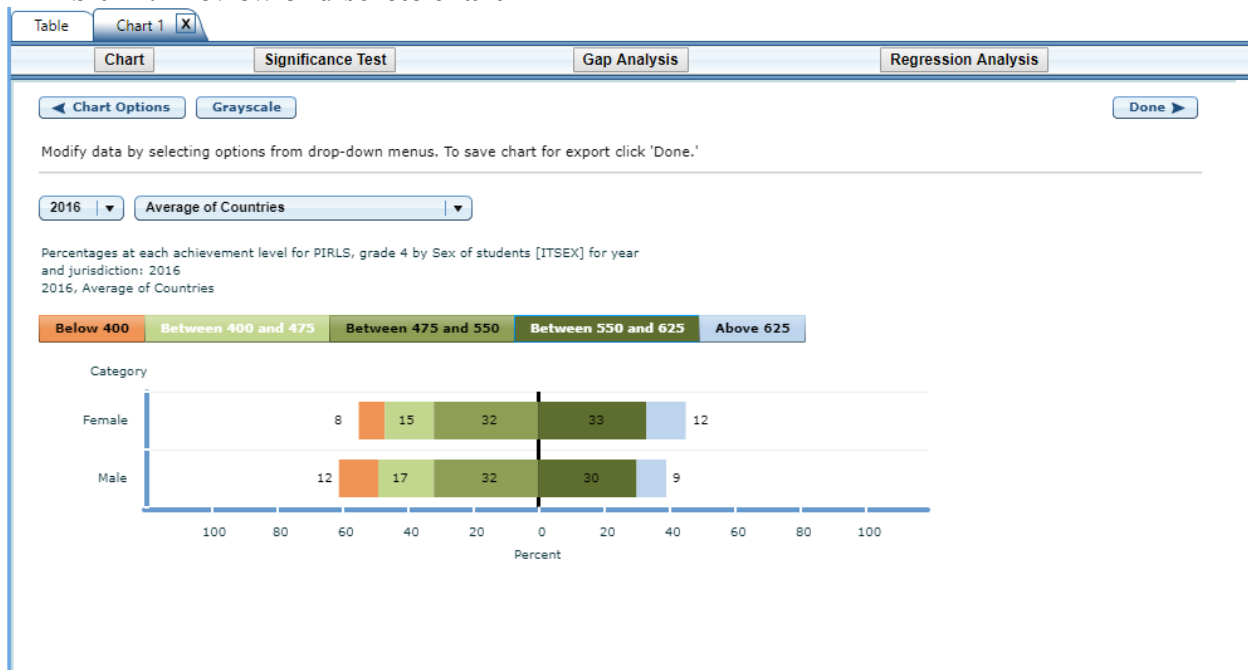
#### Exhibit 21. Chart options

While previewing your chart, you can do the following (see exhibit 22 as an example of a **Discrete Chart** and exhibit 23 as an example of a **Bar Chart**):

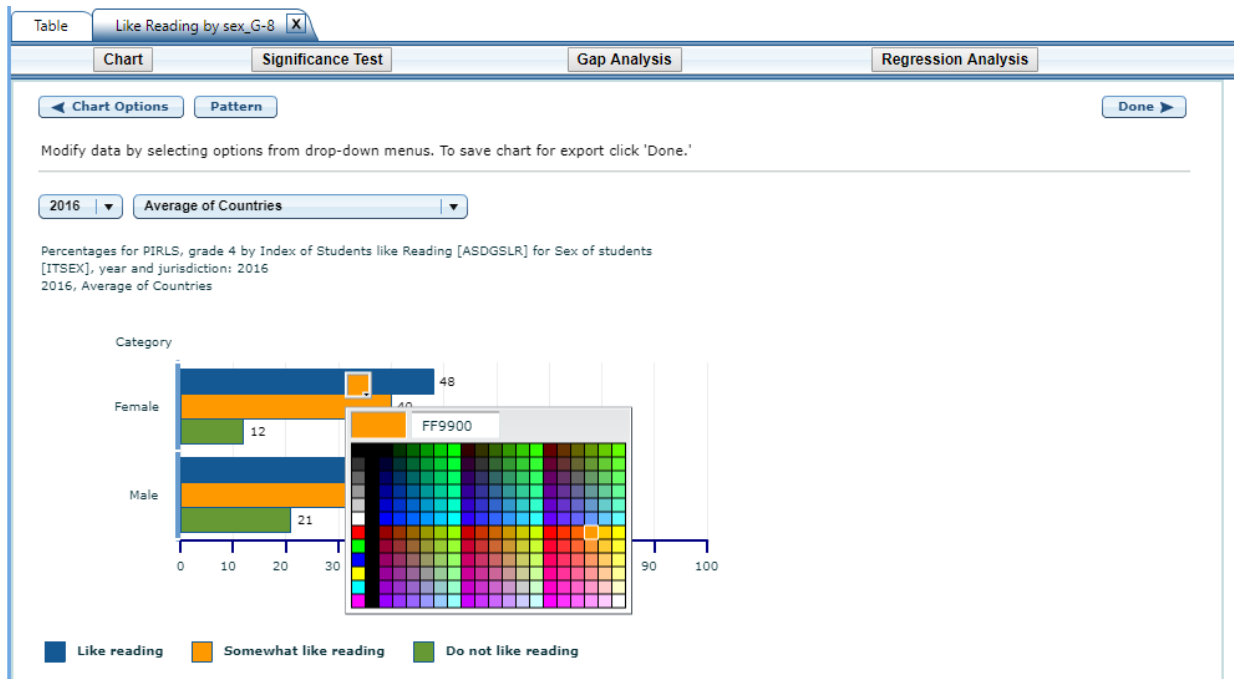
1. Use the drop-down menus to change the jurisdiction and other variables as applicable. Notice that when you change your selection, the change occurs slowly enough that you get a sense of the size and direction of the change—particularly if you didn’t previously specify in the data dimensions how you want your values grouped.

2. For the **Discrete Chart**, you can select where you want the divider by clicking one of the achievement-level buttons above the bars. This makes it easier to compare the percentages at a given level(s). In the example shown in exhibit 22, the percentages of students at the high and advanced levels are shown to the right of the divider.
3. Place your cursor over the bars to see the data points and value label(s).
4. Choose between using colors or patterns for the bars by clicking the alternating **Pattern** or **Color** button located just below the **Chart** tab in the upper left portion of the screen. For the **Discrete Chart** and the **Cumulative Chart**, choose between **Color** or **Grayscale**.
5. Change the color of the bars with a single click on each level in the bars. That click brings up a thumbnail of a color chart. Click on the thumbnail to reveal a color grid, and then select the color you desire.
6. Change the pattern of the bars with a single click on each level in the bars. Continuous clicking brings up various patterns to choose from.

### Exhibit 22. Preview of discrete chart



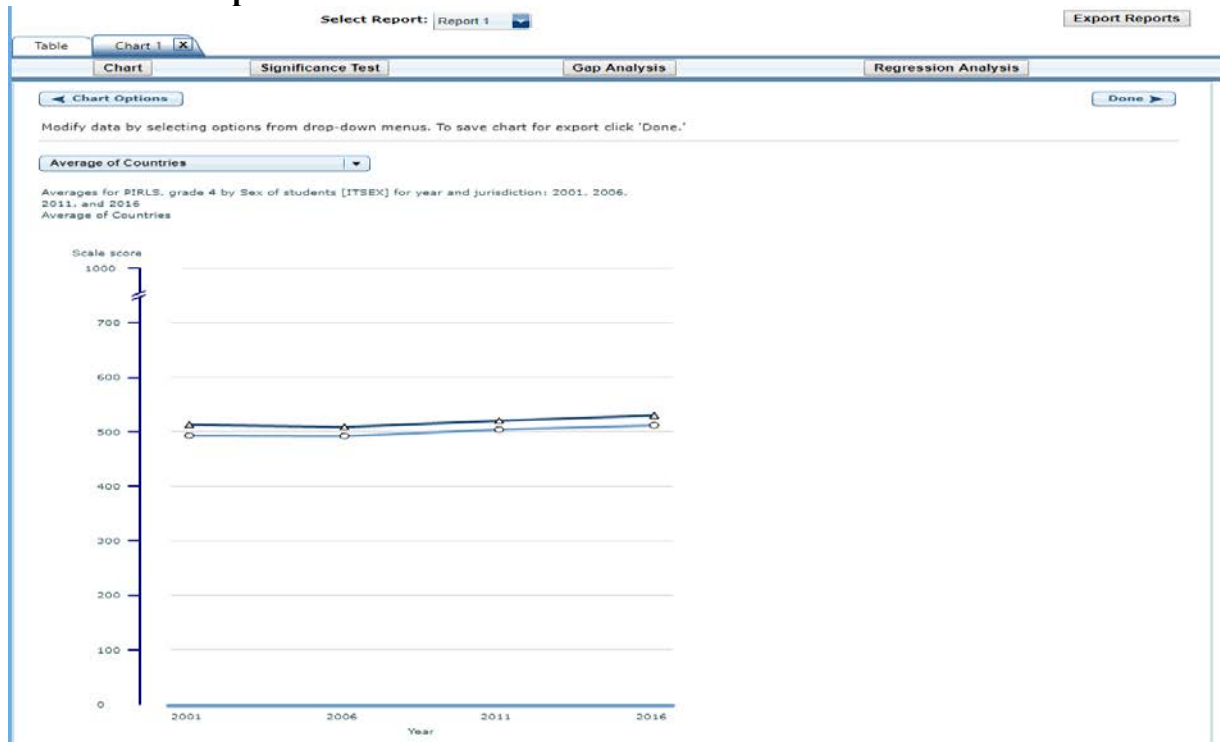
### Exhibit 23. Preview of bar chart



Click the **Done** button located on the right side of the screen or click back to **Chart Options** and/or **Data Options** to change your selection criteria. You must click **Done** if you wish to later save and/or print your chart via **Export Reports**.

Clicking **Done** takes you to the exportable version of the chart (see exhibit 24). You can subsequently **“Click here to edit this chart”** (located in the upper left corner, below the **Chart** link) to make more changes. Alternatively, the entire chart area, if clicked, will take you to the edit screen.

## Exhibit 24. Completed chart



To make an additional chart from the same report/table, click the Chart link to begin a new chart. It is recommended that you provide a new chart name (the default is Chart 1, Chart 2, etc.). If you don't start the process again by clicking the Chart link, the new chart will overwrite the previous one.

If you wish to make charts from other reports, select "other report" in the **Select Report** drop-down list. If other reports were not checked in Step 3, **Edit Reports**, go back to step 3 and check the ones you want. Then, when you advance to step 4, **Build Reports**, the reports will appear in the **Select Report** drop-down list. If you need to create new reports, go back to step 1, **Select Criteria**, and/or step 2, **Select Variables**. Remember to export any completed charts you want to save by clicking **Done** and using the **Export Reports** function before leaving the **Build Reports** screen. (For further information, see Section 4.G. Export Reports, page 36.)

### 4.F. Significance Tests

Tests for statistical significance indicate whether observed differences between assessment results are likely to have occurred because of sampling error or chance. "Significance" here does not imply any judgment about absolute magnitude or educational relevance. It refers only to the statistical nature of the difference and whether that difference likely reflects a true difference in the population.



With your report of interest selected, click the **Significance Test** link, which is located to the right of the **Chart** link (see exhibit 24, above). You first need to decide which variable you want to test and the criterion by which you want to test it (i.e., within or between variable values or across years). You will compare or “look across” the variable’s range of values, so it must have more than one value. You can look across jurisdictions for a variable (that is, compare between two or more jurisdictions) or you can look across the values within a variable for a single jurisdiction. For example, with the variables shown in exhibit 25, you could choose to compare female scores between countries, or you could choose to compare male and female scores within a country. Once the primary criterion is chosen, all other criteria must be restricted to a single value.

The general steps for running significance tests are as follows (see exhibit 25):

1. In the **Significance Test** window, select either **Between Jurisdictions**, **Within Variables**, or **Across Years**. Then, select the appropriate jurisdiction(s), variable(s), and statistic(s). For **Between Jurisdictions**, select at least two jurisdictions. For **Within Variables**, select one or more jurisdictions. For **Across Years**, more than one year needs to be selected.
2. Enter a **Name** limited to 25 characters, using only letters, numbers, spaces, underscores, and **hyphens** (otherwise, the default name is “Sig Test 1”).
3. Select the **output type** as either **Table** or **Map**. The table option will show the significance test results as a matrix. The map option will show the significance test results on a world map, highlighting countries that have been selected. The map output is only available when “Between Jurisdictions” is selected in the first step.
4. Located under the output type, you can check **Show Score Details** to display the estimates and standard errors for the table cells. If you selected a map, this option is not applicable, as the map will automatically show score details.
5. Click the **Preview** tab located in the upper left corner of the screen or the **Preview** button located in the bottom left corner.
6. Click the **Edit** tab in the upper left corner of the screen if you wish to go back and make changes to the selections you made for running the significance tests.
7. Click the **Done** button in the upper or lower right corner of the screen to run the significance tests.

