

Rich Student, Poor Student, and the School Library: What the PISA Exam Tells Us about Our Value

American Association of School Librarians Webinar

February 5, 2015

In America,
education is still the
great equalizer.

--U.S. Secretary of Education Arne Duncan, 2011

What if our education system
now serves mainly those
already at the top, enabling
their children to get the
greatest possible advantages in
the race at the expense of
everyone else?

--Marc Tucker, *Education Week*, 2013

The income achievement gap is now considerably larger than the black-white gap, a reversal of the pattern fifty years ago.

--Sean F. Reardon, *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances*, 2011

If the great equalizer's ability to equalize America is dwindling, it's not because education is growing less important in the modern economy. Paradoxically, it's precisely because schooling is now even more important.

--David Rohde, Kristina Cooke, & Himanshu Ojha, *The Atlantic*, 2012



Calflier001, Liverpool Central Library Reading Room, William Brown Street May 2013.

<https://www.flickr.com/photos/calflier001/8905810336/>

The paradox of leveling the field is that in equalizing resources, the field is still unequal. Material resources ... represent only one kind of support in creating an environment for reading development.

--Susan B. Neuman & Donna C. Celano, *American Educator*,
2012

PISA 2009 – Reading

- 165 U.S. Schools
- 5,233 U.S. Students

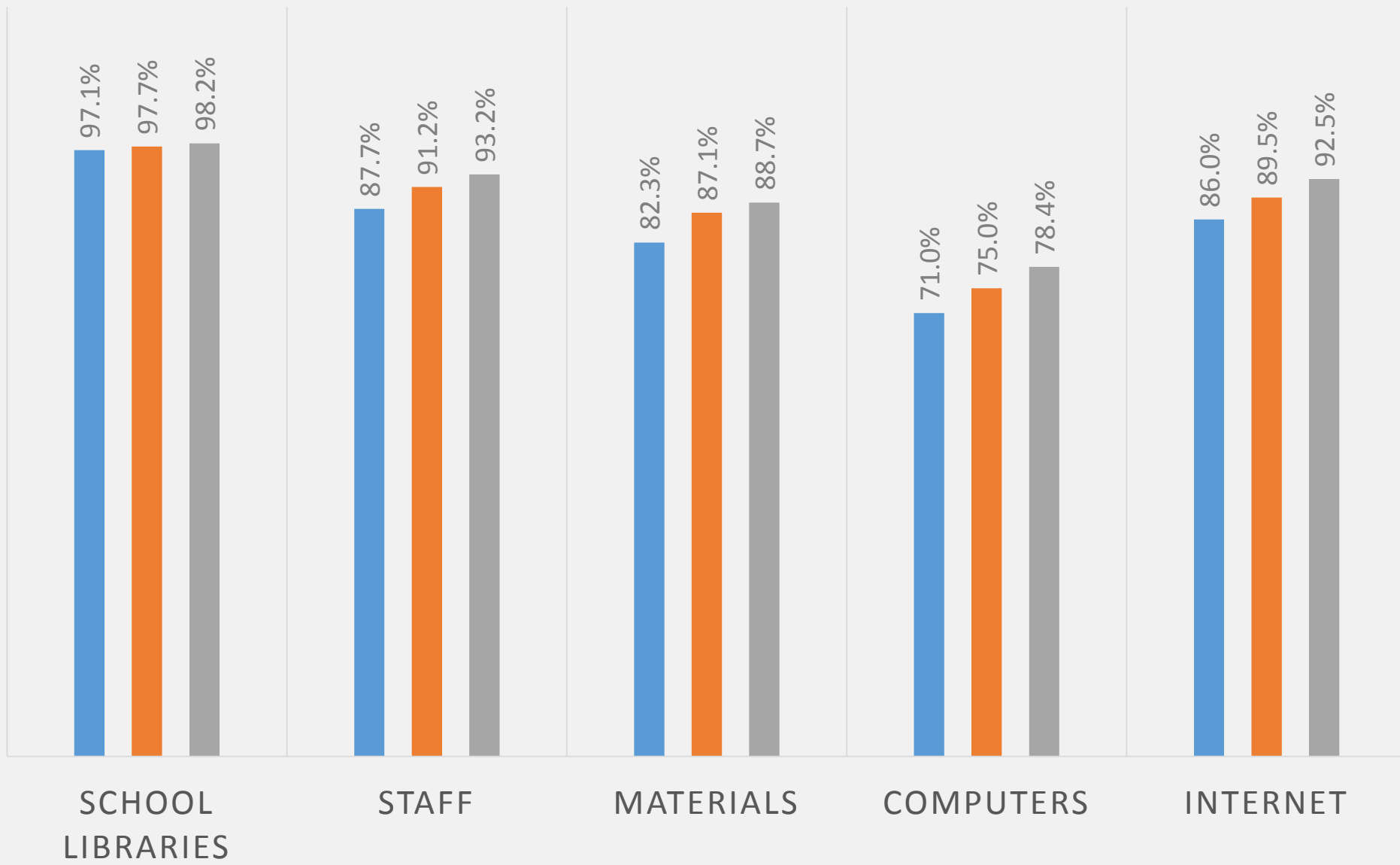
PISA 2012 – Math

- 162 U.S. Schools
- 4,978 U.S. Students

Poor, Middle, and Rich Students

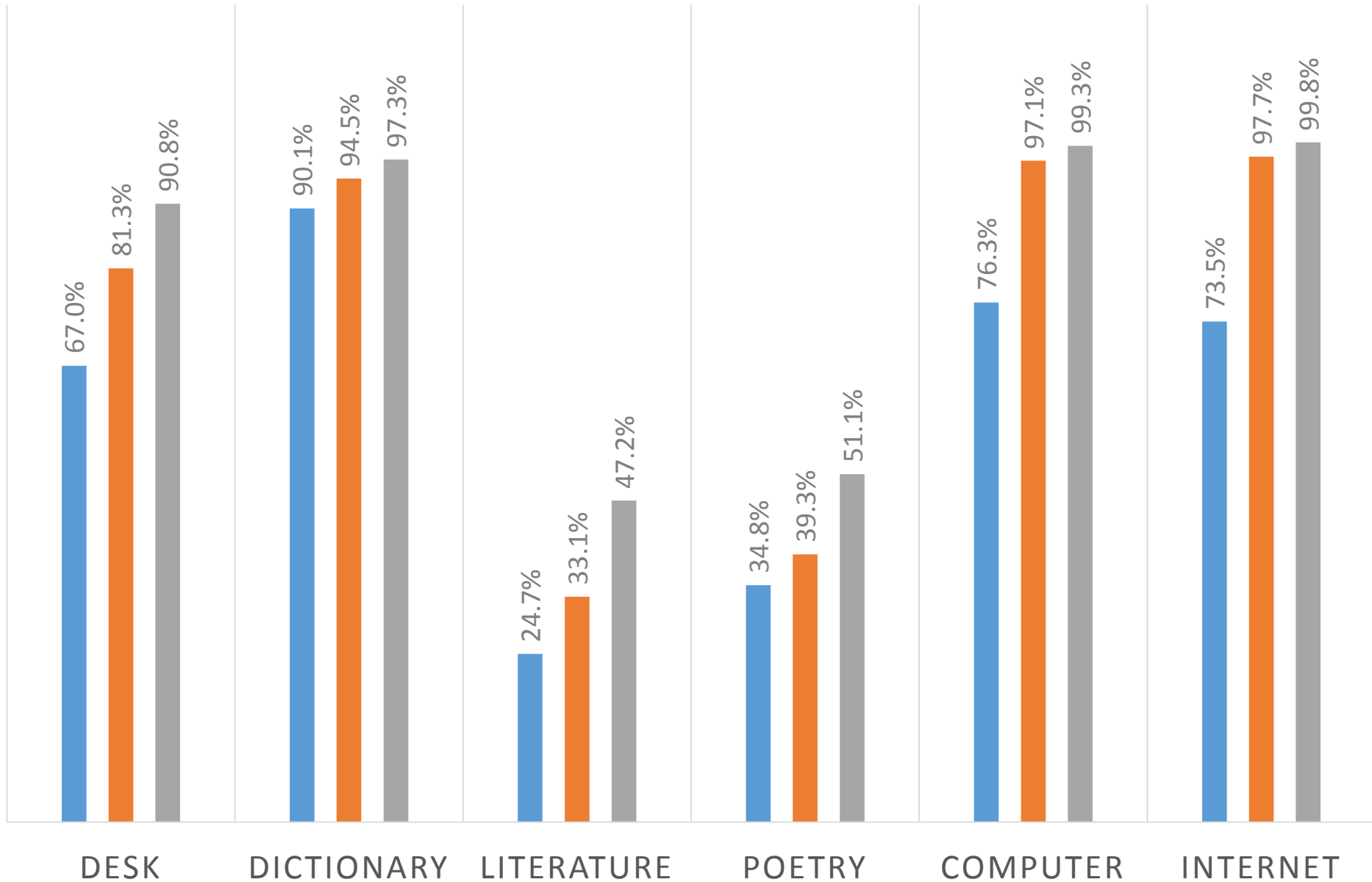
