

Program for the International Assessment of Adult Competencies (PIAAC) International Data Explorer Help Guide

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PIAAC International Data Explorer Help Guide

I. Background on the Program for the International Assessment of Adult Competencies (PIAAC) and the PIAAC International Data Explorer (IDE)

The Program for the International Assessment of Adult Competencies (PIAAC) International Data Explorer (IDE) is a web-based application for accessing data from PIAAC, supported by the U.S. National Center for Education Statistics (NCES) and the Organization for Economic Cooperation and Development (OECD). The PIAAC IDE is available on both the NCES and OECD websites, however only the NCES PIAAC IDE includes U.S. national variables and all variables following national routing for analysis. Meanwhile, for other countries NCES PIAAC IDE disseminates data contained in their public-use files, resulting in some variables being available for all countries in OECD PIAAC IDE, but not available in NCES PIAAC IDE (such as [EARNHR] 'Averages for hourly earnings excluding bonuses for wage and salary earners (derived)'); or some variables available for all countries in OECD PIAAC IDE, but not available for certain countries in NCES PIAAC IDE (such as [BQ02B] 'Education - Current qualification – Level' for Canada and Estonia).

PIAAC is a household study that has been developed under the auspices of the Organization for Economic Cooperation and Development (OECD). In the United States, the study was conducted in 2011–2012 with a nationally representative sample of 5,000 adults between the ages of 16 and 65. Similar samples of adults were surveyed in each of the 24 other participating countries. The goal of PIAAC is to assess and compare the basic skills and the broad range of competencies of adults around the world. The assessment focuses on cognitive and workplace skills needed for successful participation in 21st-century society and the global economy. Specifically, PIAAC measures relationships between individuals' educational background, workplace experiences and skills, occupational attainment, use of information and communications technology, and cognitive skills in the areas of literacy, numeracy, and problem solving in technology-rich environments (TRE).

PIAAC is a complex assessment: the data collection is conducted in multiple languages, in numerous countries with diverse populations, cultures, education and life experiences. All participating countries follow the quality assurance guidelines set by the OECD consortium, and closely follow all the agreed-upon standards set for survey design, implementation of the assessment, and the reporting of results.

PIAAC builds on knowledge and experiences gained from previous international adult assessments - the International Adult Literacy Survey ([IALS](#)) and the Adult Literacy and Lifeskills Survey ([ALL](#)). PIAAC enhances and expands on these previous assessments' frameworks and, at the same time, improves upon their design and methodologies. Trends in literacy have been established between the three surveys and trends in numeracy have been

established between PIAAC and ALL. Data from all three surveys are available in the PIAAC IDE (see table 1).

In the United States, the PIAAC assessment is conducted in English only; however, the PIAAC survey background questions are in both English and Spanish. PIAAC is named the International Survey of Adult Skills ([ISAS](#)) in the United States. Data collection for the first PIAAC field test was conducted in 2010, and its first main assessment began in August 2011 and finished in April 2012. Data is currently being collected from another sample of 5,000 adults for the PIAAC U.S. National Supplement, which expands the survey to include an additional sample of young adults (ages 16–34) and unemployed adults. The current data collection also broadens the survey population to adults 65–74 years of age and adults currently incarcerated in correctional institutions. The National Supplement data will become available in 2015–2016.

Table 1. PIAAC reporting scales currently available in the IDE, by year/study

Reporting scale	Year/Study		
	PIAAC 2012	ALL 2003	IALS 1994
Literacy			
Overall scale	x	x	x
Reading components ¹ scale	x		
Numeracy			
Overall scale	x	x	
Problem Solving in technology-rich environments (TRE)			
Overall scale	x		

NOTE: For more information regarding the literacy, numeracy, and problem solving in technology-rich environments scale frameworks, go to <http://nces.ed.gov/surveys/piaac/framework.asp> for each framework in brief, or go to the complete framework for the OECD Survey of Adult Skills (http://www.oecd.org/site/piaac/PIAAC%20Framework%202012--%20Revised%2028oct2013_ebook.pdf).

¹Reading Components is a domain used to measure literacy at the very low end of the spectrum, with components such as sentence completion, passage comprehension, and vocabulary. It is included in the IDE as Criteria accessed under any Subject. For more information regarding the definition of reading components domain, please see Chapter 3, Literacy and Reading Component in the framework for the OECD Survey of Adult Skills (http://www.oecd.org/site/piaac/PIAAC%20Framework%202012--%20Revised%2028oct2013_ebook.pdf)

II. Computer Requirements for the IDE

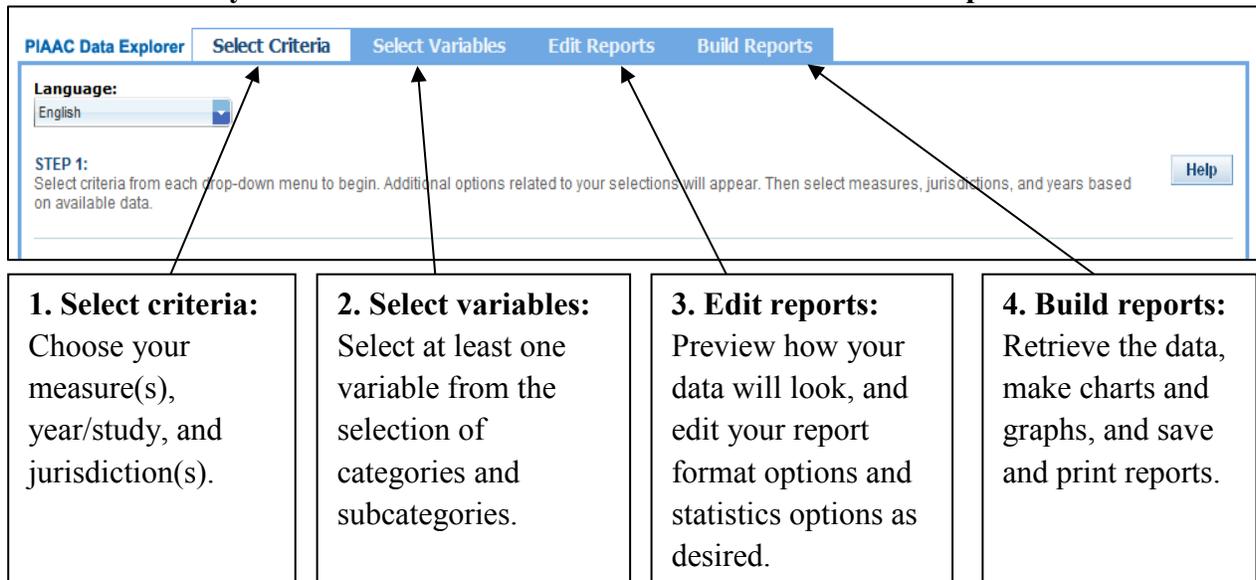
- Screen resolution should be 1024 x 768 pixels.
- Browsers: Internet Explorer (IE) version 7 or higher, Safari, Firefox, and Chrome. For rendering and scrolling pages with large tables, Firefox 2.0 is faster than IE7 (Firefox 3.0 or higher is recommended).
- Enable JavaScript and pop-ups in your browser.
- The 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.
- Screen reader software should be Jaws 8.0 or higher.

If you encounter an error, please send us the details through **Contact Us** (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.

III. General Overview

There are four general steps for exploring PIAAC data using the PIAAC IDE (see exhibit 1). Each step is described in more detail starting on page 7.

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



IV. Steps to Explore Data

To create your own custom tables, charts, and graphs, follow these steps when using the PIAAC IDE:

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 PIAAC IDE begins on the **Select Criteria** screen (see exhibit 2).

Select a **Subject** from the drop-down menu. Once the screen resets, you can choose one or more of the years and studies or **All Years/Studies**, **Measures**, 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 cancel your selections 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. Selecting criteria

PIAAC Data Explorer | 1. Select Criteria | 2. Select Variables | 3. Edit Reports | 4. Build Reports

Language: English

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: Literacy Age: Adults [Reset](#)

View all (82) View Selected (0) Search: [Go](#)

Category	Sub Category	Measure	All Years/Studies	PIAAC 2012	ALL 2003	IALS 1994
Scale scores	Skills	<input type="checkbox"/> PIAAC Literacy: Overall scale details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Skill use					
	Reading components					
	Reading component timings					
	Population					
	International					

Group	Jurisdiction	All Years/Studies	PIAAC 2012	ALL 2003	IALS 1994
<input type="checkbox"/> International	<input type="checkbox"/> Average of All Jurisdictions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Average of the Selected Jurisdictions				
	<input type="checkbox"/> OECD National Entities				
	<input type="checkbox"/> OECD Sub-National Entities				
	<input type="checkbox"/> Partners				

[2. Select Variables](#)

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1.B. Choose Subject

Under **Subject**, you have the choice of **Literacy**, **Numeracy**, or **Problem Solving TRE**. Once a subject is chosen, the screen resets and you can select one or more of the years and studies or **All Years/Studies**, **Measure(s)**, and **Jurisdiction(s)**.

1.C. Choose Year/Study

At the top of the **Measure** and **Jurisdiction** sections, you have the choice of selecting **PIAAC 2012**, **ALL 2003**, and/or **IALS 1994** by checking the appropriate box. To include data from all studies, check the **All Years/Studies** box to the left of the individual year and study options. Literacy data are available for PIAAC 2012, ALL 2003 and IALS 1994. Numeracy data are available for PIAAC 2012 and ALL 2003. Problem solving in technology-rich environments data are only available for PIAAC 2012.

1.D. Choose Measure

After choosing a **Subject**, you can then choose a **Measure** within the **Select Criteria** tab. Note that the overall scale is the default. You can browse for other reporting scales using the **Category** and **Sub Category** lists or by using the **Search** function. The adults in the sample population that did not answer the assessment will be displayed along with those that did answer the assessment if you select **Percentage across full sample** under the **Population** category.

There is a separate reporting scale, not included in the **Subject** selection, for the Reading Components domain of the PIAAC survey. The Reading Components domain is used to measure literacy at the very low end of the spectrum, with components such as sentence completion, passage comprehension, and vocabulary. This domain was given to respondents who decided not to take the computer-based assessment or who did not pass a set of core information and computer technology tasks and failed a set of core literacy/numeracy tasks.

In addition, there are a number of continuous variables other than scale scores that you may choose as a measure of analysis. These variables are generally continuous variables from the international and U.S. national background questionnaires (such as earnings or hours of work per week) and derived variables from PIAAC, ALL, and IALS. Derived variables from PIAAC include indices of literacy, numeracy, and computer use at work and at home and imputed years of formal education, among others. Analysis of the continuous variables in terms of the literacy, numeracy and problem solving TRE domains is not possible, unless a relevant categorized variable exists in the list of **Variables**. However, one can compute (for example, the average years of formal education for all adults) using the continuous variables in the list of **Measures**.

1.E. Choose Jurisdiction

With your **Measure(s)**, one or more of the years and studies or **All Years/Studies** selected, next choose at least one **Jurisdiction**.

Jurisdictions are found under **OECD National Entities**, **OECD Sub-National Entities** and **Partners** (Partners category is only for the subjects Literacy and Numeracy). There is also a group category called **International**, with options to display the **Average of All Jurisdictions** and the **Average of the Selected Jurisdictions**. Please note that selecting **Average of All Jurisdictions** or **Average of the Selected Jurisdictions** increases the frequency of receiving 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 jurisdictions are as follows:

1. To open or close **Jurisdiction**, click on the arrow. The jurisdictions in the group are open and can be selected when the blue arrow points down (see exhibit 3).
2. Click the checkboxes next to the 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., “**OECD National Entities**”), you will select all the jurisdictions within that group. If desired, uncheck the group name to deselect all.