## Exhibit 25. Significance test options

**Loading ...**

Edit Preview Cancel Done

1. Select one category to compare significance from the choices available below. Help

Between Jurisdictions  Within Variables  Across Years

2. Create a name for this significance test. Name: Sig Test 1

3. Select the output type.  Table  Map

4. Select additional options.  Show table details

5. Select available options from each of the columns below, then preview results.

Jurisdiction	Variable	Year	Statistic
<input type="checkbox"/> All Jurisdictions	<input checked="" type="checkbox"/> Sex of students	<input checked="" type="checkbox"/> All Years	<input checked="" type="checkbox"/> Averages
<input type="checkbox"/> Average of Countries	<input checked="" type="checkbox"/> Female	<input checked="" type="checkbox"/> 2016	
<input type="checkbox"/> Average of Selected Countries/Participants	<input checked="" type="checkbox"/> Male	<input checked="" type="checkbox"/> 2011	
<input checked="" type="checkbox"/> Argentina		<input checked="" type="checkbox"/> 2006	
<input checked="" type="checkbox"/> Australia		<input checked="" type="checkbox"/> 2001	
<input checked="" type="checkbox"/> Austria			

Preview Cancel Done

When the table option is selected, you will get a significance test matrix in which you will see the differences and  $p$  values. Using the symbols shown in the legend of the matrix, an indication is also provided of whether one estimate is significantly lower or higher than another estimate or whether there is no significant difference (see exhibit 26). In the PIRLS IDE, most comparisons are independent with an alpha level of 0.05. The PIRLS IDE performs dependent t-tests only for basic male-female comparisons by country (with no additional variables included in the analysis). Published reports by IEA employ a dependent testing methodology for all male-female comparisons by country (i.e., even when additional variables besides gender and country are included in the analysis). Currently the IDE does not have this capability. Thus, the statistical significance of male-female differences by country may vary slightly between published reports and the IDE. Please note that multiple comparisons are not available in the IDE.

## Exhibit 26. Significance test table output

PIRLS, grade 4  
 Difference in percentages between jurisdictions, for Sex of students [ITSEX] = Female by Index of Students like Reading [ASDGSLR] = Like reading  
 2016

	France (48)	Germany (39)
France (48)		> Diff = 9 (2.1) P-value = 0.0000
Germany (39)	< Diff = -9 (2.1) P-value = 0.0000	

### LEGEND:

<	Significantly lower.
>	Significantly higher.
x	No significant difference.

NOTE: Within country comparisons on any given year are dependent with an alpha level of 0.05. For details on jurisdictions in which population coverage, participation rates, sampling procedures, or reliability standards deviated from international standards, see Statistical Notations and Other Notes in the Help Guide. Data from these jurisdictions have issues that interfere with proper trend analysis: Azerbaijan, Israel, Kuwait, Lithuania, Morocco, Poland, Qatar, and South Africa. Norway (4) refers to students in their 4th year of schooling, and maintains trend with previous PIRLS cycles. Average of Countries shows the PIRLS and ePIRLS scale centerpoint of 500 when results for "All students" are shown. See the Help Guide for further details.

Percentages for PIRLS, grade 4 by Index of Students like Reading [ASDGSLR], year, jurisdiction and Sex of students [ITSEX]: 2016

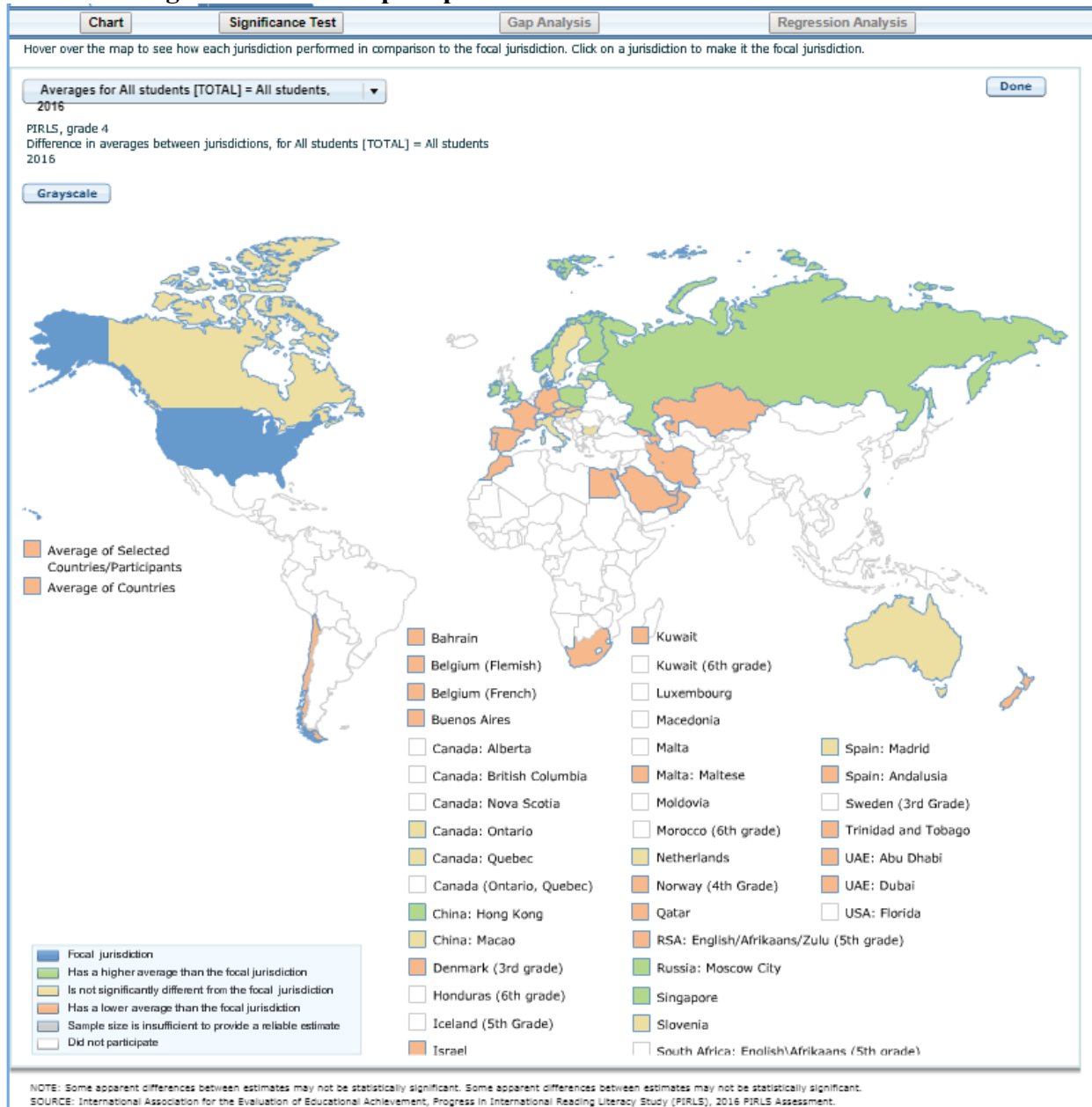
Year	Jurisdiction	Sex of students	Like reading Percentage	Like reading Standard error	Somewhat like reading Percentage	Somewhat like reading Standard error	Do not like reading Percentage	Do not like readir Standard err
2016	France	Female	48	(1.4)	43	(1.3)	9	(0.7)
	Germany	Female	39	(1.6)	43	(1.2)	19	(1.4)

NOTE: Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant.

SOURCE: International Association for the Evaluation of Educational Achievement, Progress in International Reading Literacy Study (PIRLS), 2016 PIRLS Assessment.

When the map option is selected, a global map is shown with the countries selected shaded (see exhibit 27). The focal jurisdiction is shaded in blue and represents a comparison for all the other countries. The other countries are shaded in colors that indicate whether they are higher, lower, or not significantly different from the focal jurisdiction on whatever measure has been selected. When you scroll over a country, a text bubble pops up describing the strength of the difference between that country and the focal jurisdiction. At any point you may choose a different focal jurisdiction by clicking on another country.

### Exhibit 27. Significance test map output



### 4.G. Gap Analysis

Gap Analysis is included in the IDE to compare differences in gaps shown in a map, table, or chart. These gap differences can be compared between jurisdictions and/or across years.

## Exhibit 28. Gap analysis link selection

Averages for PIRLS, grade 4 by Sex of students [ITSEX], year and jurisdiction: 2016						
Year	Jurisdiction	Female		Male		
		Average	Standard Error	Average	Standard Error	
2016	Average of Countries	530	(0.4)	512	(0.5)	
	Average of Selected Countries/Participants	530	(0.4)	512	(0.5)	
	Argentina	—	(†)	—	(†)	
	Australia	555	(2.6)	534	(3.0)	

With your report of interest selected, click on the **Gap Analysis** link, which is located to the right of the **Significance Test** link (see exhibit 28). You will need to decide which variable you would like to test (e.g., sex of students) and the criterion by which you want to test it (i.e., between jurisdictions or across years). The difference measure, or gap, can be viewed between groups, between years, between groups and years, or between percentiles within the selected variable. For example, if you compute average reading scores for two countries at two time points for males and females, you can:

- at one time point, compare the male-female gap in one country to the male-female gap in another country;
- compare the male-female gap at two time points within a country;
- compare the difference between the male-female gap at two time points in one country to the difference between the male-female gap at two time points in another country; or
- compare the gap for females at two time points in one country to the gap for females at two time points in another country.

## Exhibit 29. Gap analysis options

**Gap Analysis**

Edit Preview Cancel Done

1. Select the basis to use for comparison (Between Jurisdictions, Across Years). Help

Between Jurisdictions  Across Years

2. Create a name for this gap analysis. Gap Test 1

3. Select the difference measure (gap) to analyze.

Between Groups  Between Years  Between Groups and Years  Between Percentiles

4. Select the output type.

Table  Map

5. Check to show table details.

Show table details

6. Select available options from each of the columns below, then preview results.

Jurisdiction	Variable	Year	Statistic
<input type="checkbox"/> All Jurisdictions	<input type="checkbox"/> Sex of students	<input type="checkbox"/> All Years	<input checked="" type="checkbox"/> Averages

Preview Cancel Done

The steps for running a gap analysis are similar to those for conducting a statistical significance test (see exhibit 29). Thus, to run a gap analysis, follow the instructions under section 4.F. **Significance Tests**, noting the following differences:

1. The **Gap Analysis** link should be selected, not the **Significance Test** link.
2. The gap analysis does not have a **Within Variables** option for analysis; the options are **Between Jurisdictions** and **Across Years**.
3. The difference measure (gap) of analysis must be selected from the following: **Between Groups, Between Years, Between Groups and Years, and Between Percentiles** (if variables are selected for which a difference measure is not feasible, the difference measure option will not appear as available in the Gap Analysis menu).

The gap analysis output is presented in a format similar to that of the significance test output, with one difference: the difference estimate shown in the output is the difference between the gaps selected for analysis. Note that you will still see the significance of these differences just like in a significance test. For example, exhibit 30 shows the difference between jurisdictions in the average reading score gap between male and female 4<sup>th</sup> grade students in 2016.

The gap analysis function computes and statistically tests differences between average value/score, percentage, or percentile gaps. Note that the reference group for the gaps is kept constant during the analysis, as opposed to taking the absolute value of the gaps. Therefore, the gap analysis tests whether the magnitude of the gaps differ from each other only when the gaps go in the same direction (e.g., comparing a 5-point gender gap favoring females in one country with a 15-point gender gap favoring females in another country).

### Exhibit 30. Gap analysis output

PIRLS, grade 4 Differences between jurisdictions for gaps in averages between Sex of students [ITSEX]=Female and Sex of students [ITSEX]=Male 2016			
	Australia	Norway	United States
Australia		x Diff = 0 (5.4) P-value = 0.9556	> Diff = 14 (6.2) P-value = 0.0299
Norway	x Diff = 0 (5.4) P-value = 0.9556		> Diff = 13 (6.0) P-value = 0.0279
United States	< Diff = -14 (6.2) P-value = 0.0299	< Diff = -13 (6.0) P-value = 0.0279	
LEGEND:			
<	Has a significant negative difference.		
>	Has a significant positive difference.		
x	No significant difference.		

**Note:** A gap analysis across years cannot be combined with the Between Years or Between Groups and Years difference measures, so you will select the difference measure Between Groups, or, if you have selected percentiles as one of your statistics, you may choose Between Percentiles.

#### 4.H. Regression Analysis

Regression Analysis is included in the IDE to test for trends across more than two data points. The type of analysis performed in this feature of the IDE is referred to as linear regression within the field of statistics. To run a regression, first go to **Build Reports** and choose the report of interest from the drop-down **Select Report** menu. Then click on the **Regression Analysis** link, which is to the right of the **Gap Analysis** link (see exhibit 31).

## Exhibit 31. Regression analysis link selection

The screenshot shows the PIRLS IDE interface at the '4. Build Reports' step. At the top, there are four tabs: '1. Select Criteria', '2. Select Variables', '3. Edit Reports', and '4. Build Reports'. Below the tabs, there is a 'STEP 4:' section with instructions: 'View each report table by selecting the report name from the drop-down menu. Create report types to edit and preview, each tab created represents one report type to export.' A 'Help' button is located in the top right corner of this section.