PRINCIPALS' PERCEPTIONS OF SCHOOL LIBRARY & TECHNOLOGY ADEQUACY

■ POOR ■ MIDDLE ■ RICH



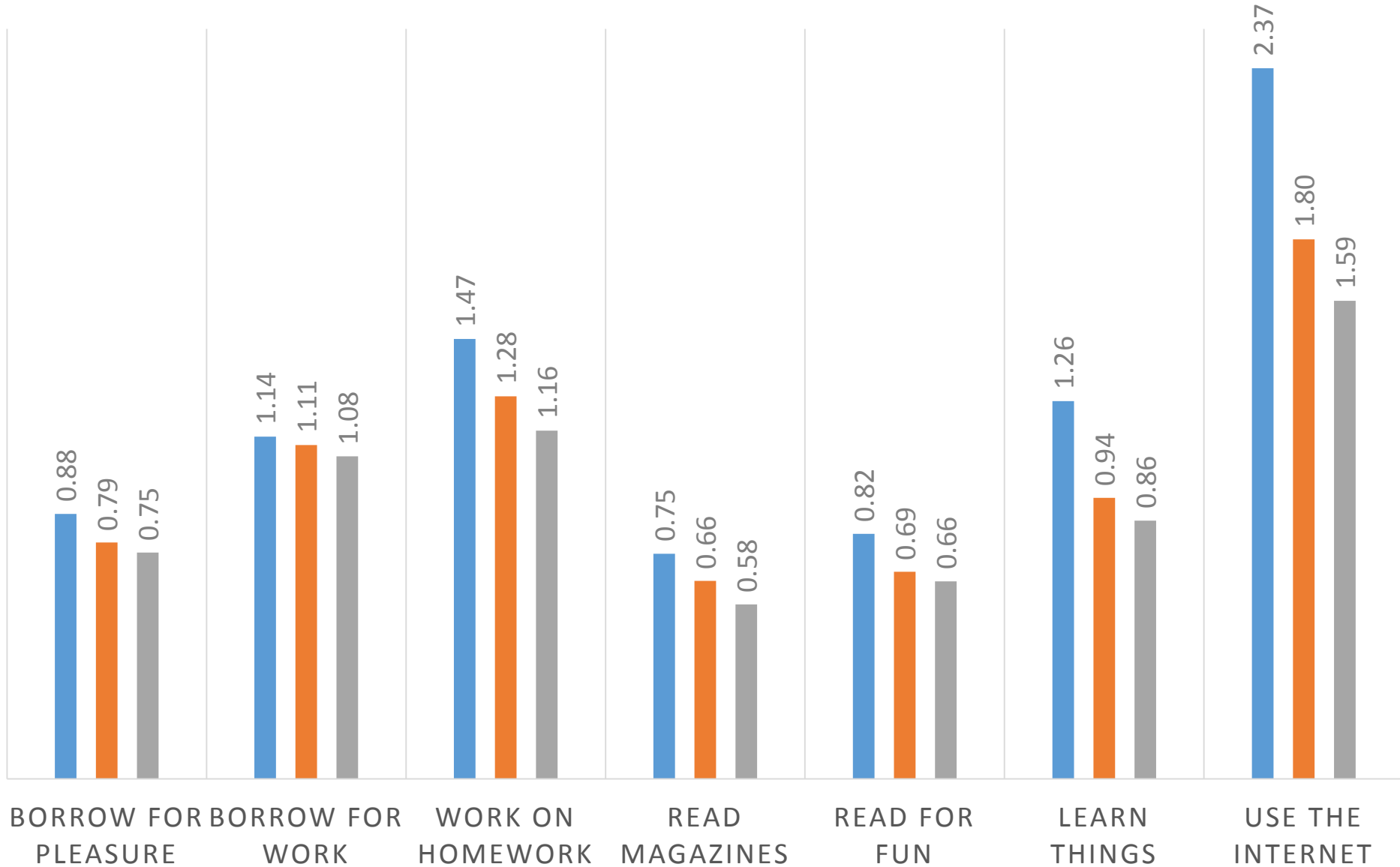
WHAT TEENS HAVE ACCESS TO AT HOME

■ POOR ■ MIDDLE ■ RICH



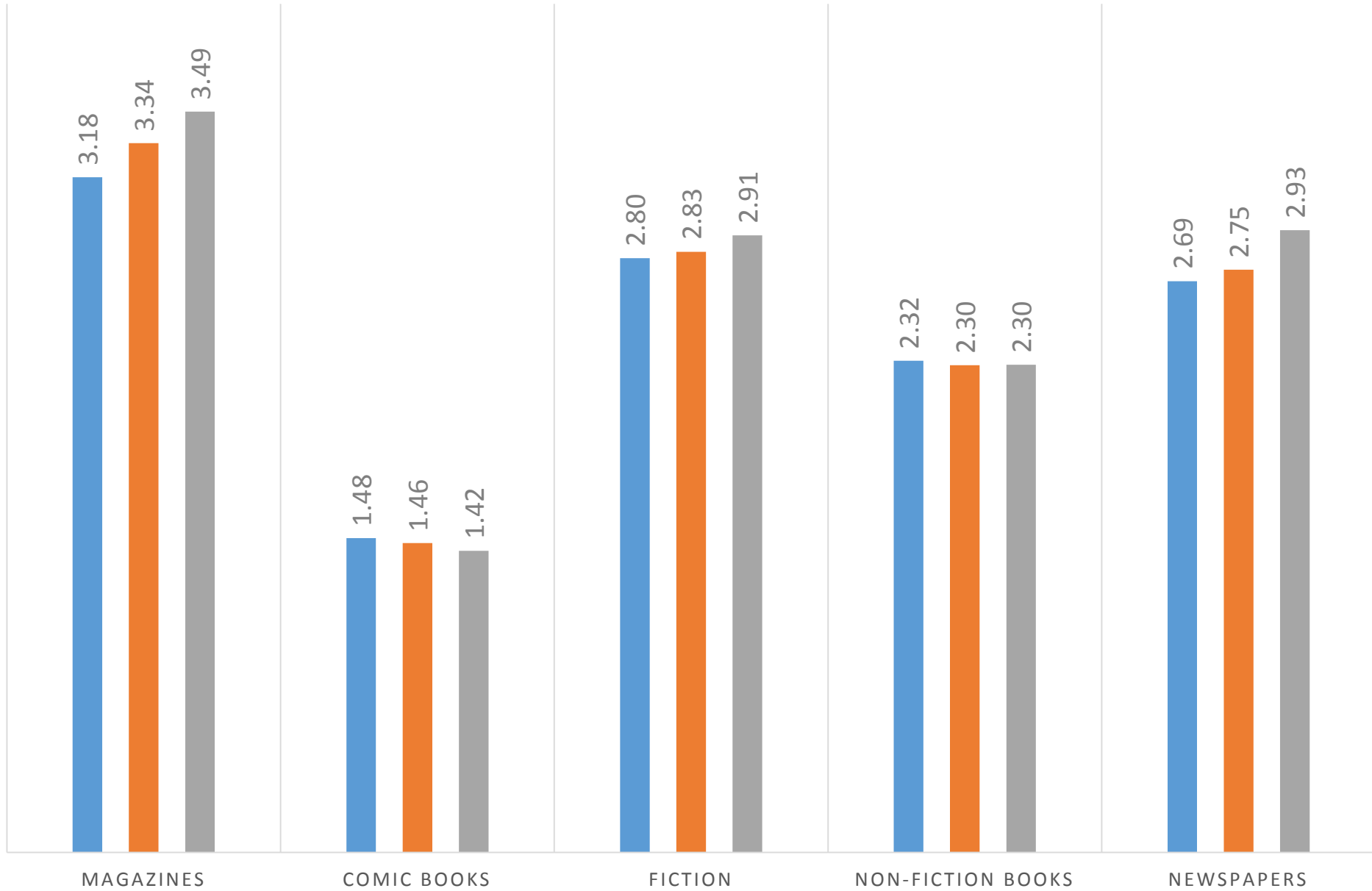
STUDENT LIBRARY USE

■ Poor ■ Middle ■ Rich



WHAT TEENS SAY THEY LIKE TO READ

■ Poor ■ Middle ■ Rich



The Factors that Have the Most Influence

- Students' Family Wealth
 - Richer students do better than poorer students.
- Students' Index of Economic, Social, and Cultural Status
 - Students with higher ESCS indexes do better than those with lower indexes.
- Family Structure
 - Students from two-parent families do better than students from one-parent families.

Wealth

| Model Summary | | | | |