- If you want to close a group (for example, close the list of **OECD National Entities** jurisdictions in order to readily see the **OECD Sub-National Entities** 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 3. Choosing jurisdictions

PIAAC Data Explorer **1. Select Criteria** 2. Select Variables 3. Edit Reports 4. Build Reports

Language: English

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: Literacy Age: Adults [Reset](#)

[View all \(82\)](#) [View Selected \(0\)](#) Search: [Go](#)

Category	Sub Category	Measure	All Years/Studies	PIAAC 2012	ALL 2003	IALS 1994
Scale scores	Skills	<input type="checkbox"/> PIAAC Literacy: Overall scale details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Skill use					
	Reading components					
	Reading component timings					
	Population					
	International					

Group	Jurisdiction	Year	All Years/Studies	PIAAC 2012	ALL 2003	IALS 1994
<input type="checkbox"/> International	<input type="checkbox"/> Average of All Jurisdictions		<input type="checkbox"/>			
	<input type="checkbox"/> Average of the Selected Jurisdictions					
<input checked="" type="checkbox"/> OECD National Entities	<input checked="" type="checkbox"/> Austria		<input type="checkbox"/>		NO DATA	NO DATA
	<input checked="" type="checkbox"/> Canada		<input type="checkbox"/>		NO DATA	NO DATA
	<input checked="" type="checkbox"/> Czech Republic		<input type="checkbox"/>		NO DATA	NO DATA
	<input checked="" type="checkbox"/> Denmark		<input type="checkbox"/>		NO DATA	NO DATA
	<input checked="" type="checkbox"/> Estonia		<input type="checkbox"/>		NO DATA	NO DATA
	<input checked="" type="checkbox"/> Finland		<input type="checkbox"/>		NO DATA	NO DATA
	<input checked="" type="checkbox"/> France		<input type="checkbox"/>		NO DATA	NO DATA

[2. Select Variables](#)

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To continue in the IDE, click the **Select Variables** button at the bottom right of the page or the tab at the top of the page to go to the next screen (see exhibit 3).

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 using the **Category** and **Sub Category** lists or by using the **Search** function (see exhibit 4). You can return to this screen to change variable selections at any time.

Exhibit 4. Select variables overview

PIAAC Data Explorer 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, Age: Literacy, Adults
Jurisdictions: Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic of Korea, Slovak Republic, Spain, Sweden, United States
Measure: PIAAC Literacy: Overall scale
Year/Study: PIAAC 2012

Reset

View all (467) View Selected (0) Search: Go

Category	Sub Category	Variable	All Years/Studies	PIAAC 2012	PIAAC 2006	PIAAC 1994
Major reporting groups	Major reporting groups	<input type="checkbox"/> All adults details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Gender details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Age groups in 5-year intervals (derived) details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Age groups in 10-year intervals (derived) details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Race/ethnicity (collapsed, 4 categories) details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Background - Born in country details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Education - Highest qualification - Level details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Education - Highest qualification - Level (collapsed, 3 categories) details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Education - Highest qualification - Level (collapsed, 6 categories) details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Current status/work history - Subjective status details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Current status/work history - Employment status (derived) details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Current work - Employee or self-employed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA

3. Edit Reports

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2.B. Search Using Category and Sub Category Lists

On the **Select Variables** screen, choose at least one variable for your report. One way to do this is to search for variables using the **Category** and **Sub Category** lists. If you do not wish to choose from any of the specified categories and subcategories, then select **All adults** in the **Major reporting groups** sub category.

The variables shown are tied to the criteria you selected at step 1 (**Measure**, one or more of the years and studies or **All Years/Studies** selected, 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 5).
2. Click **details** or **hide details** to show or hide the full title of a given variable, the PIAAC 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 5, which shows **Last job - Employee or self-employed** and **Last Job - Economic sector**. The differences between these two variables are described in the details.
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. Click **Reset** button in the upper-right portion of the screen if you wish to deselect all the selected variables.
6. Remember to select the year/study for which you wish to build a report and make sure that data are available for your chosen year/study and variables.
7. Searching variables is an option from the **Search** box. See Section 2.C Search Function (on next page) for more details about this function.

Exhibit 5. Select variables using category and sub category lists

PIAAC Data Explorer **Select Criteria** **Select Variables** Edit Reports 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, Age: Literacy, Adults [Reset](#)

Jurisdictions: Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic of Korea, Slovak Republic, Spain, Sweden, United States

Measure: PIAAC Literacy: Overall scale

Year/Study: PIAAC 2012

[View all \(468\)](#) [View Selected \(1\)](#) Search: [Go](#)

Category	Sub Category	Variable	All Years/Studies	PIAAC 2012	ALL 2003	IALS 1994
	▼ Last job	<input type="checkbox"/> Last job - Start of work for employer - Age (collapsed) details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Last job - Start of work for business - Age (collapsed) details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Last job - Employee or self-employed hide details Full Title: In the last 12 months/before you last stopped working, were you working as an employee or were you self-employed? ID: EQ04 Values: Employee; Self-employed; Don't know	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Last job - Economic sector hide details Full Title: In the last 12 months/before you last stopped working, in which sector of the economy did you work? ID: EQ03 Values: The private sector (for example a company); The public sector (for example the local government or a state school); A non-profit organisation (for example a charity, professional association or religious organisation; Don't know	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Last job - Amount of people working for	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA

[Edit Reports](#)

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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 6). Note that you can search by the variable name, full title and ID, but not the values of the variable displayed in the details. If you use multiple keywords, “and” is assumed. You can 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.

Exhibit 6. Select variables using the search function

PIAAC Data Explorer 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, Age: Literacy, Adults [Reset](#)

Jurisdictions: Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic of Korea, Slovak Republic, Spain, Sweden, United States

Measure: PIAAC Literacy: Overall scale

Year/Study: PIAAC 2012

View all (467) View Selected (0) Search: (5) read books [Go](#)

Category	Sub Category	Variable	All Years/Studies	PIAAC 2012	ALL 2005	IALS 1994
International background questionnaire	Skill use at work-literacy	<input type="checkbox"/> Skill use work - Literacy - Read books details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
	Skill use outside of work-literacy	<input type="checkbox"/> Skill use everyday life - Literacy - Read books details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> NO DATA	<input type="checkbox"/> NO DATA
Trend variables	Trend variables	<input type="checkbox"/> Job - Read or use manuals reference books catalogues (Trend-IALS/ALL) details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA
		<input type="checkbox"/> Job - Read or use manuals reference books catalogues - levels collapsed (Trend-IALS/ALL) details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Daily life - Read or use books (Trend-IALS/ALL) details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> NO DATA

[3. Edit Reports](#)

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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 variables 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 number of decimal places to display, for all reports (these may also be changed in individual reports, but format options can overwrite previous edits);
- change statistics options, such as average scale scores 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 adults**), you will also see a cross-tabulated report for these variables. If you have chosen four or more variables you will get tables for each variable, but you will not get the cross-tabulation. If your selected criteria include more than one measure (e.g., overall literacy scale and one or more continuous variable), a separate set of data reports will be generated for each measure (see exhibit 7).

Exhibit 7. Edit reports overview

PIAAC Data Explorer Select Criteria Select Variables **Edit Reports** 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

Subject, Age: Literacy, Adults Reset
Jurisdictions: Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic of Korea, Slovak Republic, Spain, Sweden, United States, Flanders (Belgium), England (UK), Northern Ireland (UK), England and Northern Ireland (UK), Cyprus
Measures: PIAAC Literacy: Overall scale, Highest level of education obtained (derived)
Variables: All adults, Test language same as native language (derived), Skill use work - Literacy - Read books
Year/Study: PIAAC 2012

Create New Report		Format Options		Statistics Options		
Report	All	Action	Measure	Variable	Year/Study Jurisdiction	Statistic
Report 1	<input checked="" type="checkbox"/>	Preview Delete Copy	PIAAC Literacy: Overall scale	All adults	PIAAC 2012 Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic o...	Averages
Report 2	<input checked="" type="checkbox"/>	Preview Delete Copy	PIAAC Literacy: Overall scale	Test language same as native language (derived)	PIAAC 2012 Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic o...	Averages
Report 3	<input checked="" type="checkbox"/>	Preview Delete Copy	PIAAC Literacy: Overall scale	Skill use work - Literacy - Read books	PIAAC 2012 Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic o...	Averages
Cross-Tabulated Report 1	<input checked="" type="checkbox"/>	Preview Delete Copy	PIAAC Literacy: Overall scale	Test language same as native language (derived), Skill use work - Literacy - Read books	PIAAC 2012 Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic o...	Averages
Report 4	<input checked="" type="checkbox"/>	Preview Delete Copy	Highest level of education obtained (derived)	All adults	PIAAC 2012 Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic o...	Averages
Report 5	<input checked="" type="checkbox"/>	Preview Delete Copy	Highest level of education obtained (derived)	Test language same as native language (derived)	PIAAC 2012 Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic o...	Averages
Report 6	<input checked="" type="checkbox"/>	Preview Delete Copy	Highest level of education obtained (derived)	Skill use work - Literacy - Read books	PIAAC 2012 Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic o...	Averages
Cross-Tabulated Report 2	<input checked="" type="checkbox"/>	Preview Delete Copy	Highest level of education obtained (derived)	Test language same as native language (derived), Skill use work - Literacy - Read books	PIAAC 2012 Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic o...	Averages

[Build Reports](#)

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The **Edit Reports** step shows detailed information on the layout of your reports. The **Report** column indicates the report, or cross-tabulation report, number based on the variable(s) chosen during the criteria selection. Under the **All** tab, reports may be chosen for the report-building phase, either by selecting **All** or selecting individual reports. The **Action** column gives you the option to **Preview**, **Edit**, **Delete**, or **Copy** the report. The **Measure** column shows which measure the report will portray. The **Variable** column indicates the variable(s) included in the report. The **Years/Studies** column shows which of the years and studies you have selected for comparison. The **Jurisdiction** column labels the countries selected for comparison, and the **Statistic** column provides the type of statistic output that will be generated in the report-building phase. The default Statistic is the average of the measure (e.g., an average score for the literacy domain or average years of schooling for the continuous variable of years of education).

3.B. Preview Report

Select **Preview**, in the **Action** column (see exhibit 7), to see how your report will be laid out. The preview will not provide actual data, but will show how the data will be arranged in rows

and columns (see exhibit 8). You can select **Preview** at any time to see how your changes will affect the report's final layout.

Exhibit 8. Using preview report

		Skill use work - Literacy - Read books									
		Never		Less than once a month		Less than once a week but at least once a month		At least once a week but not every day		Every day	
Years/Studies	Jurisdictions	Averages	Standard Errors	Averages	Standard Errors	Averages	Standard Errors	Averages	Standard Errors	Averages	Standard Errors
PIAAC 2012	Average of All Jurisdictions										
	Austria										
	Canada										
	Czech Republic										
	Denmark										
	Estonia										
	Finland										
	France										
	Germany										
	Ireland										
	Italy										
	Japan										
	Netherlands										
	Norway										
	Poland										
	Republic of Korea										
	Slovak Republic										
	Spain										
	Sweden										

3.C. Edit Report

To edit the report, select the **Edit** command, in the **Action** column, next to the report number (see exhibit 7). (Another way to edit a report is to select the **Edit** tab when you are previewing a report.) The following can be done using the edit function (see exhibit 9):

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, by default, the report is named Report 1, Report 2, etc., or 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, year/study (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, standard deviations,

discrete achievement levels, combined achievement levels, and percentiles. (For further information, see Section 3.G. Statistics Options.)