Below the instructions, there is a 'Subject, Grade: PIRLS, Grade 4' section. This is followed by a list of 'Jurisdictions' including: Average of Selected Countries/Participants, Argentina, Australia, Austria, Azerbaijan, Bahrain, Belgium (Flemish) - BEL, Belgium (French) - BEL, Belize, Bulgaria, Canada, Chile, Chinese Taipei - CHN, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, England - GBR, Finland, France, Georgia, Germany, Greece, Hong Kong - CHN, Hungary, Iceland, Indonesia, Iran, Islamic Rep. of, Ireland, Israel, Italy, Kazakhstan, Kuwait, Latvia, Lithuania, Luxembourg, Macao - CHN, Macedonia, Rep. of, Malta, Moldova, Rep. of, Morocco, Netherlands, New Zealand, Northern Ireland - GBR, Norway (4), Norway, Oman, Ontario, Quebec - CAN, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Scotland, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Trinidad and Tobago, Turkey, United Arab Emirates, United States.

Below the jurisdictions, there is a 'Measure: PIRLS Reading Scale: Combined Reading' and a 'Variable: Index of Students like Reading' section. The 'Year: 2016' is also displayed.

In the center, there is a 'Select Report:' dropdown menu currently showing 'Report 1'. To the right of this menu is an 'Export Reports' button.

At the bottom of the interface, there is a navigation bar with several tabs: 'Table', 'Chart', 'Significance Test', 'Gap Analysis', and 'Regression Analysis'. The 'Regression Analysis' tab is highlighted with a black box.

The general steps for running a regression analysis are as follows (see exhibit 32):

1. In the **Regression Analysis** pop-up window, enter a **Name** limited to 25 characters, using only letters, numbers, spaces, underscores, and hyphens (otherwise, by default, the test will be named “Regression 1”).
2. Select the appropriate jurisdiction, year, and variable(s) for analysis. Please note that you may only choose one jurisdiction and year at a time, but you may choose up to 3 variables to be in your report. In order to use up to 3 variables, you must have already created and selected a cross-tabulated report (by selecting 3 variables in Step 2, **Select Variables**).
3. Click the **Preview** tab located in the upper-left corner to view the table format into which your output will be populated. In the Preview tab, an “X” denotes where the output will display.
4. Click the **Edit** tab in the upper-left corner of the screen if you wish to go back and make changes to the selections you made for running the analysis.
5. Click the **Done** button in the upper- or lower-right corner of the screen to run the regression analysis.



### Exhibit 32: Regression analysis options

**Regression Analysis**

Edit Preview Cancel Done

1. Create a name for this regression analysis. Help

Regression 1

2. Select available options from each of the columns below, then preview results.

Jurisdiction	Year	Variable
<ul style="list-style-type: none"> <li><input type="radio"/> Slovenia</li> <li><input type="radio"/> South Africa</li> <li><input type="radio"/> Spain</li> <li><input type="radio"/> Sweden</li> <li><input type="radio"/> Trinidad and Tobago</li> <li><input type="radio"/> United Arab Emirates</li> <li><input checked="" type="radio"/> United States</li> </ul>	<ul style="list-style-type: none"> <li><input checked="" type="radio"/> 2016</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> All Variables</li> <li><input checked="" type="checkbox"/> Index of Students like Reading</li> </ul>

Cancel Done

After you have clicked **Done**, your regression analysis output will load onto the screen (see exhibit 33). A 0-1 contrast coding is used to code the independent variable, where the first subgroup of the independent variable is the reference group. Using dummy-coded variables in a linear regression is useful for comparing each subgroup against a reference group. For example, in exhibit 33, if the subgroup "Like reading" is the reference group for the independent variable **Index of Students like Reading (2016) [ASDGSLR]**, the IDE creates a "Somewhat like reading" dummy variable (1 for respondents who answered "Somewhat like reading", 0 otherwise), a "Do not like reading" dummy variable (1 for respondents who answered "Do not like reading", 0 otherwise). Reference group "Like reading" is excluded from the regression analysis.

### Exhibit 33. Regression analysis output

PIRLS, Grade 4 2016  
 Dependent Variable: PIRLS Reading Scale: Combined Reading  
 Independent Variable(s): Index of Students like Reading [ASDGLR]  
 Contrast Coding Reference Group: Like reading  
 United States

<b>Multiple Correlation</b>	0.1						
<b>R Squared</b>	0.01						
	<b>Degrees of Freedom</b>	<b>Mean square</b>	<b>F Ratio</b>	<b>P Value</b>			
<b>Model</b>	2	94553594.3	4.59	0.01			
<b>Error</b>	989.78	20612970.45					
	<b>Standardized Regression Coefficients</b>	<b>S.E. of Standardized Coefficients</b>	<b>Regression Coefficients</b>	<b>S.E. of Regression Coefficients</b>	<b>T Statistic</b>	<b>Probability</b>	<b>Significance</b>
<b>Intercept</b>	0	0	557.3185	3.7977	146.7523	0	>
<b>Index of Students like Reading</b>							
<b>Somewhat like reading</b>	-0.0287	0.0205	-4.4723	3.1896	-1.4021	0.1629	x
<b>Do not like reading</b>	-0.105	0.0218	-19.5506	3.9379	-4.9647	0	<

NOTE: A 0-1 contrast coding has been used where the first subgroup of the (independent) variable is the reference group. Except for the reference group, each subgroup is contrasted (code 1) in a separate dummy variable against all the other subgroups of the variable (code 0). For more details about contrast coding with multiple variables see the help documentation.\$NOTES\$  
 SOURCE: International Association for the Evaluation of Educational Achievement, Progress in International Reading Literacy Study (PIRLS), 2016 PIRLS Assessment.

Using the output from exhibit 33 you can compare the mean reading score of 4<sup>th</sup> grade students who somewhat like reading or do not like reading to the mean reading score of those who like reading. When a single dummy-coded variable is used in a regression, the *intercept* is the mean of the reference group (e.g., 557.3185), and the *regression coefficient* is the difference between the mean of the reference group and the group identified (coded 1) with the dummy-coded variable (e.g., -4.4723 for Somewhat like reading). Since the regression coefficients are presented with a standard error and a *t* value, these can be used to test whether a difference between means is statistically significant. Under the Significance column in the output you will see 3 possible signs: 1) < signifies a significant negative difference, 2) > signifies a significant positive difference, and 3) x signifies the difference is not statistically significant.

#### 4.I. Export Reports

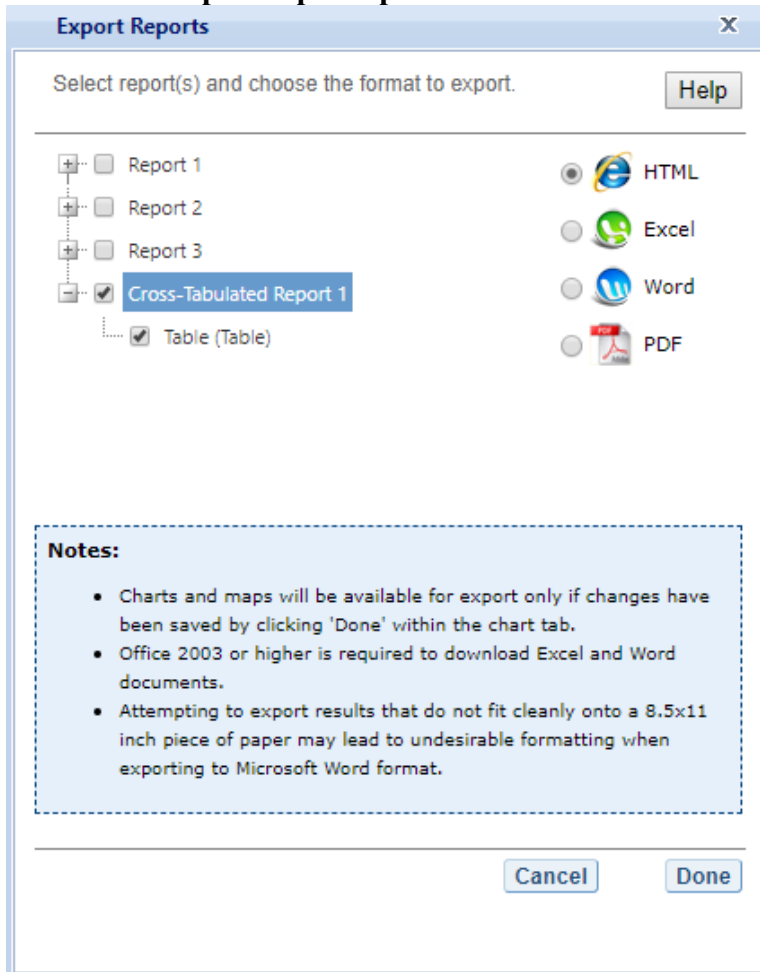
Click on the **Export Reports** button/arrow located on the right side of the screen to save or print your tables, charts, and significance tests. The report names that appear in the **Export Reports** window are those that were checked off at step 3, **Edit Reports**.

Check the files you want to export, and select one of the file formats: **HTML** (print-friendly), **Excel**, **Word**, or **PDF** (see exhibit 34). All reports that you select at the same time will be exported in one file. In the Excel format, you will be able to increase the decimal places visible (wherever more precision is available in the database). Because there are many different operating systems in use, you may get an error message with Excel or one of the other formats. Usually, this will not affect your ability to export, so please wait for software “errors” to resolve themselves.

Charts for each report will only be available on this menu if you saved them by clicking **Done** on the last screen after you created them. If a chart that you wish to save or print is grayed out

(not available for selection), cancel the **Export Reports** tool, go back to the chart, and be sure to click **Done** on the last screen. After that, it will be available for export.

### Exhibit 34. Export report options



If you wish to edit tables or charts before saving or printing them, remember to do this via the **Export Reports** function before leaving the **Build Reports** screen. Returning to prior screens to edit report table formats or change variables or criteria will overwrite the report tables and charts.

## V. PIRLS International Data Explorer (IDE) Definitions

This section describes the kinds of criteria and variables that are used to form data queries, as well as the kinds of data available and statistical methods to assess them.

These topics are as follows:

- Criteria
  - Subject
  - Measures
  - Jurisdictions
  - Years
- Variables
- Statistics options
  - Averages
  - Percentages
  - Achievement levels (discrete and cumulative)
  - Percentiles
  - Standard deviations
- Cross-tabulations
- Statistical notations and other notes

### 1. Criteria

Each data query must include at least one selection from three criteria choices: measure(s), year(s), and jurisdiction(s). Shown below is an outline of these selection criteria followed by a brief description.

1. Subject
  - PIRLS
  - ePIRLS
2. Measure
  - Scale scores
    - PIRLS
      - PIRLS Reading Scale: Combined Reading
      - PIRLS Reading Scale: Acquire and Use Information
      - PIRLS Reading Scale: Literary Experience
      - PIRLS Reading Scale: Interpreting, Integrating, and Evaluating
      - PIRLS Reading Scale: Retrieving and Straightforward Inferencing
    - ePIRLS
      - ePIRLS Reading Scale: Online Informational Reading
      - ePIRLS Reading Scale: Online Interpreting, Integrating, and Evaluating
      - ePIRLS Reading Scale: Online Retrieving and Straightforward Inferencing

- Student and Family Characteristics
- Student Perception of Reading
- Student Perception of School
- Student Characteristics (Teacher)
- English Language and Reading Instruction (Teacher)
- Class Resources (Teacher)
- Teacher Characteristics
- School Characteristics
- School Instruction Time
- Curriculum (School)
- Reading Instruction (School)
- School Resources
- School Climate and Behavior Problems
- Teacher Collaboration
- Principal Characteristics

### 3. Jurisdiction

- Average of Countries
- Average for Selected Countries/Participants
- Countries
- Benchmarking Participants
- Off-Grade Participants

### 4. Years

- 2001
- 2006
- 2011
- 2016
- All Years

### *Subject*

PIRLS is a study of the reading literacy, and ePIRLS is a study of online informational reading. Both are subjects that can be selected in the IDE.

### *Measures*

PIRLS focuses on overall reading literacy, but within this broad category, four subscales are available: two focusing on the purposes of reading (*literary experience* and *acquire and use information*) and two focusing on the processes used for reading (*interpreting, integrating, and evaluating* and *retrieving and straightforward inferencing*). The 2001 and 2006 reading subscales have been rescaled to allow for comparisons to 2011 and later years. Subscales are constituent parts of the composite subject scale for an assessment and are specified by the assessment framework. The weighted average of these is the basis for the reading composite scale, as described in the PIRLS framework.

Subscales are based on fewer observations than the combined scale and, as a result, may have larger standard errors.

ePIRLS which focuses on online informational reading does not include subscales focusing on the purposes of reading, since the entire assessment focuses on reading to acquire and use information. ePIRLS does include two subscales focusing on the processes used for reading (*interpreting, integrating, and evaluating* and *retrieving and straightforward inferencing*). Similar to PIRLS, ePIRLS also includes a composite online reading scale.

In addition, there are a number of dependent (or continuous) variables, other than scale scores, that you may choose as a measure. These variables fall under different categories, such as Student and Family Characteristics and School Characteristics.

### *Jurisdictions*

In 2001, there were 35 countries and subnational education systems that participated in PIRLS. Two benchmarking jurisdictions also participated, the Canadian provinces of Ontario and Quebec. In addition, Sweden assessed a smaller sample of 3<sup>rd</sup>-graders.

In 2006, there were 45 countries and subnational education systems that participated in PIRLS, and 5 benchmarking jurisdictions that participated. In addition, Norway and Iceland assessed a smaller sample of 5<sup>th</sup>-graders.

In 2011, there were 57 countries and subnational education systems that participated in PIRLS, and 9 benchmarking jurisdictions that participated. The total of 57 includes 4 education systems that only gave the 4<sup>th</sup>-grade assessment to 5<sup>th</sup>- or 6<sup>th</sup>-graders.