|-----------------------------------|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .235 ^a | .055 | .055 | 92.74383 |
| a. Predictors: (Constant), Wealth | | | | |

Index of Economic, Social, and Cultural Status

| Model Summary | | | | |
|--|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .395 ^a | .156 | .155 | 87.47639 |
| a. Predictors: (Constant), Index of economic, social and cultural status (WLE) | | | | |

Two-Parent Family

| Model Summary | | | | |
|--|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .229 ^a | .053 | .052 | 92.37999 |
| a. Predictors: (Constant), Two Parent Family | | | | |

Highest parental education

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .260 ^a | .068 | .067 | 91.85383 |

a. Predictors: (Constant), Highest parental education in years

Teacher-Student Relations

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .162 ^a | .026 | .026 | 93.78870 |

a. Predictors: (Constant), Teacher student Relations

Student Attitudes toward School

| Model Summary | | | | |
|--|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .135 ^a | .018 | .018 | 93.21414 |
| a. Predictors: (Constant), Attitude towards school | | | | |

Use of libraries

| Model Summary | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .082 ^a | .007 | .007 | 94.40138 |

a. Predictors: (Constant), Use of Libraries

YOU are one of those “other adults who make the many pathways to reading and information-seeking meaningful and important to children.”

Joy/Like Reading

| Model Summary | | | | |
|---|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .411 ^a | .169 | .169 | 86.75592 |
| a. Predictors: (Constant), Joy/Like Reading | | | | |