4. To create a new variable while editing a report, click on **Create New...** under the **Variable** heading. Section 3.D 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.

Exhibit 9. Editing reports

Edit Report

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 Create new ...	Year/Study	Statistic
<input checked="" type="checkbox"/> Select All <input checked="" type="checkbox"/> Average of All Jurisdictions <input checked="" type="checkbox"/> Austria <input checked="" type="checkbox"/> Canada <input checked="" type="checkbox"/> Czech Republic <input checked="" type="checkbox"/> Denmark <input checked="" type="checkbox"/> Estonia	<input type="checkbox"/> Skill use work - Literacy - Read books <input type="checkbox"/> All adults <input checked="" type="checkbox"/> Test language same as native language (derived) <input type="checkbox"/> Proficiency levels - discrete	<input type="checkbox"/> Select All <input checked="" type="checkbox"/> PIAAC 2012	<input checked="" type="checkbox"/> Averages <input type="checkbox"/> Percentages <input type="checkbox"/> Standard Deviations <input type="checkbox"/> Discrete Achievement Levels <input type="checkbox"/> Combined Achievement Levels <input type="checkbox"/> Percentiles

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

TABLE LAYOUT	
Row	Column
<div style="border: 1px solid black; padding: 2px; margin-bottom: 2px;">Years/Studies</div> <div style="border: 1px solid black; padding: 2px;">Jurisdictions</div>	<div style="border: 1px solid black; padding: 2px;">Test language same as native language (derived)</div>

To save changes, make sure to select **Done** in the upper-right portion of the screen before closing the **Edit Report** window. If the **Done** button is not pressed before the Edit window is closed, you may encounter a system error.

3.D. Create New Variables

To create a new variable, select **Edit**, in the **Action** column, and select **Create new...** under **Variable** (see exhibit 9). 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 10).
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 or **Create New Report** window, designated as “collapsed.”
7. Check the box next to the new variable to view it in the report. You can click **Preview** to see how the table will be laid out before retrieving data.

Exhibit 10. Creating new variables

Create Variables X

1. Select a Variable group: Help

Skill use work - Literacy - Read books

2. Select values to create new Variable:

Never

Less than once a month

Less than once a week but at least once a month

At least once a week but not every day

Every day

Don't know

3. Create a name for the new Value:

Name: Create

Reset Cancel Done

A new variable that you create is applicable only to a specific report; it does not apply to the other reports listed on the **Edit Reports** screen. For example, if you selected multiple measures of 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 on the **Edit Reports** screen (copied reports appear at the end of the list of reports) and then, for the new copy, click on **Edit** (using the above example, you can change the measure and give the report a new name). You cannot save the new variable for reference or future use.

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 on next page.)

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 11). If you have chosen four or more variables (not counting **All adults**) you will not get the cross-tabulation. You can click **Preview** to see how the table will be laid out before retrieving data.

Exhibit 11. Edit reports with collapsed variables

The screenshot shows the 'Edit Report' dialog box with the following configuration:

- Name:** Report 1
- Measure:** PIAAC Literacy: Overall scale
- Step 1:** Create a name and select a measure for the new report.
- Step 2:** Select available options from each of the columns below, then preview results.

Jurisdiction	Variable Create new ...	Year/Study	Statistic
<input type="checkbox"/> Select All <input checked="" type="checkbox"/> Average of All Jurisdictions <input checked="" type="checkbox"/> Austria <input checked="" type="checkbox"/> Canada <input checked="" type="checkbox"/> Czech Republic <input checked="" type="checkbox"/> Denmark <input checked="" type="checkbox"/> Estonia	<input type="checkbox"/> Skill use work - Literacy - Read books <input type="checkbox"/> All adults <input type="checkbox"/> Test language same as native language (derived) <input checked="" type="checkbox"/> Skill use work - Literacy - Read books (collapsed) <input type="checkbox"/> Proficiency levels - discrete	<input type="checkbox"/> Select All <input checked="" type="checkbox"/> PIAAC 2012	<input checked="" type="checkbox"/> Averages <input type="checkbox"/> Percentages <input type="checkbox"/> Standard Deviations <input type="checkbox"/> Discrete Achievement Levels <input type="checkbox"/> Combined Achievement Levels <input type="checkbox"/> Percentiles
- Step 3:** Drag and drop header elements between Row and Column to custom design the report.

TABLE LAYOUT	
Row	Column
<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Years/Studies</div> <div style="border: 1px solid black; padding: 2px;">Jurisdictions</div>	<div style="border: 1px solid black; padding: 2px;">Skill use work - Literacy - Read books (collapsed)</div>

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** (see exhibit 12) provides a clean slate for your selections from the first two steps, **Select Criteria** and **Select Variables**. 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.” If you create a second new report, the system will attempt to save it with the “New Report” name again; however, it will fail and will prompt you to enter a different name in the Name text box.

Exhibit 12. Creating new reports

New Report

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

Name: Measure:

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

Jurisdiction	Variable Create new ...	Year/Study	Statistic
<input type="checkbox"/> Select All <input type="checkbox"/> Average of All Jurisdictions <input type="checkbox"/> Austria <input type="checkbox"/> Canada <input type="checkbox"/> Czech Republic <input type="checkbox"/> Denmark <input type="checkbox"/> Estonia	<input type="checkbox"/> Skill use work - Literacy - Read books <input type="checkbox"/> All adults <input type="checkbox"/> Test language same as native language (derived) <input type="checkbox"/> Proficiency levels - discrete	<input type="checkbox"/> Select All <input type="checkbox"/> PIAAC 2012	<input type="checkbox"/> Averages <input type="checkbox"/> Percentages <input type="checkbox"/> Standard Deviations <input type="checkbox"/> Discrete Achievement Levels <input type="checkbox"/> Combined Achievement Levels <input type="checkbox"/> Percentiles

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

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

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 13):

1. **Variable Labels (Long)** displays a more detailed description of the variables selected in a query than the default short label. For variables from the background questionnaire, 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 adults 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 adults. 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** allow 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 average scores 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 of showing standard errors. By default, standard errors are shown inside parentheses, but you have the option of choosing to show them without parentheses. You can preview the effects of your selection in the **Sample Display** area (see the blue-shaded box at the bottom of exhibit 13).

Exhibit 13. Format options

Format Options X

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. [BQ01AUS])

Year Order:

Most recent year first (default)

Oldest year first

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 the choices you make in the **Format Options** window will apply to all reports and cannot be changed for individual reports. Use the **Reset** button, located in the upper-right portion of the main **Edit Reports** screen (just below the **Help** button), to restore the **Format Options** to the default settings (although caution is advised, 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 (with the exception of the **Combined achievement levels** and **Discrete achievement levels**, that cannot be selected at the same time). The selections you make are applicable to all the reports listed, although you can also change the statistics for an individual report when you edit it. (For further information, see Section 3.C. Edit Report.)

The following statistics options are available (see exhibits 14a and 14b):

1. **Averages.** For the PIAAC assessment, adult performance is reported on scales that range from 0 to 500. PIAAC reports the average scale score for a variety of demographic samples of the adult population (e.g., the average scale score in literacy for female adults). Averages for other continuous variables are in the same units as the variables themselves (e.g., average hourly earnings for hourly earnings variable). By default, the standard errors of the scale scores are shown in parentheses.
2. **Percentages.** This statistic shows the percentage of adults as a row percentage. For example, if the first column lists countries, then each country will display its own percentage distribution across its row. 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.
3. **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.
4. **Discrete achievement levels.** Discrete achievement levels are reported as the percentage of adults performing at each PIAAC achievement level. Discrete achievement levels are as follows:
 - For literacy and numeracy: below level 1, at level 1, at level 2, at level 3, at level 4, at level 5, and literacy related non-response (see exhibit 14a).
 - For problem solving in technology-rich environments: below level 1, at level 1, at level 2, at level 3, no computer experience, failed ICT (Information and Communication Technologies) core, refused CBA (computer-based assessment), and literacy related non-response (see exhibit 14b).

NOTE: OECD reports the percentage at each achievement level as the percentage of the full sample. The U.S. national report by NCES displays the percentage at each achievement level as the percentage of those that completed the assessment, i.e., excluding those that did not complete it. You will need to choose **Percentage across full sample** for the Measure category if you want to see the percentages at each achievement level with the non-respondents included (like in the OECD report); and the overall scale

for the Measure if you would like to see the percentage of only those that have responded (like in the U.S. national report by NCES).

5. **Combined achievement levels.** Combined achievement levels are reported as the percentage of adults performing at combined PIAAC achievement levels. Combined achievement levels are as follows:
 - For literacy and numeracy: below level 2, below level 3, low levels (1 and 2), high levels (4 and 5), and at or above level 3.
 - For problem solving in technology-rich environments: below level 2, below level 3, low levels (1 and 2), high levels (2 and 3)

6. **Percentiles.** This statistic shows the threshold (or cutpoint) for the following:
 - 5th percentile – the bottom 5 percent of adults
 - 10th percentile – the bottom 10 percent of adults
 - 25th percentile – the bottom quarter of adults
 - 50th percentile – the median (half the adults scored below the cutpoint and half scored above it)
 - 75th percentile – the top quarter of adults
 - 90th percentile – the top 10 percent of adults
 - 95th percentile – the top 5 percent of adults

Exhibit 14a. Statistics options (literacy and numeracy)

Statistics Options [X]

Selections will automatically be applied to all reports. [Help](#)
Choose up to two statistics to be included in every report.

Select Options:
(maximum of two)

- Averages
- Percentages
- Standard Deviations
- Discrete Achievement Levels
 - Below Level 1
 - At Level 1
 - At Level 2
 - At Level 3
 - At Level 4
 - At Level 5
 - Literacy related non-response
- Combined Achievement Levels
- Percentiles

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

Note:

Exhibit 14b. Statistics options (problem solving in technology-rich environments)

Statistics Options [X]

Selections will automatically be applied to all reports. [Help](#)
Choose up to two statistics to be included in every report.

Select Options:
(maximum of two)

- Averages
- Percentages
- Standard Deviations
- Discrete Achievement Levels
 - Below Level 1
 - At Level 1
 - At Level 2
 - At Level 3
 - No computer experience
 - Failed ICT Core
 - Refused CBA
 - Literacy related non-response
- Combined Achievement Levels
- Percentiles

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

As previously noted, 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.) You can also make a copy of an individual report.

You can use the **Reset** button, located in the upper-right portion of the main **Edit Reports** screen (just below the **Help** button), to restore the **Statistics Options** to the default setting, which is the average for all reports (this will also delete any new reports that you 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 can only be displayed in rows.
- Achievement level results are available only for the composite or overall scale.

Please note that the statistics produced by the IDE may not match the statistics in reports published by the OECD or in the OECD PIAAC IDE, due to differences in certain statistical standards. In particular, NCES and the OECD may differ in the minimum sample sizes required for publishing adult scores, as well as in the requirements for stability of estimates for results to be reportable. For more details on the differences in statistical standards, refer to the technical notes in the NCES First Look report.¹

3.H. Select Reports to Build

As you edit your reports, you can give 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.) You may make copies of reports with these changes. Before proceeding to step 4, **Build Reports**, you can preview each report for which you want to retrieve data by using the **Preview** action. 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 15), data will be retrieved for all reports.