In 2016, there were 50 countries and subnational education systems that participated in PIRLS, and 11 benchmarking jurisdictions that participated. Denmark administered the 4<sup>th</sup>-grade assessment to both 3<sup>rd</sup>- and 4<sup>th</sup>-graders. South Africa administered the 4<sup>th</sup>-grade assessment to 5<sup>th</sup>-graders who spoke English, Afrikaans, and Zulu. In 2016, Norway chose to assess fifth and ninth grades to obtain better comparisons with Sweden and Finland, but also collected benchmark data at fourth and eighth grades to maintain trend with previous PIRLS cycles. At the 4<sup>th</sup> grade, five education systems participated in PIRLS Literacy (Egypt, Iran, Kuwait, Morocco, and South Africa), and two of these education systems completed both PIRLS and PIRLS Literacy (Iran and Morocco). Because Iran and Morocco participated both in PIRLS and PIRLS Literacy, their data reported is based on the average of both assessments.

There were 14 countries and subnational education systems that participated in ePIRLS, and 2 benchmarking jurisdictions that participated.

All listed jurisdictions can be selected for any analyses. However, the IDE contains a few U.S.-specific background variables (e.g., race/ethnicity) that, when selected, will not yield information for any other jurisdictions.

### *Years*

Currently 2001, 2006, 2011, and 2016 PIRLS data, 2016 ePIRLS data are available through the IDE. Each year can be selected separately or all years can be selected together, by selecting All Years.

## **2. Variables**

In the PIRLS IDE, questions from three types of questionnaires (student, teacher, and school) as well as variables that are derived from background information are organized into categories that have shared characteristics and can be selected as a group when designing and generating tables.

Content category and subcategory titles may overlap, but specific variables appear only once in a subcategory. Use “Search” in the Select Variables step to locate variables.

## **3. Statistics Options**

The IDE reports PIRLS data with several statistics options:

- Averages
- Percentages
- Achievement levels—discrete
- Achievement levels—cumulative
- Percentiles
- Standard deviations

### *Averages*

This statistic provides the average value for a selected continuous variable or the average scale score for the combined reading scale or one of the reading subscales.

For the PIRLS assessment, student performance is reported on scales that range from 0 to 1,000, with the scale centerpoint fixed at 500 and a standard deviation of 100. PIRLS scales are produced using item response theory (IRT) to estimate average scores for reading literacy for each jurisdiction. IRT identifies patterns of response and uses statistical models to predict the probability of answering an item correctly as a function of students’ proficiency in answering other questions. That is, student responses to the assessment questions are analyzed to determine the percentage of students responding correctly to each multiple-choice question and the percentage of students achieving in each of the score categories for constructed-response questions.

### *Percentages*

This statistic shows the percentage of students as a row percentage. For example, if the first column lists countries, then each country will display its own percentage distribution across its row. If the table cell for Black female students in the United States is 9 percent, then Black females constituted 9 percent of U.S. fourth-graders. By default, percentage distributions do not include missing data, though there is an option to include the missing data.

### *Achievement Levels (Discrete and Cumulative)*

In addition to average scale scores, achievement results for PIRLS and ePIRLS are reported using achievement levels. The achievement levels are international benchmarks based on collective judgments about what students should know and be able to do relative to the body of content reflected in each subject-area assessment. The overall reading literacy scale is divided into international benchmarks.

International benchmarks for the reading levels are as follows:

- *Below low*—below 400
- *At low*—between 400 and 474
- *At intermediate*—between 475 and 549
- *At high*—between 550 and 624
- *At advanced*—at or above 625

Descriptions of competencies at each of the 2016 PIRLS and ePIRLS international benchmarks are shown in the table on the following page.



**Table 1. Competencies at PIRLS international benchmarks: 2016**

<b>Benchmark</b>	<b>Cutpoint</b>	<b>Reading skills and strategies</b>
Low	400	<ul style="list-style-type: none"> <li>• <i>When reading simpler texts:</i> <ul style="list-style-type: none"> <li>○ Locate and retrieve explicitly stated information when reading</li> <li>○ Make straightforward inferences about events, explanations, actions, and descriptions</li> <li>○ Begin to interpret story events and central ideas</li> </ul> </li> </ul>
Intermediate	475	<ul style="list-style-type: none"> <li>• <i>When reading a mix of simpler and relatively complex texts:</i> <ul style="list-style-type: none"> <li>○ Locate, recognize, and reproduce two or three pieces of information, explicitly stated actions, events, and feelings</li> <li>○ Make straightforward inferences to provide factual explanations, or about the attitudes, feelings, and motivations of main characters</li> <li>○ Begin to recognize language choices</li> <li>○ Begin to interpret and integrate information to order events, as well as interpret obvious reasons and causes, recognize evidence, and give examples</li> </ul> </li> </ul>
High	550	<ul style="list-style-type: none"> <li>• <i>When reading relatively complex texts:</i> <ul style="list-style-type: none"> <li>○ Locate and distinguish relevant information, significant actions and details</li> <li>○ Make inferences about logical connections to provide explanations and reasons, to explain relationships between intentions, actions, events, and feelings, and give text-based support</li> <li>○ Interpret and integrate story events and character actions, traits, and feelings as they develop across the text. They can recognize the use of some language features (e.g. metaphor, tone, imagery)</li> <li>○ Integrate textual and visual information to interpret the relationship between ideas and evaluate and make generalizations about context and textual elements</li> </ul> </li> </ul>
Advanced	625	<ul style="list-style-type: none"> <li>• <i>When reading relatively complex texts:</i> <ul style="list-style-type: none"> <li>○ Interpret story events and character actions to describe reasons, motivations, feelings, and character development with full text-based support</li> <li>○ Begin to evaluate visual and textual elements to consider the author's point of view, and the effect on the reader of the author's language and style choices</li> <li>○ Distinguish and interpret complex information from different parts of text and provide full text-based support</li> <li>○ Integrate information across an informational text and explain relationships and sequence activities</li> </ul> </li> </ul>

NOTE: Information about the procedures used to set the international benchmarks is available in the [Methods and Procedures in PIRLS 2016](#).

SOURCE: Mullis, I. V. S., Martin, M. O., Foy, P., & Hooper, M. (2017). [PIRLS 2016 International Results in Reading](#). Chesnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.

**Table 2. Competencies at ePIRLS international benchmarks: 2016**

<b>Benchmark</b>	<b>Cutpoint</b>	<b>Reading skills and strategies</b>
Low	400	<ul style="list-style-type: none"> <li>• <i>When reading and viewing relatively complex online informational texts:</i> <ul style="list-style-type: none"> <li>○ Locate and reproduce explicitly stated information from web pages that contain text and a variety of dynamic, navigable features (e.g. timelines, pop-up boxes).</li> <li>○ Begin to make straightforward inferences about descriptions.</li> </ul> </li> </ul>
Intermediate	475	<ul style="list-style-type: none"> <li>• <i>When reading and viewing relatively complex online informational texts:</i> <ul style="list-style-type: none"> <li>○ Locate and reproduce information presented in various forms, including independent use of navigation features,</li> <li>○ Make straightforward inferences to recognize reasons and actions.</li> <li>○ Interpret and integrate information across a web page to recognize cause, comparisons, and explanations.</li> <li>○ Begin to evaluate the use of interactive features to convey information.</li> </ul> </li> </ul>
High	550	<ul style="list-style-type: none"> <li>• <i>When reading and viewing relatively complex online informational texts:</i> <ul style="list-style-type: none"> <li>○ Make inferences to distinguish relevant information and provide comparisons</li> <li>○ Interpret and integrate information within and across web pages with interactive features to provide examples and make contrasts.</li> <li>○ Evaluate how graphic elements and language choices support content.</li> </ul> </li> </ul>
Advanced	625	<ul style="list-style-type: none"> <li>• <i>When reading and viewing relatively complex online informational texts:</i> <ul style="list-style-type: none"> <li>○ Make inferences from complex information support an explanation.</li> <li>○ Interpret and integrate information within and across web pages with interactive features to explain relationships and show thorough understanding.</li> <li>○ Evaluate the effects of textual, visual, and interactive elements and begin to consider the writer's point of view.</li> </ul> </li> </ul>

NOTE: Information about the procedures used to set the international benchmarks is available in the [Methods and Procedures in PIRLS 2016](#).

SOURCE: Mullis, I. V. S., Martin, M. O., Foy, P., & Hooper, M. (2017). [ePIRLS 2016 International Results in Reading](#). Chesnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.

Achievement-level data are presented in a discrete or cumulative format. In the “discrete” format, the percentage of students performing within each international benchmark is counted separately from the percentage of students at the other benchmarks. These categories are the percentages of students scoring *below low*, *at low*, *at intermediate*, *at high*, and *at advanced*. The

“cumulative” format shows the percentage of students performing *at or above* each international benchmark. These categories are the percentages of students scoring *at or above low*, *at or above intermediate*, *at or above high*, and *at advanced*. Scoring below *low* indicates that a student’s abilities could not be accurately described based on his or her responses.

### *Percentiles*

This statistic shows the threshold (or cutpoint) score for the following:

- 10<sup>th</sup> percentile—the bottom 10 percent of students
- 25<sup>th</sup> percentile—the bottom quarter of students
- 50<sup>th</sup> percentile—the bottom half of students (half the students scored at or below the cutpoint and half scored above it)
- 75<sup>th</sup> percentile—the top quarter of students
- 90<sup>th</sup> percentile—the top 10 percent of students

### *Standard Deviations*

The standard deviation is a measure of how widely or narrowly dispersed scores are for a particular dataset. Under general normality assumptions, 95 percent of the scores are within two standard deviations of the mean. For example, if the average score of a dataset is 500 and the standard deviation is 100, it means that 95 percent of the scores in this dataset fall between 300 and 700. The standard deviation is the square root of the variance.

In the IDE, you may obtain standard deviations as one of your two choices for “Statistics Options” in the Edit Reports step.

## ***4. Cross-tabulations***

Cross-tabulation is a method of combining separate variables into a single table. Normally, each variable has its own table. If you have selected two or three variables (not counting All Students), when you go to the Edit Reports step, you will automatically get one table for each variable (including one for All Students); at the end of that list, you will get one cross-tabulation for the two or three variables selected.

If you have chosen four or more variables (not counting All Students), you will get tables for each variable, but you won’t get the cross-tabulation.

Be advised that if you go back to add another variable without subtracting one to keep the total under four, you will lose any edits you might have made to the cross-tabulation.

## 5. Statistical Notations and Other Notes

Statistical notations and other notes are found at the end of a data table, as applicable to that table:

- — Not available.
- † Not applicable. (For instance, the standard error for the statistic cannot be reported because the statistic does not meet reporting standards.)
- # The statistic rounds to zero.
- ‡ Reporting standards not met. (For instance, the sample size is insufficient to permit a reliable estimate.)
- NOTE: A general note pertains to any special characteristics of the data in the table.
- SOURCE: Source information is listed for all PIRLS data and should be cited when data are used in a publication or presentation.

The general note (NOTE) warns users of jurisdiction-specific changes in population coverage, participation rates, or sampling procedures which deviated from international standards. Data from these jurisdictions have issues that interfere with proper trend analysis: Azerbaijan, Israel, Kuwait, Lithuania, Morocco, Poland, Qatar, and South Africa. Please be aware of these concerns for the following jurisdictions (years in parentheses): Alberta-CAN (11), Austria (16), Azerbaijan (11), Belgium (Flemish) (06), Belgium (French) (16, 11), Bulgaria (06), Canada (16, 11), Croatia (11), Denmark (16, 11, 06), England (11, 01), Florida-USA (11), Georgia (16, 11, 06), Greece (01), Hong Kong (16, 11), Israel (16, 11, 06, 01), Latvia (16), Lithuania (11, 01), Malta (16), Morocco (11, 01), the Netherlands (16, 11, 06, 01), Northern Ireland (11), Norway (11, 06), Oman (11), Ontario-CAN (11), Portugal (16), Qatar (11), Russian Federation (06, 01), Scotland (06, 01), Singapore (16, 11), the United States (16, 11, 06, 01), Quebec-CAN(16), and Madrid-ESP(16).

Exclusion rates for Azerbaijan and Georgia for 2011 are slightly underestimated as some conflict zones were not covered and no official statistics were available.

The TIMSS & PIRLS International Study Center has reservations about the reliability of the average 2011 achievement scores of Morocco and Oman because the percentage of students with achievement too low for estimation exceeds 15 percent.

Results for Canada (Ontario) in 2006 may differ slightly from the IEA PIRLS 2006 International Report because the 2006 data shown include public and private schools, whereas the IEA report excluded private schools from trend analysis for Canada (Ontario) in 2006 to match its 2001 sample.

### *Linking Teacher Data*

Results shown in the PIRLS IDE may differ slightly from those in the International Association for the Evaluation of Educational Achievement (IEA) PIRLS International Reports because of a slightly different procedure used in linking teacher data to the students. In the IEA report, when a student has more than one teacher, the student's weight is distributed equally amongst the teachers, and all the teacher data are used in the analysis. For the same case, the IDE randomly selects one of the teachers for the student, and the entire weight for the student is assigned to this teacher.

### *Statistical Comparisons*

The alpha level to establish significance for all comparisons is .05. All comparisons within a jurisdiction, within the same year, are made using dependent samples t-tests. Comparisons between jurisdictions, and comparisons between years, even for the same jurisdiction, are made using independent samples t-tests. The PIRLS IDE also uses independent samples t-tests, between a country and a subnational entity that is participating as a benchmarking entity (for instance, in order to compare scores between the United States and Florida, since they each are an independent sample).

### *Data Suppression*

Finally, data suppression may be handled slightly differently in the PIRLS IDE and the IEA PIRLS International Reports. For the IDE, the Rule of 62 is applied to suppress data to avoid reporting results for groups about which little of interest could be said due to lack of power. The Rule of 62 is borrowed from the IDE's counterpart, the National Assessment of Educational Progress (NAEP) Data Explorer (NDE). This rule states that statistics for a group are suppressed if they are based on less than 62 cases. Statistics are: means, standard errors, standard deviations, a set of percentiles, and a set of achievement-level percentages. The rule serves to assure a minimum power requirement to detect moderate differences at nominal significance level (0.05). The minimum power is 0.80 and the moderate effect size is 0.5 standard deviation units. A design effect of 2 is assumed to derive an appropriate complex sample standard deviation.

## 6. Glossary

Below is a list of technical and PIRLS-specific assessment terms used in the IDE. The index variables listed are derived from a combination of variables, or questions, taken from the student, teacher, and/or school questionnaires. Sections 6.A. through 6.D. refer to variables taken from the PIRLS student questionnaire. Sections 6.E. through 6.I. and section 6.P. refer to variables taken from the PIRLS teacher questionnaire, and sections 6.J. through 6.N. refer to variables taken from the PIRLS school questionnaire. Section 6.O. contains variables across questionnaires.

### 6.A. Student and Family Characteristics

#### **Number of Home Study Supports [ASDG05S]**

This index, used in 2011 and 2016, was derived from two questions assessing the availability of an internet connection and/or student's own room at home, as reported by 4<sup>th</sup>-grade students. The responses are categorized as (1) neither own room nor internet connection are available; (2) either own room or internet connection are available; and (3) both own room and internet connection are available. For details on the derived variable on the number of home study supports, see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#).

#### **Number of Home Digital Supports [ASDG05D]**

This index, used in 2016, was derived from two questions assessing the availability of a computer/tablet and/or an internet connection at home as reported by 4<sup>th</sup>-grade students. The responses are categorized as (1) neither computer/tablet nor internet connection available; (2) either computer/tablet or internet connection available; and (3) both computer/tablet and internet connection available. For details on the derived variable on the number of home digital supports, see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#).

#### **Digital Devices in the Home (Index/Scale) [ASDGDDH, ASBGDDH]**

Both the index and scale, used in 2016, are based on 4<sup>th</sup>-grade students parents' responses to whether the student has a computer/tablet and/or internet connection in the home; number of digital information devices in the home; and whether there is a digital device for the parent, and/or child in the home. For details on the index of digital devices in the home, see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#).

Students were scored according to their own and their parents' responses concerning the availability of four items on the Digital Devices in the Home scale. Students with *High Access* had a score of at least 12.1, which is the point on the scale corresponding to students reporting they had a computer and Internet connection, and parents reporting they had seven or more digital information devices in the home as well as a digital device for reading for both themselves and their child. Students with *Low Access* had a score no higher than 6.0, which is the scale point corresponding to students reporting that they did not have a computer or Internet

connection, and parents reporting that they had less than four digital information devices in the home and no digital devices for reading for either themselves or their child. All other students were assigned to the *Medium Access* category.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

## Home Resources

Within the home resources category, five items in 2001, seven items in 2006, six items in 2011, and four items in 2016 are consistent across countries, and up to eight country-specific items could be included, depending on the year.<sup>1</sup> Across countries and subnational education systems, students were asked whether they had items at home, varying by year, such as: a computer (not including Nintendo®, Gameboy®, or other TV/video game stations); study desk/table for personal use; books of their very own (not including school books); own room; daily newspaper; and own mobile (cellular) phone. These variables are comparable across countries and applicable years. However, the nationally defined possessions are not comparable across countries or years. For example, in 2006 the United States used three country-specific variables: video or digital camera; more than one car, truck, or van; and more than one bathroom. For additional details about country-specific adaptations, see the [PIRLS 2016 User Guide for the International Database \(supplement 2\)](#), the [PIRLS 2011 User Guide](#), the [PIRLS 2006 User Guide for the International Database \(supplement 2\)](#) and the [PIRLS 2001 User Guide for the International Database \(supplement 2\)](#).

For PIRLS 2016, the variables in the home resources category were combined to create an **Index of Home Resources for Learning [ASDGHRL]**. The index was created based on the responses to how many books are in the student's home; whether the student has an internet connection, and/or own room in the home; the highest occupation of either parent and the highest level of education of either parent. For details on the index of home educational resources, see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#).

A separate **Home Resources for Learning Scale [ASBGHRL]** was also created. Students were scored according to their own and their parents' responses concerning the availability of five resources on the Home Resources for Learning scale. Students with *Many Resources* had a score of at least 11.8, which is the point on the scale corresponding to students reporting they had more than 100 books in the home and both of the home study supports, and parents reporting that they had more than 25 children's books in the home, that at least one parent had finished university, and that at least one parent had a professional occupation, on average. Students with *Few Resources* had a score no higher than 7.5, which is the scale point corresponding to students reporting that they had 25 or fewer books in the home and neither of the home study supports, and parents reporting that they had 10 or fewer children's books in the home, that neither parent had gone beyond upper-secondary education, and that neither parent was a small business owner

---

<sup>1</sup> All countries could choose to include items that are not included in the international version of the questionnaire. Within the home resources category, countries could include up to seven items. These items are considered country-specific because they are unique to a country and cannot be compared across countries.

or had a clerical or professional occupation, on average. All other students were assigned to the *Some Resources* category.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

For PIRLS 2006, the variables in the home resources category were combined to create an **Index of Home Educational Resources [ASDHHER]**. The index was created based on the responses to how many books are in the student's home; whether the student has a computer, study desk, own books, and newspaper in the home; and the highest level of education of either parent. For details on the index of home educational resources, see the [PIRLS 2006 User Guide for the International Database \(supplement 3\)](#).

For PIRLS 2001, the variables in the home resources category were combined to create an **Index of Home Possessions [ASDGPS]**. The index was created based on the students' responses to whether they had the following items at home: (1) Computer (do not include Nintendo®, Gameboy®, or other TV/video game stations); (2) Study desk/table for your use; (3) Books of your very own (do not count your school books); and (4) Daily newspaper. For details on the index of home possessions, see the [PIRLS 2001 User Guide for the International Database](#).

## 6.B. Student Reading Activities

### Activities Outside of School

Within the category of reading activities students engage in outside of school one country-specific item could be used for 2001, one for 2006, and two for 2011. Items used internationally asked students if they read comic books; stories or novels; books that explain things; magazines; newspapers; directions or instructions; brochures and catalogs; and subtitles on a television screen. In 2011 and 2006, the United States did not include a country-specific item. For additional details about country-specific adaptations, see the forthcoming [PIRLS 2011 User Guide](#); the [PIRLS 2006 User Guide for the International Database \(supplement 2\)](#) and the [PIRLS 2001 User Guide for the International Database \(supplement 2\)](#).

### Students' Reports on Students Reading Aloud in Class [ASDGTIC, ASDGTHC]

This 2001 and 2006 index variable is based on students' responses to two questions about how often these things happen in school: I read aloud to the whole class and I read aloud to a small group of students in my class [ASBGTHC2 and ASBGTHC3]. The average is calculated based on a 4-point scale corresponding to four response options for each question: *Never or almost never* = 4; *Once or twice a month* = 3; *Once or twice a week* = 2; and *Every day or almost every day* = 1. Students were categorized for the index variable as follows: *Every day or almost every day* = average of 1 to less than 1.75; *Once or twice a week* = average of 1.75 through 2.5; *Once or twice a month* = average of greater than 2.5 through 3.25; *Every day or almost every day* = average of greater than 3.25 through 4.



### **Students' Reports About Independent Reading [ASDGTHC2, ASDGTIC2]**

This 2001 and 2006 index variable is based on students' responses to two questions about how often these things happen in school: I read silently on my own and I read books that I chose myself [ASBGTHC4 and ASBGTHC5]. The average is calculated based on a 4-point scale corresponding to four response options for each question: *Never or almost never* = 4; *Once or twice a month* = 3; *Once or twice a week* = 2; and *Every day or almost every day* = 1. Students were categorized for the index variable as follows: *Every day or almost every day* = average of 1 to less than 1.75; *Once or twice a week* = average of 1.75 through 2.5; *Once or twice a month* = average of greater than 2.5 through 3.25; *Every day or almost every day* = average of greater than 3.25 through 4.

### **Students' Reports on Doing Projects About Class Reading [ASDGAFR]**

This 2001 only index variable is based on students' responses to three questions about how often they have done the following after having read something in class: draw pictures or do an art project about what was read; act in a play or drama about what was read; and do a group project with other students in the class about what was read [ASBGAFR5–7]. The average is calculated based on a 4-point scale corresponding to four response options for each question: *Never or almost never* = 4; *Once or twice a month* = 3; *Once or twice a week* = 2; and *Every day or almost every day* = 1. Students were categorized for the index variable as follows: *Every day or almost every day* = average of 1 to less than 1.75; *Once or twice a week* = average of 1.75 through 2.5; *Once or twice a month* = average of greater than 2.5 through 3.25; *Every day or almost every day* = average of greater than 3.25 through 4.

### **Students' Reports on Answering Questions in Writing (Related to Class Reading) [ASDGAFR2]**

This 2001 only index variable is based on students' responses to two questions about how often they have done the following after having read something in class: answer questions in a workbook or on a worksheet about what was read and write something about what was read [ASBGAFR1 and ASBGAFR2]. The average is calculated based on a 4-point scale corresponding to four response options for each question: *Never or almost never* = 4; *Once or twice a month* = 3; *Once or twice a week* = 2; and *Every day or almost every day* = 1. Students were categorized for the index variable as follows: *Every day or almost every day* = average of 1 to less than 1.75; *Once or twice a week* = average of 1.75 through 2.5; *Once or twice a month* = average of greater than 2.5 through 3.25; *Every day or almost every day* = average of greater than 3.25 through 4.

## 6.C. Student Perception of Reading

### Students Like Reading (Index/Scale) [ASDGSLR, ASBGSLR]

In 2011, both the index and scale are based on 4<sup>th</sup>-grade students' reports of the extent of their agreement with the following statements about reading: (1) I read only if I have to; (2) I like talking about what I read with other people; (3) I would be happy if someone gave me a book as a present; (4) I think reading is boring; (5) I would like to have more time for reading; and (6) I enjoy reading. They were also scored on how often they did the following two reading activities outside of school: (1) I read for fun; and (2) I read things that I choose myself.

Students were scored according to their degree of agreement with the six statements on the scale. Students who *Like Reading* had a score on the scale of at least 11.0, which corresponds to their "agreeing a lot" with three of the six statements and "agreeing a little" with the other three, as well as doing both reading activities outside of school "every day or almost every day," on average. Students who *Do Not Like Reading* had a score no higher than 8.2, which corresponds to their "disagreeing a little" with three of the six statements and "agreeing a little" with the other three, as well as doing both reading activities only "once or twice a month," on average. All other students *Somewhat Like Reading*.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

In 2016, both the index and scale are based on 4<sup>th</sup>-grade students' reports of the extent of their agreement with the following statements about reading: (1) I like talking about what I read with other people; (2) I would be happy if someone gave me a book as a present; (3) I think reading is boring; (4) I would like to have more time for reading; (5) I enjoy reading; (6) I learn a lot from reading; (7) I like to read things that make me think; and (8) I like it when a book helps me imagine other words. They were also scored on how often they did the following two reading activities outside of school: (1) I read for fun; and (2) I read to find out about things I want to learn.

Students were scored on the Students Like Reading scale according to their degree of agreement with eight statements and how often they did two reading activities outside of school. Students who *Very Much Like Reading* had a score on the scale of at least 10.3, which corresponds to their "agreeing a lot" with four of the eight statements and "agreeing a little" with the other four, as well as doing both reading activities outside of school "every day or almost everyday," on average. Students who *Do Not Like Reading* had a score no higher than 8.3, which corresponds to their "disagreeing a little" with four of the eight statements and "agreeing a little" with the other four, as well as doing both reading activities only "once or twice a month," on average. All other students *Somewhat Like Reading*.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

### **Students Motivated to Read (Index/Scale) [ASBGSMR, ASDGSMR]**

Both the index and scale, used in 2011, are based on 4<sup>th</sup>-grade students' reports of the extent of their agreement with the following statements about reading: (1) I like to read things that make me think; (2) It is important to be a good reader; (3) My parents like it when I read; (4) I learn a lot from reading; (5) I need to read well for my future; and (6) I like it when a book helps me imagine other worlds.