¹ Goodman, M., Finnegan, R., Mohadjer, L., Krenzke, T., and Hogan J. (2013). *Literacy, Numeracy, and Problem Solving in Technology-Rich Environments Among U.S. Adults: Results from the Program for International Assessment of Adult Competencies 2012* (NCES 2014-008). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Exhibit 15. Selecting reports to build

PIAAC Data Explorer **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](#)

Subject, Age: Literacy, Adults **2** → [Reset](#)

Jurisdictions: Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic of Korea, Slovak Republic, Spain, Sweden, United States

Measure: PIAAC Literacy: Overall scale

Variables: Skill use work - Literacy - Read books, All adults, Test language same as native language (derived)

Year/Study: PIAAC 2012

Create New Report		Format Options		Statistics Options			
Report	All	Action	Measure	Variable	Year/Study	Jurisdiction	Statistic
Report 1	<input checked="" type="checkbox"/>	Preview Delete Edit Copy	PIAAC Literacy: Overall scale	Skill use work - Literacy - Read books	PIAAC 2012	Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlan...	Averages
Report 2	<input checked="" type="checkbox"/>	Preview Delete Edit Copy	PIAAC Literacy: Overall scale	All adults	PIAAC 2012	Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlan...	Averages
Report 3	<input checked="" type="checkbox"/>	Preview Delete Edit Copy	PIAAC Literacy: Overall scale	Test language same as native language (derived)	PIAAC 2012	Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlan...	Averages
Cross-Tabulated Report 1	<input checked="" type="checkbox"/>	Preview Delete Edit Copy	PIAAC Literacy: Overall scale	Skill use work - Literacy - Read books, Test language same as native language (derived)	PIAAC 2012	Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlan...	Averages
Copy of Report 1	<input checked="" type="checkbox"/>	Preview Delete Edit Copy	PIAAC Literacy: Overall scale	Skill use work - Literacy - Read books	PIAAC 2012	Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlan...	Averages

3 → [4. Build Reports](#)

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If you wish to delete a report from the list of reports, click **Delete** (see 1 in exhibit 15) in the **Action** column. Use the **Reset** button (see 2 in exhibit 15), located in the upper-right portion of the screen (just below the **Help** button), to restore the deleted reports with the criteria and variables selected in the previous steps (although caution is advised, as this will not restore any new reports or variables that you created in the session and will delete any new reports and variables that you most recently created; the **Reset** action will also 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 (see 3 in exhibit 15) or the tab at the top of the page to go to the next screen.

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 data for just average scale scores and for the **All Adults** 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 16). By default, all reports are checked, although 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.)
2. Export and save data tables into various formats using the **Export Reports** button (see 2 in exhibit 16). The output formats include HTML (print-friendly), Microsoft Word, Microsoft Excel, and Adobe PDF (in NCES PIAAC only)
3. Select the **Chart** tab (see 3 in exhibit 16) 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 16) to run a significance test on your results and customize it.

Exhibit 16. Building reports overview

PIAAC Data Explorer | 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, Age: Literacy, Adults
Jurisdictions: Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Japan, Netherlands, Norway, Poland, Republic of Korea, Slovak Republic, Spain, Sweden, United States
Measure: PIAAC Overall scale
Variables: Skill Literacy - Read books, All adults, Test language same as native language (derived)
Year/Study: PIAAC 2012

1 Select Report: Report 1 [Link to this Page](#) 2 Export Reports

3 Table 4

Chart Significance Test Gap Analysis Regression Analysis

Averages for literacy, Adults by Skill use work - Literacy - Read books [GQ01E], year and jurisdiction: PIAAC 2012

Year/Study	Jurisdiction	Never		Less than once a month		Less than once a week but at least once a month		At least once a week but not every day		Every day		Don't know	
		Average	Standard Error	Average	Standard Error	Average	Standard Error	Average	Standard Error	Average	Standard Error	Average	Standard Error
PIAAC 2012	Average of All Jurisdictions	270	(0.2)	289	(0.4)	291	(0.7)	286	(0.7)	285	(0.7)	—	(+)
	Austria	265	(1.0)	288	(1.8)	291	(2.5)	291	(3.2)	285	(3.5)	±	(+)
	Canada	271	(0.7)	291	(1.5)	290	(2.3)	285	(2.4)	283	(2.2)	±	(+)
	Czech Republic	272	(1.3)	292	(3.4)	292	(4.1)	284	(4.0)	286	(4.6)	±	(+)
	Denmark	268	(1.0)	289	(1.2)	291	(3.0)	287	(2.3)	282	(3.0)	±	(+)
	Estonia	272	(1.0)	290	(1.6)	293	(2.1)	290	(2.6)	279	(3.0)	±	(+)
	Finland	286	(1.2)	303	(1.3)	312	(2.6)	306	(2.8)	297	(3.4)	±	(+)
	France	261	(0.8)	282	(1.7)	278	(2.9)	268	(2.9)	275	(2.8)	±	(+)
	Germany	264	(1.2)	292	(1.7)	294	(2.7)	282	(3.1)	286	(3.0)	±	(+)
	Ireland	267	(1.3)	287	(2.2)	284	(3.1)	277	(3.0)	281	(2.6)	±	(+)
	Italy	249	(1.5)	269	(3.1)	271	(4.4)	274	(4.1)	278	(3.9)	±	(+)
	Japan	291	(1.1)	302	(1.4)	304	(1.7)	303	(2.0)	307	(2.6)	±	(+)
	Netherlands	283	(1.0)	306	(1.6)	298	(3.4)	303	(4.1)	292	(5.2)	±	(+)
	Norway	276	(1.0)	295	(1.5)	299	(2.2)	289	(3.0)	285	(2.9)	±	(+)
	Poland	265	(1.0)	286	(2.8)	294	(3.7)	290	(3.6)	285	(4.0)	±	(+)
	Republic of Korea	259	(1.3)	281	(1.7)	280	(1.5)	282	(1.3)	285	(2.1)	±	(+)

4.B. View Reports as Data Tables

Once you click on **Build Reports**, the sentence “Some queries may take up to two minutes to process.” 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 on your browser during this stage. Your table will appear once the processing is complete. To select a different table to view, go to the **Select**

Report drop-down menu (see 1 in exhibit 16) and choose the table of interest. 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 17. Processing data

The screenshot shows the 'PIAAC Data Explorer' interface, specifically the '4. Build Reports' step. The navigation tabs are '1. Select Criteria', '2. Select Variables', '3. Edit Reports', and '4. Build Reports'. The main content area displays the following information:

- 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.
- Subject, Age:** Literacy, Adults
- Jurisdiction:** Average of All Jurisdictions
- Measure:** PIAAC Literacy: Overall scale
- Variable:** All adults
- Years/Studies:** PIAAC 2012, ALL 2003, IALS 1994

Below this information, there is a 'Select Report:' dropdown menu currently set to 'Report 1'. To the right of the dropdown are two buttons: 'Link to this Page' and 'Export Reports'. A 'Table' tab is selected, and below it are four buttons: 'Chart', 'Significance Test', 'Gap Analysis', and 'Regression Analysis'. A progress bar indicates 'Progress: 1%' with a 'Cancel' button below it. A loading spinner and the text 'Some queries may take up to two minutes to process. Please do not hit the "Back" button while processing.' are displayed at the bottom of the main content area.

4.C. Charts

To create a chart, go to **Select Report** on the **Build Reports** screen to choose the report of interest from the drop-down menu, and then click the **Chart** link (see exhibit 18).

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

Exhibit 18. Viewing reports as charts

PIAAC Data Explorer | 1. Select Criteria | 2. Select Variables | 3. Edit Reports | **4. Build Reports** | Help

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.

Subject, Age: Literacy, Adults
Jurisdictions: Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic of Korea, Slovak Republic, Spain, Sweden, United States
Measure: PIAAC Literacy: Overall scale
Variables: Skill use work - Literacy - Read books, All adults, Test language same as native language (derived)
Year/Study: PIAAC 2012

[Link to this Page](#) Export Reports

Select Report: Report 1

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

4.D. Create Charts – Data Options

When you click **Chart**, your screen will present **Data Options** (see exhibit 19) pertaining to **Statistic**, **Year/Study**, and **Jurisdiction**. All are selected by default, except that you can have only one statistic. 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 19. Data options for charts

PIAAC Data Explorer 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, Age: Literacy, Adults
Jurisdictions: Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic of Korea, Slovak Republic, Spain, Sweden, United States
Measure: PIAAC Literacy: Overall scale
Variables: Skill use work - Literacy - Read books, All adults, Test language same as native language (derived)
Year/Study: PIAAC 2012

[Link to this Page](#) Export Reports

Select Report: Report 1

Table Chart1 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"/> Combined Achievement Levels <input type="radio"/> Discrete Achievement Levels <input type="radio"/> Percentiles	<input checked="" type="checkbox"/> Year/Study <input checked="" type="checkbox"/> 2012	<input checked="" type="checkbox"/> International <input checked="" type="checkbox"/> Average of All Jurisdictions <input checked="" type="checkbox"/> OECD National Entities <input checked="" type="checkbox"/> Austria <input checked="" type="checkbox"/> Canada <input checked="" type="checkbox"/> Czech Republic <input checked="" type="checkbox"/> Denmark <input checked="" type="checkbox"/> Estonia <input checked="" type="checkbox"/> Finland

Chart Options

4.E. Create Charts – Chart Options

On the **Chart Options** screen, select **Bar Chart**, **Column Chart**, or **Line Chart** (see exhibit 20). For data on achievement levels, you also have the option of selecting a **Discrete Chart** or **Cumulative Chart**, while for percentiles you also have the option of selecting a **Percentile 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 (by clicking the checkbox next to them) and pressed **Done** after you edited the report.

Enter a **Chart Name** limited to 25 characters, using only letters, numbers, spaces, underscores, and hyphens (otherwise, by default, the chart is named “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 20. Chart options

PIAAC Data Explorer 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

PIAAC International Data Explorer
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, Age: Literacy, Adults
Jurisdictions: Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic of Korea, Slovak Republic, Spain, Sweden, United States
Measure: PIAAC Literacy: Overall scale
Variables: Skill use work - Literacy - Read books, All adults, Test language same as native language (derived)
Year/Study: PIAAC 2012

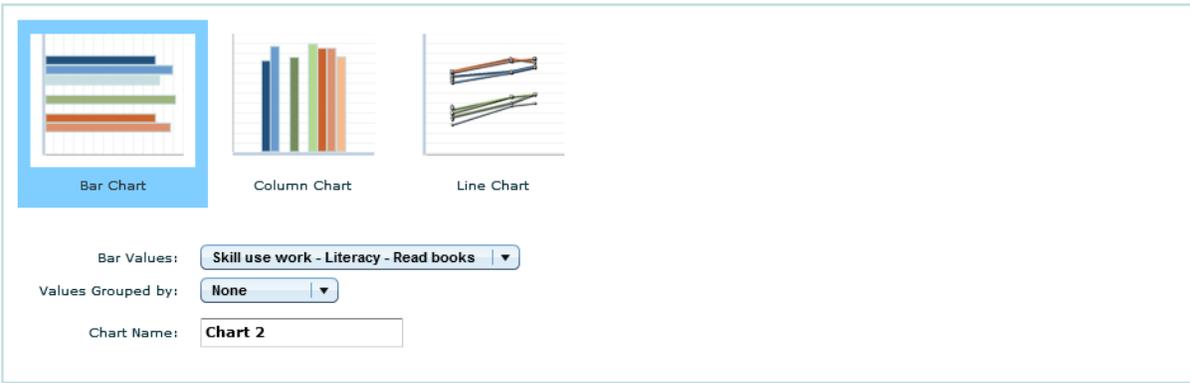
Select Report: Report 1 [Link to this Page](#) [Export Reports](#)

Table Chart 1 X Chart 2 X

Chart Significance Test Gap Analysis Regression Analysis

Chart Options

Choose an available chart type based on selected data. Choose data dimensions from the drop-down menus and name the chart, then preview the chart. To select different data return to Data Options.