Students were scored according to their degree of agreement with the six statements on the scale. Students *Motivated* to read had a score on the scale of at least 8.7, which corresponds to their “agreeing a lot” with three of the six statements and “agreeing a little” with the other three, on average. Students who were *Not Motivated* had a score no higher than 6.8, which corresponds to their “disagreeing a little” with three of the six statements and “agreeing a little” with the other three, on average. All other students were *Somewhat Motivated* to read.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

### **Students Engaged in Reading (Index/Scale) [ASDGERL, ASBGERL]**

In 2011, both the index and scale are based on 4<sup>th</sup>-grade students' reports of the extent of their agreement with the following statements about reading lessons: (1) I like what I read about in school; (2) My teacher gives me interesting things to read; (3) I know what my teacher expects me to do; (4) I think of things not related to the lesson; (5) My teacher is easy to understand; (6) I am interested in what my teacher says; and (7) My teacher gives me interesting things to do.

Students were scored according to their degree of agreement with the seven statements on the scale. Students *Engaged* in reading lessons had a score on the scale of at least 10.5, which corresponds to their “agreeing a lot” with four of the seven statements and “agreeing a little” with the other three, on average. Students who were *Not Engaged* had a score no higher than 7.4, which corresponds to their “disagreeing a little” with four of the seven statements and “agreeing a little” with the other three, on average. All other students were *Somewhat Engaged* in reading lessons.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

In 2016, both the index and scale are based on 4<sup>th</sup>-grade students' reports of the extent of their agreement with the following statements about reading lessons: (1) I like what I read about in school; (2) My teacher gives me interesting things to read; (3) I know what my teacher expects me to do; (4) My teacher is easy to understand; (5) I am interested in what my teacher says; (6) My teacher encourages me to say what I think about what I have read; (7) My teacher lets me show what I have learned; (8) My teacher does a variety of things to help us learn; and (8) My teacher tells me how to do better when I make a mistake.

Students were scored according to their degree of agreement with nine statements on the Students Engaged in Reading Lessons scale. Students *Very Engaged* in reading lessons had a

score on the scale of at least 9.5, which corresponds to their “agreeing a lot” with five of the nine statements and “agreeing a little” with the other four, on average. Students who were *Less than Engaged* had a score no higher than 7.1, which corresponds to their “disagreeing a little” with five of the nine statements and “agreeing a little” with the other four, on average. All other students were *Somewhat Engaged* in reading lessons.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

### **Index of Students’ Reading Attitudes (SATR) [ASDGSATR]**

This 2001 and 2006 index is composed of five statements about reading enjoyment. Students were asked to respond to the following statements: I read only if I have to; I like talking about books with other people; I would be happy if someone gave me a book as a present; I think reading is boring; and I enjoy reading [ASBGRST1–6]. Student responses were averaged on a 4-point scale as follows: *Agree a lot* = 1; *Agree a little* = 2; *Disagree a little* = 3; and *Disagree a lot* = 4. After reverse-scoring relevant items, responses to each statement were averaged such that *High* = average of 1 to less than 2; *Medium* = average of 2 through 3; and *Low* = average of greater than 3 through 4.

### **Students Confident in Reading (Index/Scale) [ASDGSCR, ASDGSBS]**

In 2011, both the index and scale are based on 4<sup>th</sup>-grade students’ reports of the extent of their agreement with the following statements about reading: (1) I usually do well in reading; (2) Reading is easy for me; (3) Reading is harder for me than for many of my classmates; (4) If a book is interesting, I don’t care how hard it is to read; (5) I have trouble reading stories with difficult words; (6) My teacher tells me I am a good reader; and (7) Reading is harder for me than any other subject.

Students were scored according to their degree of agreement with the seven statements on the scale. Students *Confident* in reading had a score on the scale of at least 10.6, which corresponds to their “agreeing a lot” with four of the seven statements and “agreeing a little” with the other three, on average. Students who were *Not Confident* had a score no higher than 7.9, which corresponds to their “disagreeing a little” with four of the seven statements and “agreeing a little” with the other three, on average. All other students were *Somewhat Confident* in reading.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

In 2016, both the index and scale are based on 4<sup>th</sup>-grade students’ reports of the extent of their agreement with the following statements about reading: (1) I usually do well in reading; (2) Reading is easy for me; (3) I have trouble reading stories with difficult words; (4) Reading is harder for me than for many of my classmates; (5) Reading is harder for me than any other subject, and (6) I am just not good at reading.

Students were scored according to their degree of agreement with six statements on the Students Confident in Reading scale. Students *Very Confident* in reading had a score on the scale of at least 10.3, which corresponds to their “agreeing a lot” with three of the six statements and “agreeing a little” with the other three, on average. Students who were *Not Confident* had a score no higher than 8.2, which corresponds to their “disagreeing a little” with three of the six statements and “agreeing a little” with the other three, on average. All other students were *Somewhat Confident* in reading.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

### **Index of Students’ Reading Self-Concept (SRSC) [ASDGSRSC, ASDGSELF]**

The 2006 index [ASDGSRSC] is composed of four statements about students’ reading self-concept. Students were asked to respond to the following statements: Reading is very easy for me; I do not read as well as other students in my class; When I am reading by myself, I understand almost everything I read; and I read slower than other students in my class [ASBGRD1–4]. The 2001 index [ASDGSELF] is composed of three statements about students’ reading self-concept. Students were asked to respond to the following statements: Reading is very easy for me; I do not read as well as other students in my class; and reading aloud is very hard for me [ASBGRAB1, 2, and 4]. For both indexes, student responses were averaged on a 4-point scale as follows: *Agree a lot* = 1; *Agree a little* = 2; *Disagree a little* = 3; and *Disagree a lot* = 4. After reverse-scoring relevant items, responses to each statement were averaged such that *High* = average of 1 to less than 2; *Medium* = average of 2 through 3; and *Low* = average of greater than 3 through 4.

## **6.D. Student Perception of School**

### **Students Bullied at School (Index/Scale) [ASDGSBS, ASBGSBS]**

Both the index and scale, used in 2011, were created using 4<sup>th</sup>-grade students’ reports of how often they experienced the following six bullying behaviors at school: (1) I was made fun of or called names; (2) I was left out of games or activities by other students; (3) Someone spread lies about me; (4) Something was stolen from me; (5) I was hit or hurt by other student(s); and (6) I was made to do things I didn’t want to do by other students.

Students were scored according to their responses on the scale. Students bullied *Almost Never* had a score on the scale of at least 10.1, which corresponds to “never” experiencing three of the six bullying behaviors and experiencing each of the other three behaviors “a few times a year,” on average. Students bullied *About Weekly* had a score no higher than 8.3, which corresponds to their experiencing each of three of the six behaviors “once or twice a month” and each of the other three “a few times a year,” on average. All other students were bullied *About Monthly*.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

### **Student Bullying (Index/Scale) [ASDGSB, ASBGSB]**

Both the index and scale, used in 2016, are based on 4<sup>th</sup>-grade students' reports of how often they experienced the following eight bullying behaviors: (1) Made fun of me or called me names; (2) Left me out of their games or activities; (3) Spread lies about me; (4) Stole something from me; (5) Hit or hurt me (e.g., shoving, hitting, kicking); (6) Made me do things I didn't want to do; (7) Shared embarrassing information about me; and (8) Threatened me.

Students were scored according to their responses to how often they experienced eight bullying behaviors on the Student Bullying scale. Students bullied *Almost Never* had a score on the scale of at least 9.5, which corresponds to "never" experiencing four of the eight bullying behaviors and experiencing each of the other four behaviors "a few times a year," on average. Students bullied *About Weekly* had a score no higher than 7.9, which corresponds to their experiencing each of four of the eight behaviors "once or twice a month" and each of the other four "a few times a year," on average. All other students were bullied *About Monthly*.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

### **Index of Student Safety in School (SSS) [ASDGSSS]**

This 2006 index is based on students' level of agreement with the statement "I feel safe when I am at school" and students' reports of incidents of bullying, stealing, and injury to themselves or someone in their class in the past month. Specifically, students were asked to respond to the follow statements: Something was stolen from me; Something was stolen from someone in my class; I was bullied by another student; Someone in my class was bullied by another student; I was injured by another student; and Someone in my class was injured by another student [ASBGOBUL, ASBGOHRT, ASBGOSTL, ASBGSBUL, ASBGSHRT, ASBGSSTL].

Students at the *High* level of the index agreed (a little or a lot) that they felt safe at school, reported one or fewer incidents happening to them, and one or fewer incidents happening to a classmate in the last month. Students at the *Low* level of the index disagreed (a little or a lot) about feeling safe at school, had two or more incidents happen to them, and two or more incidents happen to a classmate during the past month. All other students were at the Medium level.

### **Student Sense of Belonging (Index/Scale) [ASDGSSB, ASBGSSB]**

Both the index and scale, used in 2016, are based on 4<sup>th</sup>-grade students' responses concerning the extent of their agreement with the following statements: (1) I like being in school; (2) I feel safe when I am at school; (3) I feel like I belong at this school; (4) Teachers at my school are fair to me; and (5) I am proud to go to this school.

Students with a *High Sense of School Belonging* had a scale score greater than or equal to the point (9.7) on the scale, corresponding to agreeing a lot, on average, with three of the five statements and agreeing a little with two of the statements. Students with *Little Sense of School*

*Belonging* had a score no higher than the point (7.3) on the scale corresponding to disagreeing a little with three of the statements, on average, and agreeing a little with two of them.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

## 6.E. Student Characteristics (Teacher)

### Fourth-Grade

The target population for PIRLS 2001, 2006, and 2011 was students enrolled in the fourth year of formal schooling, counting from the first year of primary school as defined by UNESCO's ISCED system. Accordingly, the fourth year of formal schooling should be the fourth grade in most countries. However, to avoid testing very young children, PIRLS has a policy that the average age of children in the grade tested should not be below 9.5 years old, so some countries participate with students in the fifth grade.

### Students Having Early Literacy Skills (Index/Scale) [ACDGELS, ACBGELS]

This index, used in 2011 and 2016, was created using 4th-grade principals' responses concerning the percentage of students who could do the following when they began primary/elementary school: (1) recognize most of the letters of the alphabet; (2) read some words; (3) read sentences; (4) write letters of the alphabet; (5) write some words; and (6) read a story (*2016 only*).

In 2011, principals' responses across the items were averaged and their students were assigned to one of four categories: (1) *More than 75 percent* indicates an average greater than 3.25; (2) *51–75 percent* indicates an average greater than 2.5 through 3.25; (3) *25–50 percent* indicates an average of 1.75 through 2.5; and (4) *less than 25 percent* indicates an average less than 1.75.

In 2016, students were scored according to their principals' responses about the percentage of children in the school who begin first grade with the six key skills on the Schools Where Students Enter the Primary Grades with Literacy Skills scale. Students who attend *Schools Where More than 75% Enter with Skills* had a score on the scale of at least 12.6, which corresponds to their principals reporting that over 75% of the students have three of the skills and 51–75% of the students have three of the skills, on average. Students who attend *Schools Where Less than 25% Enter with Skills* had a score no higher than 9.2, which corresponds to their principals reporting that less than 25% of the students have three of the skills and 25–50% of the students have three of the skills, on average. All other students attended *Schools Where 25% to 75% Enter with Skills*.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

### **Students Limit Classroom Instruction (Index/Scale) [ATDGSLI, ATBGSLI]**

Both the index and scale, used in 2016, are based on 4<sup>th</sup>-grade teachers' reports of the extent to which teachers thought their instruction was limited by the following: (1) Students lacking prerequisite knowledge or skills; (2) Students suffering from lack of basic nutrition; (3) Students suffering from not enough sleep; (4) Students absent from class; (5) Disruptive students; (6) Uninterested students; and (7) Students with mental, emotional, or psychological impairment.

Students were scored according to their teachers' responses about seven attributes of their students that could limit how they teach their class on the Classroom Instruction Limited by Student Attributes scale. Students with teachers who felt their teaching was limited *Very Little* had a score on the scale of at least 11.0, which corresponds to their teachers feeling “not at all” limited by four of the seven student attributes and to “some” extent by the other three, on average. Students with teachers who felt limited *A Lot* had a score no higher than 6.2, which corresponds to their teachers feeling limited “a lot” by four of the seven attributes and to “some” extent by the other three, on average. All other students had teachers who felt their teaching was limited to *Some* extent.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

### **6.F. English Language and Reading Instruction (Teacher)**

#### **Instruction to Engage Students in Learning (Index/Scale) [ATDGIES, ATBGIES]**

Both the index and scale, used in 2011, were created using 4<sup>th</sup>-grade teachers' responses concerning how often they used each of the following six instructional practices to engage students in learning: (1) summarize what students should have learned from the lesson; (2) relate the lesson to students' daily lives; (3) use questioning to elicit reasons and explanations; (4) encourage all students to improve their performance; (5) praise students for good effort; and (6) bring interesting materials to class.

Students were scored according to their teachers' responses on the scale. Students with teachers who used engagement practices in *Most Lessons* had a score on the scale of at least 9.1, which corresponds to their teachers using three of the six practices “every or almost every lesson” and using the other three in “about half the lessons,” on average. Students with teachers who used engagement practices in *Some Lessons* had a score no higher than 5.9, which corresponds to their teachers using three of the six practices in “some lessons” and using the other three in “about half the lessons,” on average. All other students had teachers who used engagement practices in *About Half the Lessons*.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).



## 6.G. Class Resources (Teacher)

### School Library Books [ACDG09]

This index, used in 2011 and 2016 (with slight modifications), was derived from two questions assessing the availability of a school library and/or how many books with different titles their school library has (excluding magazines and periodicals), as reported by 4<sup>th</sup>-grade principals. The responses are categorized as (1) 250 or fewer; (2) 251–500; (3) 501–2,000; (4) 2,001–5,000; (5) 5,001–10,000; and (6) more than 10,000. For more information on the derived variable, see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#) and the [PIRLS 2011 User Guide for the International Database \(supplement 3\)](#).

## 6.H. Homework Assignment (Teacher)

### Index of Reading for Homework (RFH) [ATDGRFH]

This 2001 and 2006 index was created by combining teachers' responses to individual questions about reading homework. Teachers were asked how often they assigned reading as part of homework (for any subject) and how much time they expected students to spend on the homework each time it was assigned [ATBGHWR1 and ATBGHWR2]. Students were placed in one of three categories of the index (*High*, *Medium*, or *Low*) according to their teachers' responses. Cutoff points were established such that the *High* level of the index corresponds to relatively high amounts of reading for homework. Students assigned to the *High* level were expected to spend more than 30 minutes on reading for homework at least 1–2 times per week. Students assigned to the *Low* level were given reading for homework less than once a week and were expected to spend no more than 30 minutes on it if/when assigned. The remaining students were assigned to the *Medium* level.

## 6.I. Teacher Characteristics

### ISCED

The International Standard Classification of Education (ISCED) is an internationally comparable method for describing levels of education across countries, created by the United Nations Educational, Scientific and Cultural Organization (UNESCO). ISCED levels are defined as follows:

- **Level 0**—The initial stage of organized instruction, designed primarily to introduce very young children to a school-type environment. ISCED level 0 programs can either be center or school based. Preschool and kindergarten programs in the United States fall into the level 0 category.
- **Level 1**—Consists of primary education, which usually lasts 4 to 6 years. ISCED level 1 typically begins between ages 5 and 7, and is the stage where students begin to study

basic subjects, such as reading, writing, and mathematics. In the United States, elementary school (grades 1 through 6) is classified as level 1.

- **Level 2**—Also known as lower secondary education, students continue to learn the basic subjects taught in level 1, but this level is typically more subject specific than level 1 and may be taught by specialized teachers. ISCED level 2 usually lasts between 2 and 6 years, and begins around the age of 11. Middle school and junior high (grades 7 through 9) in the United States are classified as level 2.
- **Level 3**—Also known as upper secondary education, student coursework is generally subject specific and often taught by specialized teachers. Students often enter upper secondary education at the age of 15 or 16 and attend anywhere from 2 to 5 years. ISCED level 3 can prepare students for university or the labor force. Senior high school (grades 10 through 12) is considered level 3 in the United States.
- **Level 4**—Consists of primarily vocational education and courses are taken after the completion of secondary school, though the content is not more advanced than the content of secondary school courses. ISCED level 4 programs in the United States are often in the form of 1-year certificate programs.
- **Level 5**—Divided into levels 5A and 5B, this level refers to tertiary education (college or university). ISCED level 5A refers to academic higher education below the doctoral level. Level 5A programs are intended to provide sufficient qualifications to gain entry into advanced research programs and professions with high skill requirements. In the United States, bachelor's, master's, and first-professional degree programs are classified as ISCED level 5A. ISCED level 5B refers to vocational higher education. Level 5B programs provide a higher level of career and technical education and are designed to prepare students for the labor market. In the United States, associate's degree programs are classified at this level.
- **Level 6**—Refers to the doctoral level of academic higher education. Level 6 programs usually require the completion of a research thesis or dissertation.

### **Teachers' Career Satisfaction (Index/Scale) [ATDGTCS, ATBGTCS]**

Both the index, used in 2006 and 2011, and the scale, used in 2011, are based on 4<sup>th</sup>-grade teacher' reports of the extent of their agreement with the following statements about their satisfaction with their career: (1) I am content with my profession as a teacher; (2) I am satisfied with being a teacher at this school; (3) I had more enthusiasm when I began teaching than I have now; (4) I do important work as a teacher; (5) I plan to continue as a teacher for as long as I can; and (6) I am frustrated as a teacher.

Teachers' responses were averaged on a 4-point scale as follows: *Agree a lot* = 1; *Agree a little* = 2; *Disagree a little* = 3; and *Disagree a lot* = 4. After reverse-scoring relevant items, students whose teacher's average was 3 or greater (i.e., they agreed either a little or a lot with all five statements) were assigned to the *Low* level of the index, students with a teacher averaging 2 or more but less than 3 were at the *Medium* level, and students with a teacher averaging less than 2 were assigned to the *High* level of the index.

Students were scored according to their teachers' degree of agreement with the six statements on the scale. Students with *Satisfied* teachers had a score on the scale of at least 10.0, which corresponds to their teachers "agreeing a lot" with three of the six statements and "agreeing a little" with the other three, on average. Students with *Less Than Satisfied* teachers had a score no higher than 6.5, which corresponds to their teachers "disagreeing a little" with three of the six statements and "agreeing a little" with the other three, on average. All other students had *Somewhat Satisfied* teachers.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

### **Teachers' Job Satisfaction (Index/Scale) [ATDGTJS, ATBGTJS]**

Both the index and scale, used in 2016, are based on 4<sup>th</sup>-grade teacher' reports of the frequency with which they have the following feelings about being a teacher: (1) I am content with my profession as a teacher; (2) I find my work full of meaning and purpose; (3) I am enthusiastic about my job; (4) My work inspires me; and (5) I am proud of the work I do.

Students were scored according to how often their teachers responded positively to the five statements on the Teacher Job Satisfaction scale. Students with *Very Satisfied* teachers had a score on the scale of at least 10.2, which corresponds to their teachers responding "very often" to three of the five statements and responding "often" to the other two, on average. Students with *Less than Satisfied* teachers had a score no higher than 6.2, which corresponds to their teachers responding "sometimes" to three of the five statements and "often" to the other two, on average. All other students had *Somewhat Satisfied* teachers.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

## **6.J. School Characteristics**

### **Index of School Composition by Student Background, reported by Principals [ACDG03]**

This index, used in 2011 and 2016, was created using 4<sup>th</sup>-grade principals' responses concerning the percentage of students who (1) come from economically disadvantaged homes; and/or (2) come from economically affluent homes. Students in schools where their principals reported a *More Affluent* school composition attended schools where more than 25 percent of students come from economically affluent homes and not more than 25 percent come from economically disadvantaged homes. Students in schools where their principals reported a *More Disadvantaged* school composition attended schools where more than 25 percent of students come from economically disadvantaged homes and not more than 25 percent come from economically affluent homes. All other students attended schools with a *Neither More Affluent nor More Disadvantaged* school composition. For details on the index of school composition by student background, see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#).

## Percentages of Students with Early Literacy Skills [ACDG1GR]

This 2001 and 2006 variable is a composite of principals' responses to five questions about the percentage of students entering school with the ability to recognize most of the letters of the alphabet; read some words; read sentences; write letters of the alphabet; and write some words [ACBG1GR1– 5]. A 4-point scale was used to compute the average for each principal's responses: *More than 75%* = 4; *51–75%* = 3; *25–50%* = 2; *Less than 25%* = 1. Students were assigned to groups based on average school principal responses as follows: average greater than 3.25 was assigned to the *More than 75%* group; average greater than 2.5 through 3.25 was assigned to the *51–75%* group; average 1.75 through 2.5 was assigned to the *25–50%* group; and average from 1 to less than 1.75 was assigned to the *Less than 25%* group.

## 6.K. Curriculum (School)

### School Emphasis on Academic Success - Principal (Index/Scale) [ACDGEAS, ACBGEAS]

In 2011, both the index and scale, were created using 4<sup>th</sup>-grade principals' responses characterizing the following five aspects of academic success within their school: (1) teachers' understanding of the school's curricular goals; (2) teachers' degree of success in implementing the school's curriculum; (3) teachers' expectations for student achievement; (4) parental support for student achievement; and (5) students' desire to do well in school.

Students were scored according to their principals' responses on the scale. Students in schools where their principals reported a *Very High Emphasis* on academic success had a score on the scale of at least 13.0, which corresponds to their principals characterizing three of the five aspects as "very high" and the other two as "high," on average. Students in schools with a *Medium Emphasis* on academic success had a score no higher than 8.8, which corresponds to their principals characterizing three of the five aspects as "medium" and the other two as "high," on average. All other students attended schools with a *High Emphasis* on academic success.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

In 2016, both the index and scale were created using 4<sup>th</sup>-grade principals' responses characterizing the following 12 aspects of academic success within their school: (1) teachers' understanding of the school's curricular goals; (2) teachers' degree of success in implementing the school's curriculum; (3) teachers' expectations for student achievement; (4) teachers' ability to inspire students; (5) collaboration between school leadership (including master teachers and teachers to plan instruction; (6) parental involvement in school activities; (7) parental commitment to ensure students are ready to learn; (8) parental expectations for student achievement; (9) parental support for student achievement; (10) students' desire to do well in school; (11) students' ability to reach school's academic goals; and (12) students' respect for classmates who excel academically.

Students were scored according to their principals' responses characterizing twelve aspects on the School Emphasis on Academic Success scale. Students in schools where their principals

reported a *Very High Emphasis* on academic success had a score on the scale of at least 12.9, which corresponds to their principals characterizing six of the twelve aspects as “very high” and the other six as “high,” on average. Students in schools with a *Medium Emphasis* on academic success had a score no higher than 9.2, which corresponds to their principals characterizing six of the twelve aspects as “medium” and the other six as “high,” on average. All other students attended schools with a *High Emphasis* on academic success.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

### **School Emphasis on Academic Success - Teacher (Index/Scale) [ATDGEAS, ATBGEAS]**

In 2011, both the scale and index were created using 4<sup>th</sup>-grade teachers’ responses characterizing each of the following five aspects of academic success within their school:

- (1) teachers’ understanding of the school’s curricular goals; (2) teachers’ degree of success in implementing the school’s curriculum; (3) teachers’ expectations for student achievement; (4) parental support for student achievement; and (5) students’ desire to do well in school.

Students were scored according to their teachers’ responses on the scale. Students in schools where their teachers reported a *Very High Emphasis* on academic success had a score on the scale of at least 13.0, which corresponds to their teachers characterizing three of the five aspects as “very high” and the other two as “high,” on average. Students in schools with a *Medium Emphasis* on academic success had a score no higher than 8.7, which corresponds to their teachers characterizing three of the five aspects as “medium” and the other two as “high,” on average. All other students attended schools with a *High Emphasis* on academic success.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

In 2016, both the scale and index were created using 4<sup>th</sup>-grade teachers’ responses characterizing each of the following five aspects of academic success within their school: (1) teachers’ understanding of the school’s curricular goals; (2) teachers’ degree of success in implementing the school’s curriculum; (3) teachers’ expectations for student achievement; (4) teachers’ ability to inspire students; (5) collaboration between school leadership (including master teachers and teachers to plan instruction; (6) parental involvement in school activities; (7) parental commitment to ensure students are ready to learn; (8) parental expectations for student achievement; (9) parental support for student achievement; (10) students’ desire to do well in school; (11) students’ ability to reach school’s academic goals; and (12) students’ respect for classmates who excel academically.

Students were scored according to their teachers’ responses characterizing twelve aspects on the School Emphasis on Academic Success scale. Students in schools where their teachers reported a *Very High Emphasis* on academic success had a score on the scale of at least 12.8, which corresponds to their teachers characterizing six of the twelve aspects as “very high” and the other six as “high,” on average. Students in schools with a *Medium Emphasis* on academic success had a score no higher than 9.2, which corresponds to their teachers characterizing six of the twelve

aspects as “medium” and the other six as “high,” on average. All other students attended schools with a *High Emphasis* on academic success.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

## 6.L. Instruction

### **Emphasis in Early Grades on Reading Skills (Index/Scale) [ACDGRSS, ACBGRSS]**

Both the index and scale, used in 2011, were created using 4<sup>th</sup>-grade principals’ responses about the earliest grade at which each of following 11 reading skills and strategies were emphasized: (1) reading isolated sentences; (2) reading connected text; (3) locating information within the text; (4) identifying the main idea of a text; (5) explaining or supporting understanding of the text; (6) comparing a text with personal experience; (7) comparing different texts; (8) making predictions about what will happen next in a text; (9) making generalizations and drawing inferences based on a text; (10) describing the style or structure of a text; and (11) determining the author’s perspective or intention.

Students in schools where their principals reported reading skills and strategies were emphasized *At or Before 2<sup>nd</sup> Grade* had a score on the scale of at least 11.1, which corresponds to all 11 skills and strategies being emphasized at 2<sup>nd</sup> grade, on average. Students in schools where their principals reported reading skills and strategies were emphasized *At 4<sup>th</sup> Grade or Later* had a score no higher than 6.5, which corresponds to all 11 skills and strategies being emphasized at 4<sup>th</sup> grade, on average. All other students attended schools where reading skills and strategies were emphasized *At 3<sup>rd</sup> Grade*.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

### **Language Instructional Hours per Year [ATDGLIHY]**

For more information on the derived variable see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#).

### **Reading Instructional Hours per Year [ATDGRIHY]**

For more information on the derived variable see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#).

### **Total Instructional Hours per Year [ACDG06HY (2011), ACDGTIH (2016)]**

For more information on the derived variable, see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#) and the [PIRLS 2011 User Guide for the International Database \(supplement 3\)](#).

## Number of Days per Week for Instruction [ACDG06 (2011), ACDGDAYS (2016)]

For more information on the derived variable, see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#) and the [PIRLS 2011 User Guide for the International Database \(supplement 3\)](#).