Bar Chart Column Chart Line Chart

Bar Values: Skill use work - Literacy - Read books

Values Grouped by: None

Chart Name: Chart 2

[Data Options](#) [Preview](#)

While previewing your chart, you can do the following (see exhibit 21 as an example of a **Percentile Chart** and exhibit 22 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—especially if you didn't previously specify in the data dimensions how you want your values grouped.
2. Place your cursor over the bars of the chart to see the data points and value label(s).
3. For the **Bar Chart**, 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 **Percentile Chart**, choose between **Color** and **Grayscale**.
4. Change the color of the bars with a single click on each level in the bars, which brings up a thumbnail of a color chart. Click on the thumbnail to reveal a color grid, and then select the color you desire.
5. Change the pattern of the bars with a single click on each level in the bars. Continuous clicking brings up many patterns to choose from.

Exhibit 21. Preview of percentile chart

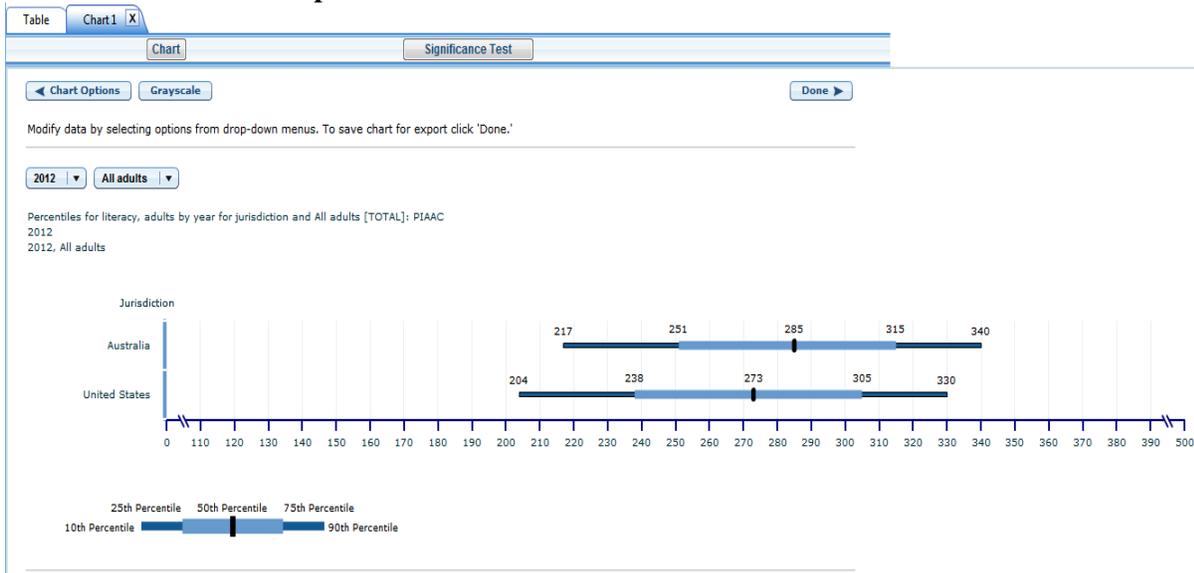
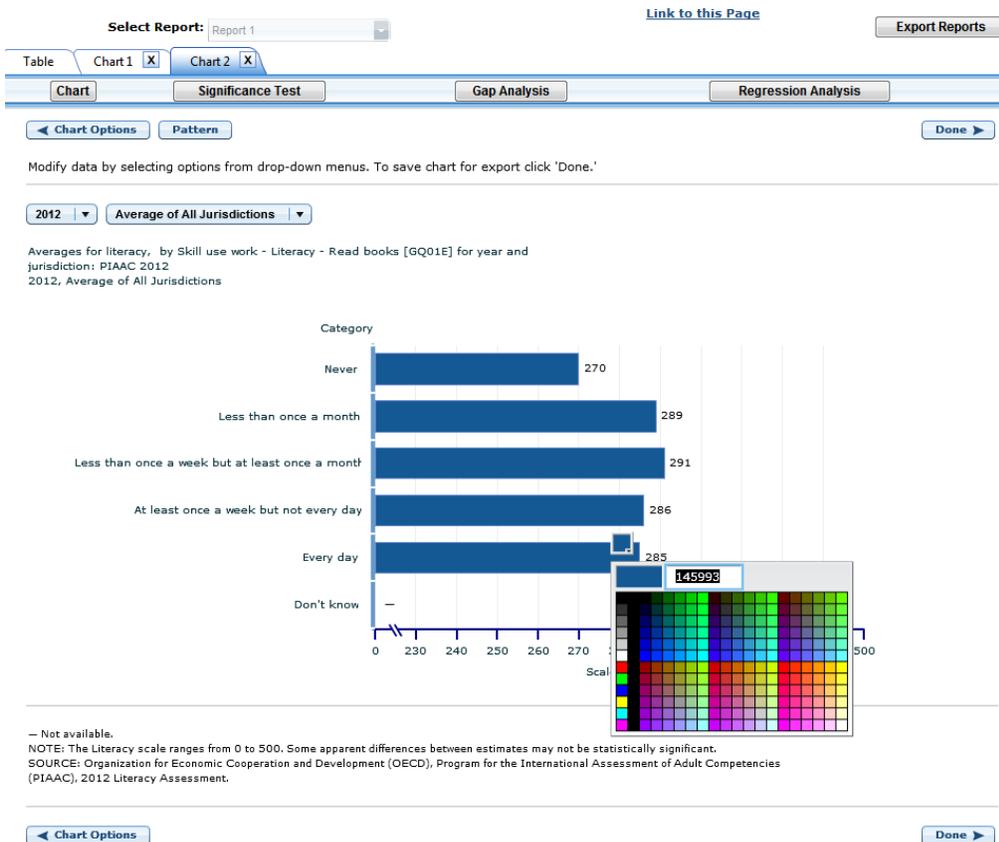


Exhibit 22. Preview of bar chart

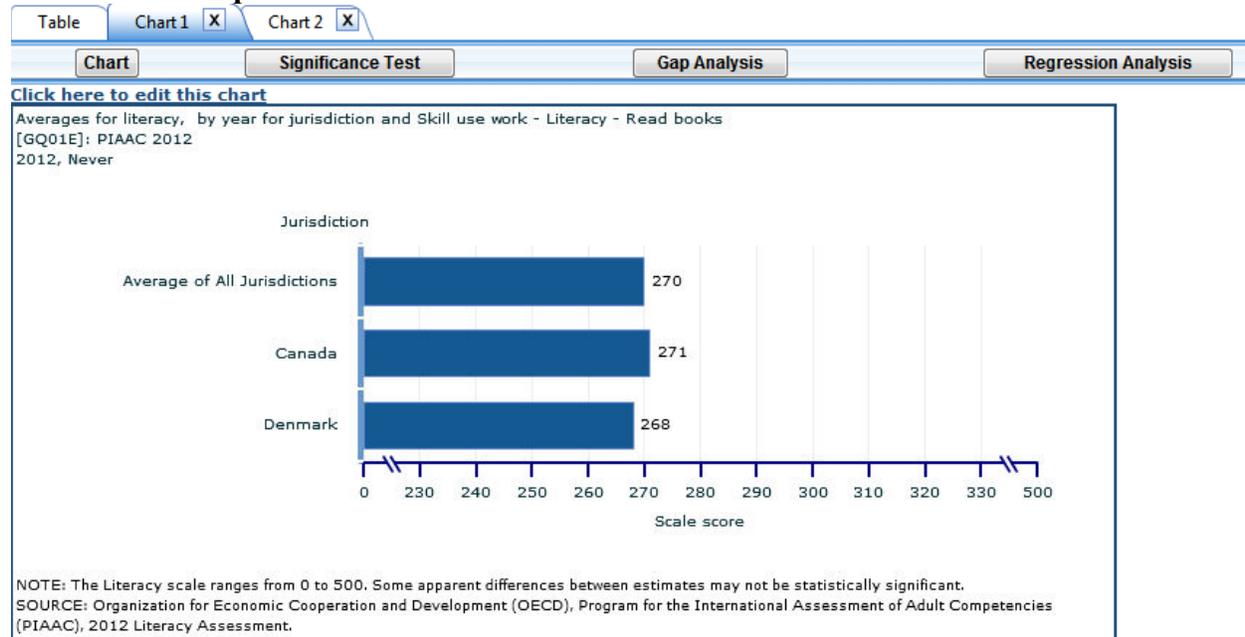
Subject, Age: Literacy, Adults
Jurisdictions: Average of All Jurisdictions, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Republic of Korea, Slovak Republic, Spain, Sweden, United States
Measure: PIAAC Literacy: Overall scale
Variables: Skill use work - Literacy - Read books, All adults, Test language same as native language (derived)
Year/Study: PIAAC 2012



Click the **Done** button located on the right side of the screen, or click back to **Chart Options** to change your selection criteria (see exhibit 22). You must click **Done** if you wish to later save and/or print your chart via the **Export Reports** function.

Clicking **Done** takes you to the exportable version of the chart (see exhibit 23). You can subsequently “**Click here to edit this chart**” (located in the upper-left corner, below the **Chart** link) to make more changes. Alternatively, clicking anywhere in the chart area will take you to the edit screen.

Exhibit 23. Completed chart



To make an additional chart from the same report or table, click the **Chart** link on the **Build Reports** screen. It is recommended that you provide a new chart name (the default is Chart 1, Chart 2, etc.). If you do not start the chart 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 a different report from the **Select Report** drop-down list. If you do not see the other reports that you would like to make charts from, they may not have been selected in step 3, **Edit Reports**; go back to step 3 and check the reports you want to use for making charts. 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. Otherwise, you will lose the charts you have created when going back to step 1, **Select Criteria**. (For further information, see Section 4.G. Export Reports.)

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 23). You first need to decide which variable you want to test and the criterion by which you want to test it (i.e., between jurisdictions, within variables, 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 two or more jurisdictions) or you can look across the values within a variable for a single jurisdiction. 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 24):

1. In the **Significance Test** window, select **Between Jurisdictions**, **Within Variables**, or **Across Years**. Then, select the appropriate jurisdiction(s), variable(s), one or more of the years and studies, 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/study needs to be selected.
2. Enter a **Name** limited to 25 characters, using only letters, numbers, spaces, underscores, and hyphens (otherwise, by default, the test is named “Sig Test 1”).
3. Select the output type as either **Table** or **Map** or **Comparison**. The table option will show the significance test results as a matrix. The comparison option will show the jurisdictions selected which are significantly higher, not different, or lower to each other in score and statistical significance. The map option will show the significance test results on a world map, highlighting the selected countries different from the one that has been identified as the benchmark. Identifying a benchmark country is done on the map itself (see exhibit 26). The map output is only available when **Between Jurisdictions** is selected in the first step.
4. Additional options allow you to select **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, 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 24. Significance test options

Loading ...
X

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:

3. Select the output type.
  Table
  Map

4. Select additional options. Show score details

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

Jurisdiction	Variable	Year	Statistic
<input checked="" type="checkbox"/> All Jurisdictions	<input checked="" type="checkbox"/> Skill use work - Literacy - Read books	<input checked="" type="checkbox"/> PIAAC 2012	<input checked="" type="checkbox"/> Averages
<input checked="" type="checkbox"/> Average of All Jurisdictions	<input checked="" type="checkbox"/> Never		
<input checked="" type="checkbox"/> Austria	<input checked="" type="checkbox"/> Less than once a month		
<input checked="" type="checkbox"/> Canada	<input checked="" type="checkbox"/> Less than once a week but at least once a month		
<input checked="" type="checkbox"/> Czech Republic	<input checked="" type="checkbox"/> At least once a week but not every day		
<input checked="" type="checkbox"/> Denmark	<input checked="" type="checkbox"/> Every day		

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 25). Most comparisons are independent with an alpha level of .05, except for within-country comparisons on any given year, which are dependent with an alpha level of .05.

PIAAC 2012, ALL 2003, and IALS 1994 are linked assessments. That is, the sets of items used to assess literacy, numeracy and problem solving in technology-rich environments in these years and studies include a subset of common items, referred to as link items. To establish common reporting metrics for PIAAC, the difficulty of the link items, measured on different occasions, is compared. The comparison of the item difficulties on the different occasions is used to determine a score transformation that allows the reporting of the data on a common scale.

As each item provides slightly different information about the link transformation, it follows that the chosen sample of link items will influence the estimated transformation. The consequence is

an uncertainty in the transformation due to the sampling of link items, just as there is an uncertainty in country means due to the sampling of adults.

The uncertainty that results from the link-item sampling is referred to as linking error, and this error must be taken into account when making certain comparisons using the PIAAC 2012, ALL 2003, and IALS 1994 data. As with sampling errors, the likely range of magnitude for the errors is represented as a standard error. Significance tests for scores across years within the IDE take into account the linking errors applicable to each subject.

Exhibit 25. Significance test table output

To see how one value compares with the others, read across the row for that value. The displayed symbols indicate whether that value is significantly higher, significantly lower, or not significantly different than the value associated with that column. In some cases the significance test may have not been possible for statistical reasons.

Literacy, Adults
Difference in averages between jurisdictions, for Skill use work - Literacy - Read books [GQ01E] = Never
PIAAC 2012

	Average of All Jurisdictions	Austria	Canada
Average of All Jurisdictions		> Diff = 5 (1.0) P-value = 0.0000	x Diff = -1 (0.7) P-value = 0.1188
Austria	< Diff = -5 (1.0) P-value = 0.0000		< Diff = -6 (1.2) P-value = 0.0000
Canada	x Diff = 1 (0.7) P-value = 0.1188	> Diff = 6 (1.2) P-value = 0.0000	

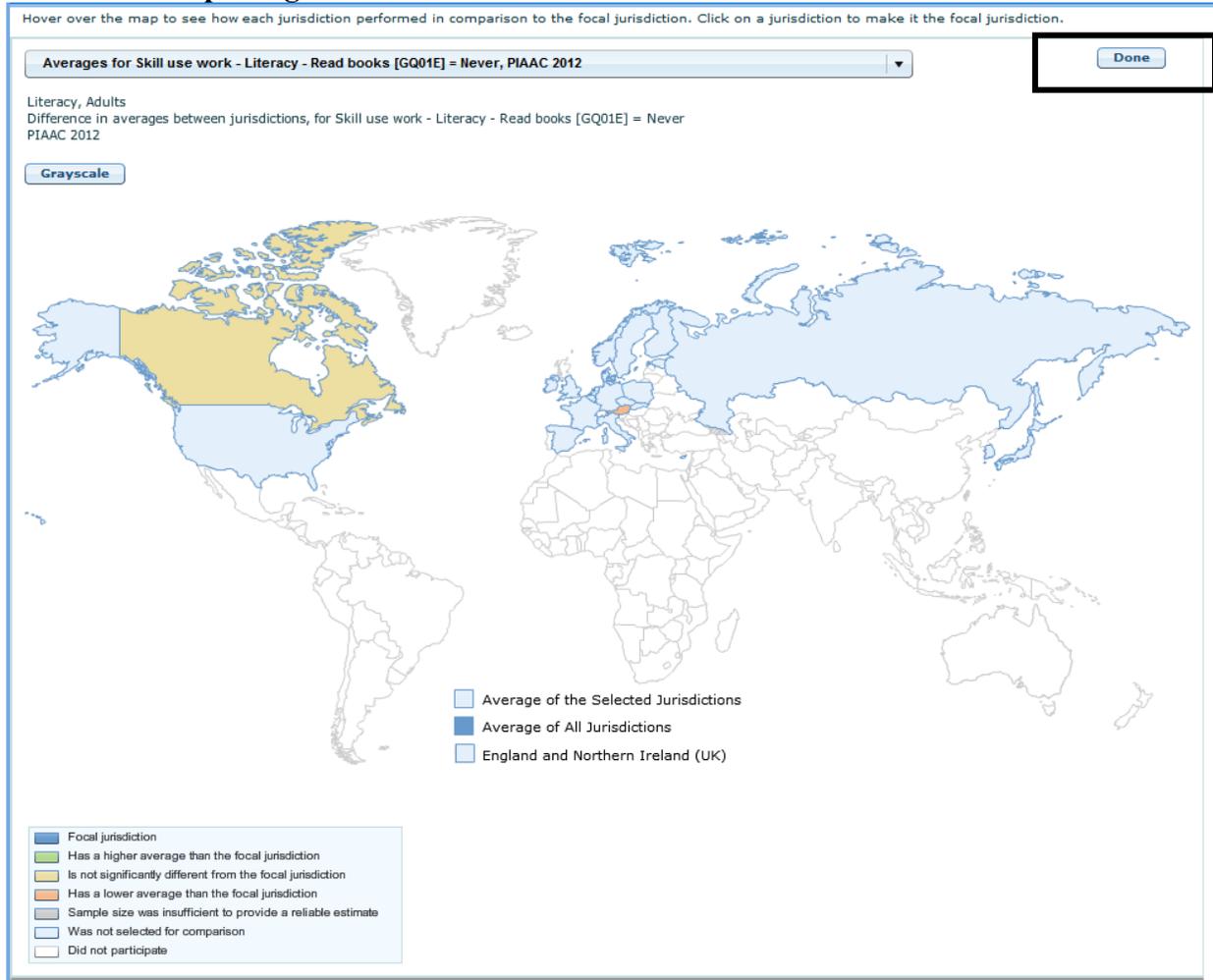
LEGEND:

<	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.
SOURCE: Organization for Economic Cooperation and Development (OECD), Program for the International Assessment of Adult Competencies (PIAAC), 2012 Literacy Assessment.

When the map option is selected, a global map is shown with the selected countries shaded (see exhibit 26). 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. (Note that a lighter shade of blue is the default color for countries categorized as “not selected for comparison.”) 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 selecting another country of your choosing.

Exhibit 26. Map of significance tests



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 27. Gap analysis link selection

Table | Sig Test 1 | Chart 1 | Chart 2 | Sig Test 2

Chart | **Significance Test** | **Gap Analysis** | Regression Analysis

Averages for literacy, Adults by Skill use work - Literacy - Read books [GQ01E], year and jurisdiction: PIAAC 2012

Year/Study	Jurisdiction	Never		Less than once a month		Less than once a week but at least once a month		At least once a week but not every day		Every day		Don't know	
		Average	Standard Error	Average	Standard Error	Average	Standard Error	Average	Standard Error	Average	Standard Error	Average	Standard Error
PIAAC 2012	Average of All Jurisdictions	270	(0.2)	289	(0.4)	291	(0.7)	286	(0.7)	285	(0.7)	—	(†)
	Austria	265	(1.0)	288	(1.8)	291	(2.5)	291	(3.2)	285	(3.5)	+	(†)
	Canada	271	(0.7)	291	(1.5)	290	(2.3)	285	(2.4)	283	(2.2)	+	(†)
	Czech Republic	272	(1.3)	292	(3.4)	292	(4.1)	284	(4.0)	286	(4.6)	+	(†)
	Denmark	268	(1.0)	289	(1.2)	291	(3.0)	287	(2.3)	282	(3.0)	+	(†)
	Estonia	272	(1.0)	290	(1.6)	293	(2.1)	290	(2.6)	279	(3.0)	+	(†)
	Finland	286	(1.2)	303	(1.3)	312	(2.6)	306	(2.8)	297	(3.4)	+	(†)

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 27). You will need to decide which variable you would like to test (e.g., gender) and the basis to use for comparison (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 literacy 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 28. 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 score details. Show score details

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

Jurisdiction	Variable	Year	Statistic
<input checked="" type="checkbox"/> All Jurisdictions	<input checked="" type="checkbox"/> About yourself - Health - State	<input checked="" type="checkbox"/> PIAAC 2012	<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 28). 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 29 shows the difference between jurisdictions in the average literacy score gap between adults who report an excellent or poor health state.

The gap analysis function computes and statistically tests differences between 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 29. Gap analysis output

Literacy, Adults Differences between jurisdictions for gaps in averages between About yourself - Health - State [IQ08]=Excellent and About yourself - Health - State [IQ08]=Poor PIAAC 2012					
	Selected countries and jurisdictions	Austria	Italy	Sweden	United States
Selected countries and jurisdictions		Diff = ^x -7.4 (5.0) P-value = 0.1371	Diff = ^{>} 17.4 (4.9) P-value = 0.0004	Diff = ^x -2.4 (6.5) P-value = 0.7111	Diff = ^x -2.7 (4.5) P-value = 0.5422
Austria	Diff = ^x 7.4 (5.0) P-value = 0.1371		Diff = ^{>} 24.8 (6.8) P-value = 0.0003	Diff = ^x 5 (8.0) P-value = 0.5311	Diff = ^x 4.7 (6.5) P-value = 0.4715
Italy	Diff = ^{<} -17.4 (4.9) P-value = 0.0004	Diff = ^{<} -24.8 (6.8) P-value = 0.0003		Diff = ^{<} -19.8 (8.0) P-value = 0.0131	Diff = ^{<} -20.1 (6.5) P-value = 0.0018
Sweden	Diff = ^x 2.4 (6.5) P-value = 0.7111	Diff = ^x -5 (8.0) P-value = 0.5311	Diff = ^{>} 19.8 (8.0) P-value = 0.0131		Diff = ^x -0.3 (7.7) P-value = 0.9657
United States	Diff = ^x 2.7 (4.5) P-value = 0.5422	Diff = ^x -4.7 (6.5) P-value = 0.4715	Diff = ^{>} 20.1 (6.5) P-value = 0.0018	Diff = ^x 0.3 (7.7) P-value = 0.9657	
LEGEND:					
<	Has a significant negative difference.				
>	Has a significant positive difference.				
x	No significant difference.				
NOTE: For gap analysis tables, all comparisons are independent tests with an alpha level of 0.05.					

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 30).

Exhibit 30. Regression analysis link selection

The screenshot shows the 'PIAAC Data Explorer' interface at the '4. Build Reports' step. The main content area displays report details for 'Subject, Age: Literacy, Adults', including a list of jurisdictions, the measure (PIAAC Literacy: Overall scale), variables (All adults, About yourself - Health - State), and the year/study (PIAAC 2012). A 'Select Report' dropdown menu is set to 'Report 2'. Below this, a navigation bar contains buttons for 'Table', 'Chart', 'Significance Test', 'Gap Analysis', and 'Regression Analysis'. The 'Regression Analysis' button is highlighted with a black rectangular box. At the bottom, a footer line reads: 'Averages for literacy, Adults by About yourself - Health - State [IQ08], year and jurisdiction: PIAAC 2012'.

The general steps for running a regression analysis are as follows (see exhibit 31):

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 31: 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
<input type="radio"/> Selected countries and jurisdictions <input checked="" type="radio"/> Austria <input type="radio"/> Canada <input type="radio"/> Czech Republic <input type="radio"/> Denmark ...	<input checked="" type="radio"/> PIAAC 2012	<input type="checkbox"/> All Variables <input checked="" type="checkbox"/> About yourself - Health - State

Cancel Done

After you have clicked **Done**, your regression analysis output will load onto the screen (see exhibit 32). 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 32, the reference group for the independent variable **About yourself – Health – State [IQ08]** is the subgroup “Excellent”, and is coded as 0. Except for the reference group, each subgroup (e.g., “Very Good”; “Good”; “Fair”; and “Poor”) is contrast coded in a separate dummy variable (code 1) against all the other subgroups (e.g., “Poor”) of the variable (coded 0).