### 6.M. School Resources

#### Instruction Affected by Reading Resource Shortages (Index/Scale) [ACDGRRS, ACBGRRS]

In 2011, both the index and scale were created using 4<sup>th</sup>-grade principals' responses concerning 11 school and classroom resources: (1) instructional materials (e.g., textbooks); (2) supplies (e.g., papers, pencils); (3) school buildings and grounds; (4) heating/cooling and lighting systems; (5) instructional space (e.g., classrooms); (6) technologically competent staff; (7) computers for instruction; (8) teachers with a specialization in reading; (9) computer software for reading instruction; (10) library books; and (11) audio-visual resources for reading instruction.

Students were scored according to their principals' responses on the scale. Students in schools where instruction was *Not Affected* by resource shortages had a score on the scale of at least 11.2, which corresponds to their principals reporting that shortages affected instruction “not at all” for 6 of the 11 resources and “a little” for the other 5, on average. Students in schools where instruction was *Affected A Lot* had a score no higher than 6.7, which corresponds to their principals reporting that shortages affected instruction “a lot” for 6 of the 11 resources and “some” for the other 5, on average. All other students attended schools where instruction was *Somewhat Affected* by resource shortages.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

In 2016, both the index and scale were created using 4<sup>th</sup>-grade principals' responses concerning 11 school and classroom resources: (1) instructional materials (e.g., textbooks); (2) supplies (e.g., papers, pencils, materials); (3) school buildings and grounds; (4) heating/cooling and lighting systems; (5) instructional space (e.g., classrooms); (6) technologically competent staff; (7) audio-visual resources for delivery of instructions (e.g., interactive white boards, digital projectors); (8) computer technology for teaching and learning (e.g., computers or tablets for student use); (9) teachers with a specialization in reading; (10) computer software/applications for reading instruction; (11) library resources (books, ebooks, magazines, etc.); and (12) instructional materials for reading (e.g., reading series, textbooks).

Students were scored according to their principals' responses concerning twelve school and classroom resources on the Reading Resource Shortages scale. Students in schools where instruction was *Not Affected* by resource shortages had a score on the scale of at least 10.8, which corresponds to their principals reporting that shortages affected instruction “not at all” for six of the twelve resources and “a little” for the other six, on average. Students in schools where

instruction was *Affected A Lot* had a score no higher than 7.1, which corresponds to their principals reporting that shortages affected instruction “a lot” for six of the twelve resources and “some” for the other six, on average. All other students attended schools where instruction was *Somewhat Affected* by resource shortages.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

### **Index of Availability of School Resources (ASR) [ACDGST, ACDGASR]**

This 2001 and 2006 index is based on principals’ responses to 14 items about shortages of or inadequacies in accommodation, staff, equipment, and instructional materials [ACBGS11–14]. Specifically, principals were asked to indicate if their school’s capacity to provide instruction was affected by shortages or inadequacies in qualified teaching staff; teachers with a specialization in reading; second language teachers; instructional materials (e.g., textbooks); supplies (e.g., papers, pencils); school buildings and grounds; heating/cooling and lighting systems; instructional space (e.g., classrooms); special equipment for physically disabled students; computers for instructional purposes; computer software for instructional purposes; computer support staff; library books; and audiovisual resources. Principals’ average responses were computed on a 4-point scale: *Not at all* = 1; *A little* = 2; *Some* = 3; and *A lot* = 4. Students were assigned to the *High* level of the index if their school’s principal had an average response of less than 2. Students were assigned to the *Medium* level if their principal’s average was 2 through 3, and to the *Low* level if the average was greater than 3.

### **Availability of Computers for Instruction [ACDGCMP, ACDGCAV]**

This 2001, 2006 and 2011 index is based on principals’ responses to the following two questions: (1) the total number of computers that can be used for instructional purposes by fourth-grade students, and (2) the total enrollment of fourth-grade students in the school. Total enrollment is divided by the number of computers to calculate the number of students per computer. For 2001 and 2006, this result is then coded on a 5-point scale: 1 = *Less than 5 students per computer*; 2 = *5 to 10 students per computer*; 3 = *11 to 20 students per computer*; 4 = *More than 20 students per computer*; 5 = *Student in school without computers*. For 2011, principal responses are as follows: *1 computer for 1-2 students*; *1 computer for 3-5 students*; *1 computer for 6 or more students*; and *no computers available*.

### **Ratio of Students to Computers [ACDG11R]**

For more information on the derived variable see the [PIRLS 2016 User Guide for the International Database \(supplement 3\)](#).



### **Instruction Affected by Digital Resource Shortage (Index/Scale) [ACDGDRS, ACBGDRS]**

Both the index and scale, used in 2016, were created using 4<sup>th</sup>-grade principals' responses concerning four school and classroom resources: (1) technologically competent staff; (2) audio-visual resources for delivery of instruction (e.g., interactive white boards, digital projectors); (3) Computer technology for teaching and learning (e.g., computers or tablets for student use); and (4) computer software/applications for reading instruction.

Students were scored according to their principals' responses concerning twelve school and classroom resources on the Reading Resource Shortages scale. Students in schools where instruction was *Not Affected* by resource shortages had a score on the scale of at least 10.8, which corresponds to their principals reporting that shortages affected instruction “not at all” for six of the twelve resources and “a little” for the other six, on average. Students in schools where instruction was *Affected A Lot* had a score no higher than 7.1, which corresponds to their principals reporting that shortages affected instruction “a lot” for six of the twelve resources and “some” for the other six, on average. All other students attended schools where instruction was *Somewhat Affected* by resource shortages.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

## **6.N. Home-School Involvement**

### **Index of Home-School Involvement (HSI) [ACDGHSI, ACDG4PAR]**

This 2001 and 2006 index is based on principals' responses to seven questions, including four questions about the frequency of communication from the school to the home—teacher-parent conferences; letters, calendars, newsletters, etc., sent home; written reports of child's performance; and events at school to which parents are invited [ACBGPRO1–4]—and three questions about the percentage of students with parents who participate in the life of the school—volunteer regularly to help in the classroom or school; attend teacher-parent conferences; and attend cultural, sporting, or social events at the school [ACBGPAR1–3]. Students were assigned to the *High* level of the index if they attended a school that, at least four times a year, held teacher-parent conferences and school events that were attended by more than half the parents; sent home written report cards of the child's performance at least four times a year; and sent home letters, calendars, newsletters, etc., with news about the school at least seven times a year. Students were assigned to the *Low* level of the index if their school never held a teacher-parent conference, or if it did, no more than 25 percent of parents attended; held school events no more than once a year that were attended by no more than 25 percent of parents; sent home letters or newsletters no more than three times a year; and written reports of the child's performance were sent home no more than once a year. Students in schools with other combinations were assigned to the *Medium* level.

## 6.O. School Climate and Behavior Problems

### **Index of Principal's Perception of School Climate (PPSC) [ACDGCHA, ACDGPPSC]**

The 2001 and 2006 indices summarize principals' perception of the overall atmosphere in their school using six items. In 2006, principals were asked to characterize each of the following within their school: teachers' job satisfaction; teachers' expectations for student achievement; parental support for student achievement; students' regard for school property; and students' regard for each other's welfare [ACBGCHA1–6]. The 2001 index differs from the 2006 index in that it excludes the item: students' regard for each other's welfare [ACBGCHA1-6], and instead uses the item: students' desire to do well in school [ACBGCHA1-5]. An average was computed for each principal on a 5-point scale: *Very high* = 1, *High* = 2, *Medium* = 3, *Low* = 4, and *Very low* = 5. Students whose school principal had an average response greater than 3.67 were assigned to the *Low* level of the index, those where the average was below 2.33 to the *High* level, and the remainder to the *Medium* level.

### **School Discipline and Safety (Index/Scale) [ACDGDAS, ACBGDAS]**

Both the index and scale, used in 2011 and 2016, were created using 4<sup>th</sup>-grade principals' responses concerning 10 potential school discipline and safety issues: (1) arriving late at school; (2) absenteeism (i.e., unjustified absences); (3) classroom disturbance; (4) cheating; (5) profanity; (6) vandalism; (7) theft; (8) intimidation or verbal abuse among students (including texting, e-mailing, etc.); (9) physical fights among students; and (10) intimidation or verbal abuse of teachers or staff (including texting, e-mailing, etc.).

Students were scored according to their principals' responses on the scale. Students in schools with *Hardly Any Problems* had a score on the scale of at least 9.9, which corresponds to their principals reporting "not a problem" for 5 of the 10 discipline and safety issues and a "minor problem" for the other 5, on average. Students in schools with *Moderate Problems* had a score no higher than 7.7, which corresponds to their principals reporting a "moderate problem" for 5 of the 10 issues and a "minor problem" for the other 5, on average. All other students attended schools with *Minor Problems*.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

### **Safe and Orderly School (Index/Scale) [ATDGSOS, ATBGSOS]**

In 2011, both the index and scale were created using 4<sup>th</sup>-grade teachers' responses concerning the extent of their agreement with the following statements: (1) This school is located in a safe neighborhood; (2) I feel safe at this school; (3) This school's security policies and practices are sufficient; (4) The students behave in an orderly manner; and (5) The students are respectful of the teachers.

Students were scored according to their teachers' degree of agreement with the five statements on the scale. Students in Safe and Orderly schools had a score on the scale of at least 10.1, which

corresponds to their teachers “agreeing a lot” with three of the five qualities of a safe and orderly school and “agreeing a little” with the other two, on average. Students in Not Safe and Orderly schools had a score no higher than 6.2, which corresponds to their teachers “disagreeing a little” with three of the five qualities and “agreeing a little” with the other two, on average. All other students attended Somewhat Safe and Orderly schools.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

In 2016, both the index and scale were created using 4<sup>th</sup>-grade teachers’ responses concerning the extent of their agreement with the following statements: (1) This school is located in a safe neighborhood; (2) I feel safe at this school; (3) This school’s security policies and practices are sufficient; (4) The students behave in an orderly manner; (5) The students are respectful of the teachers; (6) The students respect school property; (7) This school has clear rules about student conduct; and (8) The school’s rules are enforced in a fair and consistent manner.

Students were scored according to their teachers’ degree of agreement with eight statements on the Safe and Orderly School scale. Students in *Very Safe and Orderly* schools had a score on the scale of at least 9.9, which corresponds to their teachers “agreeing a lot” with four of the eight qualities of a safe and orderly school and “agreeing a little” with the other four, on average. Students in *Less than Safe and Orderly* schools had a score no higher than 6.6, which corresponds to their teachers “disagreeing a little” with four of the eight qualities and “agreeing a little” with the other four, on average. All other students attended *Somewhat Safe and Orderly* schools.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).

## 6.P. Teacher Collaboration

### Teachers Report Problems with Collaboration [ATDGTWC]

This index, used in 2011, was created using 4<sup>th</sup>-grade teachers’ responses concerning how often they interacted with other teachers in each of the following five teaching areas: (1) discuss how to teach a particular topic; (2) collaborate in planning and preparing instructional materials; (3) share what I have learned about my teaching experiences; (4) visit another classroom to learn more about teaching; and (5) work together to try out new ideas. Teachers were categorized based on whether and how often they marked “never or almost never” for any of the items.

### Collaborate to Improve Teaching (Index/Scale) [ATBGCIT, ATDGCIT]

Both the index and scale, used in 2011, were created using 4<sup>th</sup>-grade teachers’ responses concerning how often they interacted with other teachers in each of the following five teaching areas: (1) discuss how to teach a particular topic; (2) collaborate in planning and preparing instructional materials; (3) share what I have learned about my teaching experiences; (4) visit another classroom to learn more about teaching; and (5) work together to try out new ideas.

Students were scored according to their teachers' responses on the scale. Students with *Very Collaborative* teachers had a score on the scale of at least 11.0, which corresponds to their teachers having interactions with other teachers at least "one to three times per week" in each of three of the five areas and "two or three times per month" in each of the other two, on average. Students with *Somewhat Collaborative* teachers had a score no higher than 7.2, which corresponds to their teachers interacting with other teachers "never or almost never" in each of three of the five areas and "two or three times per month" in each of the other two, on average. All other students had *Collaborative* teachers.

For information on creating and interpreting the PIRLS 2011 context questionnaire scales, see [Methods and Procedures in TIMSS and PIRLS 2011](#).

## 6.Q. Student Resource Use

### **Students Self-Efficacy Computer Use (Index/Scale) [ASDGSEC, ASBGSEC] – ePIRLS Only**

Both the index and scale, used in 2016, are based on 4<sup>th</sup>-grade students' responses concerning the extent of their agreement with the following statements: (1) I am good at using a computer; (2) I am good at typing; and (3) It is easy for me to find information on the internet.

For each of the three statements, students were asked to indicate the degree of their agreement with the statement: "agree a lot", "agree a little", "disagree a little", or "disagree a lot". Students who had *High Self-Efficacy* for computer use had a score on the scale of at least 10.4, which corresponds to "agreeing a lot" with two of the three statements and "agreeing a little" with the other one, on average. Students who had *Low Self-Efficacy* for using a computer had a score no higher than 7.1, which corresponds to students "disagreeing a little" to two of the three statements and "agreeing a little" with the other one, on average. All other students had *Medium Self-Efficacy* for using a computer.

For information on creating and interpreting the PIRLS 2016 context questionnaire scales, see [Methods and Procedures in PIRLS 2016](#).