Exhibit 32. Regression analysis output

Literacy, Adults 2012							
Dependent Variable: PIAAC Literacy: Overall scale							
Independent Variable(s): About yourself - Health - State [IQ08]							
Contrast Coding Reference Group: Excellent Austria							
Multiple Correlation	0.28						
R Squared	0.08						
	Degrees of Freedom	Mean square	F Ratio	P Value			
Model	4	206948758.1	66.53	0			
Error	3177.37	3110747.24					
	Standardized Regression Coefficients	S.E. of Standardized Coefficients	Regression Coefficients	S.E. of Regression Coefficients	T Statistic	Probability	Significance
Intercept	0	0	280.1391	1.5164	184.7434	0	>
About yourself - Health - State							
Very good	-0.022	0.0221	-2.0416	2.0478	-0.997	0.3218	x
Good	-0.1738	0.0206	-17.1264	2.0489	-8.3589	0	<
Fair	-0.2151	0.0168	-27.8674	2.1488	-12.9686	0	<
Poor	-0.1977	0.0204	-49.1751	4.8477	-10.144	0	<
	Mean	SD					
PIAAC Literacy: Overall scale	269.45	43.96					
	Percentage	SD					
About yourself - Health - State							

Using the output from exhibit 32 you can compare the mean literacy achievement of adults who self-reported an “Excellent” health state to the mean literacy achievement of those who reported “Very Good”, “Good”, “Fair”, and “Poor” health state. When a single dummy-coded variable is used in a regression, the *intercept* is the mean of the reference group (e.g., 280.1391), 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., -49.1751 for “Poor” health state). 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 significant.

4.I. Export Reports

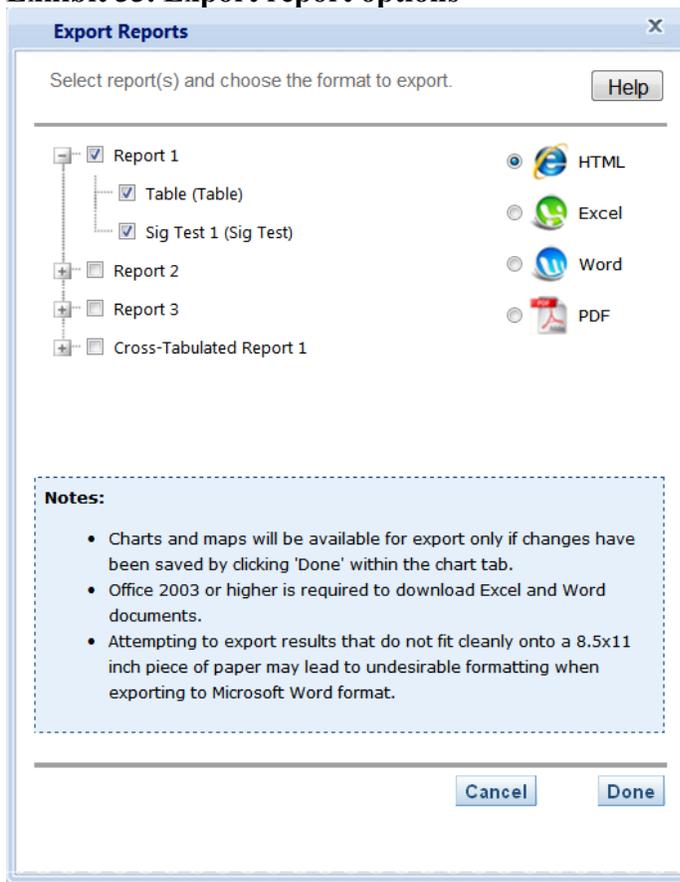
Click on the **Export Reports** button/arrow located on the right side of the **Build Reports** screen to save or print your tables, charts, and significance tests. The report names that appear in the **Export Reports** window are those that were checked off at step 3, **Edit Reports**.

Check the files you want to export, and select one of the file formats: **HTML** (print-friendly), **Excel**, **Word**, or **PDF** (in NCES PIAAC IDE only) (see exhibit 33). 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 the software errors to resolve.

Charts or maps for each report will only be available on the **Export Reports** menu if you saved them by clicking **Done** when you finished each one (see exhibit 26). If a chart or map that you wish to save or print is grayed out (not available for selection), cancel the **Export Reports** tool, go back to your chart or map, and be sure to click **Done** on the last screen. After that, it will be available for export.

Exhibit 33. 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. If you return to prior screens to edit the table formats or change variables or criteria, you will overwrite the tables and charts.

V. PIAAC International Data Explorer 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 the statistical methods used to assess them.

These topics include the following:

- Criteria
 - Subject
 - Year/Study
 - Measure
 - Jurisdiction
- Variables
- Statistics options
 - Average scale scores
 - Percentages
 - Standard deviations
 - Discrete achievement levels
 - Combined achievement levels
 - Percentiles
- Cross-tabulations
- Statistical notations and other notes

1. Criteria

Each data query must include at least one selection from four criteria choices: subject, year/study, measure, and jurisdiction. Shown below is an outline of these selection criteria followed by a brief description.

1. Subject:
 - Literacy
 - Numeracy
 - Problem solving TRE
2. Year/Study:
 - PIAAC 2012 (data available for literacy, numeracy and problem solving in technology-rich environments)
 - ALL 2003 (data available for literacy and numeracy)
 - IALS 1994 (data available for literacy)

3. Measure:

- PIAAC Literacy: Overall scale
 - 1. PIAAC Reading Components scale
- PIAAC Numeracy: Overall scale
- PIAAC Problem solving in technology-rich environments: Overall scale
- Other continuous variables from the background questionnaire, including International variables, Derived variables, and U.S. National adaptations and additions to the International background questionnaire.

4. Jurisdiction:

- Average of All Jurisdictions
- Average of the Selected Jurisdictions
- OECD National Entities
- OECD Sub-National Entities
- Partners (in literacy and numeracy)

Subject

PIAAC assesses three major domains: Literacy, Numeracy, Problem solving in technology-rich environments (TRE), which can be selected in the **Subject** drop down menu.

Measures

You can choose the overall scale, which is each subject's default measure in the PIAAC IDE or there are also a number of continuous variables other than scale scores that you may choose as a measure of analysis. These variables are continuous variables from the international and U.S. national background questionnaire (such as earnings or hours of work per week) and derived variables from PIAAC, ALL, and IALS. Derived variables from PIAAC include indices of literacy, numeracy, and computer use at work and at home and imputed years of formal education, among others.

A fourth domain, called Reading Components, measures literacy at the very low end of the spectrum, in areas such as sentence completion, passage comprehension, and vocabulary. This domain was given to respondents who decided not to take the computer-based assessment or who did not pass a set of core information and computer technology tasks and a set of core literacy/numeracy tasks.

The adults in the sample population that did not answer the assessment will be displayed along with those that did answer the assessment if you select **Percentage across full sample** under the **Population** category.

Year/Study

Currently, data availability in the IDE is dependent on the measure selected. If the measure chosen is the literacy scale, you can choose one or more years and studies between PIAAC 2012,

ALL 2003, and IALS 1994. If the measure chosen is the numeracy scale, you can choose PIAAC 2012 and/or ALL 2003. If you choose the problem solving in technology-rich environments (TRE) scale, data are only available for PIAAC 2012.

Jurisdictions

All listed jurisdictions can be selected for any analyses, provided data are available for the selected year. In PIAAC 2012, a total of 23 jurisdictions participated. Jurisdictions include some subnational entities, such as England/N. Ireland. Data are not available for some of these 23 jurisdictions for ALL 2003 or IALS 1994, either because they did not participate in that assessment or because their data were suppressed due to reporting standards not being met.

Data are available for 6 jurisdictions in ALL 2003, and 14 jurisdictions in IALS 1994. Jurisdictions for which data are not available for a selected year are identified by the icon representing “no data”——.

2. Variables

PIAAC requires in-person interviews to complete the background questionnaire, before administering the direct assessments (i.e., literacy, numeracy, reading components, and/or problem solving in technology-rich environments (TRE)). In the PIAAC IDE, measures are derived from two instruments: the computer-based assessment (CBA), given to respondents who were comfortable taking the assessment on a computer, and the paper-based assessment (PBA), given to respondents that were not familiar with computers or chose not to take the assessment on a computer. Variables derived from the background questionnaire were administered to each participating adult. Variables are organized into categories that have shared characteristics and can be selected as a group (category) when examining 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.

Note that some variables might be similar in content, but not comparable over the years, either due to differences in the question asked or differences in their response categories. The icon representing “no data”——will help in identifying the year for which the variable has data available for analysis. Except for the estimates for **All adults**, the variables that can be compared across years are located under a special category called **Trend Variables**, sub-category **Trends to IALS and ALL**. Note that common variables such as age and gender, among others, can appear in other categories and sub-categories with the “no data” icon, but have data when selected under the **Trends Variables** category.

3. Statistics Options

The IDE reports PIAAC data with several statistics options:

- Averages

- Percentages
- Standard deviations
- Achievement levels – (discrete and combined)
- Percentiles

Averages

For the PIAAC assessment, adult performance is reported on scales that range from 0 to 500.

Reports on the scale scores can show the standard errors (in parentheses) which can accompany estimates of percentages, standard deviations, discrete and combined achievement levels, and percentiles, if selected in the Statistics Options menu.

PIAAC scales are produced using item response theory (IRT) to estimate average scores for literacy, numeracy, and problem solving in technology-rich environments (TRE) 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 the adults' achievement in answering other questions. That is, all participants' responses to the assessment questions are compiled and analyzed to determine the percentage of adults responding correctly to each multiple-choice question and the percentage of adults achieving each of the score categories for constructed-response questions.

Percentages

This statistic shows the percentage of adults as a row percentage. For example, if the first column lists countries, then each country will display its own percentage distribution across its row. By default, percentage distributions do not include missing data, although there is an option to include them.

The adults in the sample population that did not answer the assessment will be displayed along with those that did answer the assessment if you select **Percentage across full sample** under the **Population** category.

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.

Achievement levels (discrete and combined)

In addition to average scale scores, achievement results for PIAAC are reported using achievement levels for literacy, numeracy, and problem solving in technology-rich environments (TRE). Discrete achievement levels are reported as the percentage of adults performing at each

PIAAC achievement level. Combined achievement levels are reported as the percentage of adults performing at combined PIAAC achievement levels (such as levels 1 and 2 together, or levels 4 and 5 together). Increasing levels represent the knowledge, skills, and capabilities needed to perform tasks of increasing complexity. As a result, the findings are reported in terms of percentages of the adult population at each of the predefined levels.

Literacy and numeracy results in PIAAC 2012, ALL 2003, and IALS 1994 were reported using five achievement levels: level 1, level 2, level 3, level 4, and level 5. A sixth level, below level 1, was established to include adults whose abilities could not be accurately described based on their responses. When using discrete achievement levels for literacy and numeracy scales, a 7th level, literacy related non-response, is also available. The number of achievement levels in problem solving in technology-rich environments (TRE) differs from the number in literacy and numeracy for PIAAC 2012, ALL 2003 and IALS 1994, where three achievement levels were used: level 1, level 2, and level 3. A fourth level, below level 1, was established to include adults whose abilities could not be accurately described based on their responses. Four other levels are also available in problem solving in technology-rich environments (TRE) discrete achievement levels: no computer experience, failed ICT core, refused CBA, and literacy related non-response (which are further explained in the Description of PIAAC problem solving in technology-rich environments (TRE) achievement levels table below.)

Descriptions that characterize typical adult performance in literacy, numeracy, and problem solving in technology-rich environments (TRE) at each achievement level available in the IDE are shown in the following tables.

Description of PIAAC literacy discrete achievement levels

Achievement level and score range	Task descriptions
Below Level 1 0 – 175	The tasks at this level require the respondent to read brief texts on familiar topics to locate a single piece of specific information. There is seldom any competing information in the text and the requested information is identical in form to information in the question or directive. The respondent may be required to locate information in short continuous texts. However, in this case, the information can be located as if the text were non-continuous in format. Only basic vocabulary knowledge is required, and the reader is not required to understand the structure of sentences or paragraphs or make use of other text features. Tasks below Level 1 do not make use of any features specific to digital texts.

<p>Level 1 176 – 225</p>	<p>Most of the tasks at this level require the respondent to read relatively short digital or print continuous, non-continuous, or mixed texts to locate a single piece of information that is identical to or synonymous with the information given in the question or directive. Some tasks, such as those involving non-continuous texts, may require the respondent to enter personal information onto a document. Little, if any, competing information is present. Some tasks may require simple cycling through more than one piece of information. Knowledge and skill in recognizing basic vocabulary determining the meaning of sentences, and reading paragraphs of text is expected.</p>
<p>Level 2 226 – 275</p>	<p>At this level, the medium of texts may be digital or printed, and texts may comprise continuous, non-continuous, or mixed types. Tasks at this level require respondents to make matches between the text and information, and may require paraphrasing or low-level inferences. Some competing pieces of information may be present. Some tasks require the respondent to</p> <ul style="list-style-type: none"> • cycle through or integrate two or more pieces of information based on criteria; • compare and contrast or reason about information requested in the question; or • navigate within digital texts to access and identify information from various parts of a document.
<p>Level 3 276 – 325</p>	<p>Texts at this level are often dense or lengthy, and include continuous, non-continuous, mixed, or multiple pages of text. Understanding text and rhetorical structures become more central to successfully completing tasks, especially navigating complex digital texts. Tasks require the respondent to identify, interpret, or evaluate one or more pieces of information, and often require varying levels of inference. Many tasks require the respondent to construct meaning across larger chunks of text or perform multi-step operations in order to identify and formulate responses. Often tasks also demand that the respondent disregard irrelevant or inappropriate content to answer accurately. Competing information is often present, but it is not more prominent than the correct information.</p>

<p>Level 4</p> <p>326 – 375</p>	<p>Tasks at this level often require respondents to perform multiple-step operations to integrate, interpret, or synthesize information from complex or lengthy continuous, non-continuous, mixed, or multiple type texts. Complex inferences and application of background knowledge may be needed to perform the task successfully. Many tasks require identifying and understanding one or more specific, non-central idea(s) in the text in order to interpret or evaluate subtle evidence-claim or persuasive discourse relationships. Conditional information is frequently present in tasks at this level and must be taken into consideration by the respondent. Competing information is present and sometimes seemingly as prominent as correct information.</p>
<p>Level 5</p> <p>376 – 500</p>	<p>At this level, tasks may require the respondent to search for and integrate information across multiple, dense texts; construct syntheses of similar and contrasting ideas or points of view; or evaluate evidence based arguments. Application and evaluation of logical and conceptual models of ideas may be required to accomplish tasks. Evaluating reliability of evidentiary sources and selecting key information is frequently a requirement. Tasks often require respondents to be aware of subtle, rhetorical cues and to make high-level inferences or use specialized background knowledge.</p>

NOTE: Information about the procedures used to set the achievement levels is available in the OECD [PIAAC Technical Standards and Guidelines](#).

SOURCE: OECD PIAAC International report [<http://www.oecd.org/site/piaac/publications.htm>].

Description of PIAAC numeracy discrete achievement levels

Achievement level and score range	Task descriptions
<p>Below Level 1</p> <p>0 – 175</p>	<p>Tasks at this level require the respondents to carry out simple processes such as counting, sorting, performing basic arithmetic operations with whole numbers or money, or recognizing common spatial representations in concrete, familiar contexts where the mathematical content is explicit with little or no text or distractors.</p>
<p>Level 1</p> <p>176 – 225</p>	<p>Tasks at this level require the respondent to carry out basic mathematical processes in common, concrete contexts where the mathematical content is explicit with little text and minimal distractors. Tasks usually require one-step or simple processes involving counting, sorting, performing basic arithmetic operations, understanding simple percents such as 50%, and locating and identifying elements of simple or common graphical or spatial representations.</p>

<p>Level 2</p> <p>226 – 275</p>	<p>Tasks at this level require the respondent to identify and act on mathematical information and ideas embedded in a range of common contexts where the mathematical content is fairly explicit or visual with relatively few distractors. Tasks tend to require the application of two or more steps or processes involving calculation with whole numbers and common decimals, percents and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables and graphs.</p>
<p>Level 3</p> <p>276 – 325</p>	<p>Tasks at this level require the respondent to understand mathematical information that may be less explicit, embedded in contexts that are not always familiar and represented in more complex ways. Tasks require several steps and may involve the choice of problem-solving strategies and relevant processes. Tasks tend to require the application of number sense and spatial sense; recognizing and working with mathematical relationships, patterns, and proportions expressed in verbal or numerical form; and interpretation and basic analysis of data and statistics in texts, tables and graphs.</p>
<p>Level 4</p> <p>326 – 375</p>	<p>Tasks at this level require the respondent to understand a broad range of mathematical information that may be complex, abstract or embedded in unfamiliar contexts. These tasks involve undertaking multiple steps and choosing relevant problem-solving strategies and processes. Tasks tend to require analysis and more complex reasoning about quantities and data; statistics and chance; spatial relationships; and change, proportions and formulas. Tasks at this level may also require understanding arguments or communicating well-reasoned explanations for answers or choices.</p>
<p>Level 5</p> <p>376 – 500</p>	<p>Tasks at this level require the respondent to understand complex representations and abstract and formal mathematical and statistical ideas, possibly embedded in complex texts. Respondents may have to integrate multiple types of mathematical information where considerable translation or interpretation is required; draw inferences; develop or work with mathematical arguments or models; and justify, evaluate and critically reflect upon solutions or choices.</p>

NOTE: Information about the procedures used to set the achievement levels is available in the OECD [PIAAC Technical Standards and Guidelines](#).

SOURCE: OECD PIAAC International report [<http://www.oecd.org/site/piaac/publications.htm>].

Description of PIAAC problem solving in technology-rich environments (TRE) discrete achievement levels

Achievement level and score range	Task descriptions
<p>Failed ICT core Not applicable</p>	<p>Adults in this category had prior computer experience but failed the ICT core test, which assesses basic ICT (Information and Communication Technologies) skills, such as the capacity to use a mouse or scroll through a web page, needed to take the computer-based assessment. Therefore, they did not take part in computer-based assessment, but took the paper-based version of the assessment, which does not include the problem solving in technology-rich environment domain.</p>
<p>"Opted out" of taking computer-based assessment Not applicable</p>	<p>Adults in this category opted to take the paper-based assessment without first taking the ICT core assessment, even if they reported some prior experience with computers. They also did not take part in the computer-based assessment, but took the paper-based version of the assessment, which does not include the problem solving in technology-rich environment domain.</p>
<p>Below Level 1 0 – 240</p>	<p>Tasks are based on well-defined problems involving the use of only one function within a generic interface to meet one explicit criterion without any categorical or inferential reasoning, or transforming of information. Few steps are required and no sub-goal has to be generated.</p>
<p>Level 1 241 – 290</p>	<p>At this level, tasks typically require the use of widely available and familiar technology applications, such as e-mail software or a web browser. There is little or no navigation required to access the information or commands required to solve the problem. The problem may be solved regardless of the respondent's awareness and use of specific tools and functions (e.g., a sort function). The tasks involve few steps and a minimal number of operators. At the cognitive level, the respondent can readily infer the goal from the task statement; problem resolution requires the respondent to apply explicit criteria; and there are few monitoring demands (e.g., the respondent does not have to check whether he or she has used the appropriate procedure or made progress towards the solution). Identifying content and operators can be done through simple match. Only simple forms of reasoning, such as assigning items to categories, are required; there is no need to contrast or integrate information.</p>

<p>Level 2</p> <p>291 – 340</p>	<p>At this level, tasks typically require the use of both generic and more specific technology applications. For instance, the respondent may have to make use of a novel online form. Some navigation across pages and applications is required to solve the problem. The use of tools (e.g., a sort function) can facilitate the resolution of the problem. The task may involve multiple steps and operators. The goal of the problem may have to be defined by the respondent, though the criteria to be met are explicit. There are higher monitoring demands. Some unexpected outcomes or impasses may appear. The task may require evaluating the relevance of a set of items to discard distractors. Some integration and inferential reasoning may be needed.</p>
<p>Level 3</p> <p>341 – 500</p>	<p>At this level, tasks typically require the use of both generic and more specific technology applications. Some navigation across pages and applications is required to solve the problem. The use of tools (e.g., a sort function) is required to make progress towards the solution. The task may involve multiple steps and operators. The goal of the problem may have to be defined by the respondent, and the criteria to be met may or may not be explicit. There are typically high monitoring demands. Unexpected outcomes and impasses are likely to occur. The task may require evaluating the relevance and reliability of information in order to discard distractors. Integration and inferential reasoning may be needed to a large extent.</p>

NOTE: Information about the procedures used to set the achievement levels is available in the OECD [PIAAC Technical Standards and Guidelines](#)

SOURCE: OECD PIAAC International report [<http://www.oecd.org/site/piaac/publications.htm>].

Percentiles

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

- 5th percentile – the bottom 5 percent of adults
- 10th percentile – the bottom 10 percent of adults
- 25th percentile – the bottom quarter of adults
- 50th percentile – the median (half the adults scored below the cutpoint and half scored above it)
- 75th percentile – the top quarter of adults
- 90th percentile – the top 10 percent of adults
- 95th percentile – the top 5 percent of adults

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 adults**), when you go to the **Edit Reports** step, you will automatically get a list with one table for each

variable (including one for **All adults**); 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 adults**) you will get tables for each variable, but you will not get the cross-tabulation.

Be advised that if you go back to add another variable without removing one variable (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. (Data were not collected or not reported.)

The statistic rounds to zero.

‡ Reporting standards not met. (Did not meet reporting standard.)

NOTE: A general note pertains to any special characteristics of the data in the table.

SOURCE: Source information is listed for all PIAAC data and should be cited when data are used in a publication or presentation.

Calculation of averages

The IDE generates the average of all jurisdictions included in the IDE for the selected measures and variables if **Average of All Jurisdictions** is chosen under **Jurisdiction**. This average generated by the IDE is based on 19 OECD national and 2 sub-national entities [Flanders (Belgium), England and Northern Ireland (UK)] and 1 partner country (Cyprus) in PIAAC 2012, 6 OECD national or sub-national entities in ALL 2003, and 14 OECD national or sub-national entities in IALS 1994.

Please note that there might be differences between the averages generated by the IDE and the OECD averages for literacy, numeracy and problem solving in technology-rich environments (PS-TRE) published in the PIAAC 2012 OECD and NCES reports. Furthermore, the Average of All Jurisdictions generated by the IDE might differ from previously published results in OECD and NCES reports using PIAAC 2012, ALL 2003, and IALS 1994 data. These differences might be due to the country composition of the Averages.