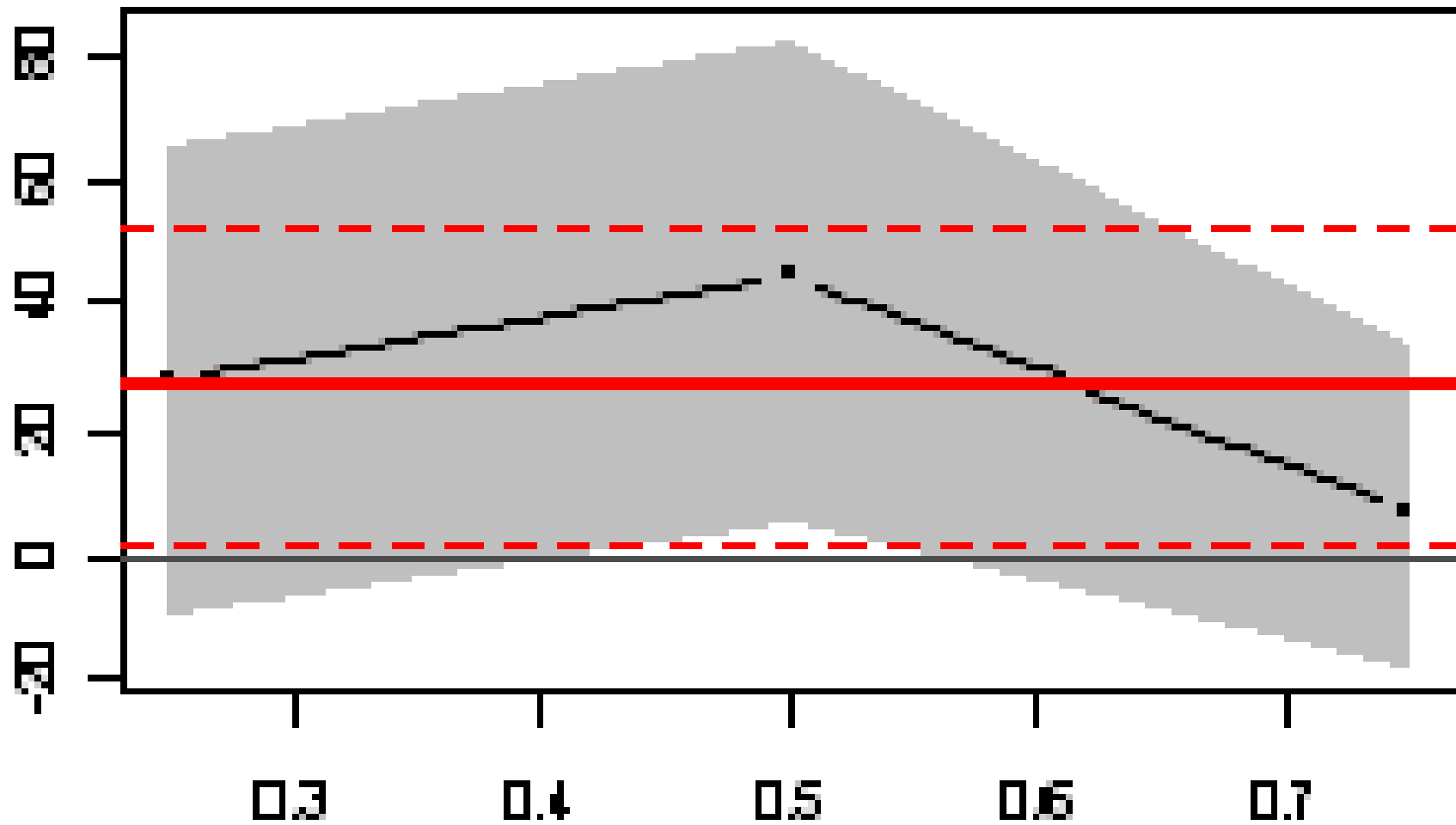
Hierarchical Linear Regression

| | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | |
|---------------------|-----------------|-------|------|--------------------|-------|-------|--------------------|------------|-------|--------------------|------------|-------|
| | B | SE | Beta | B | SE | Beta | B | SE | Beta | B | SE | Beta |
| Constant | 464.25 5 *** | 4.206 | | 493.06 8 *** | 9.815 | | 480.14 9 *** | 12.78 6 | | 499.79 9 *** | 14.296 | |
| Mean Family Wealth | 92.249 *** | 6.228 | .757 | 88.997 *** | 6.138 | .731 | 88.413 *** | 6.122 | .726 | 87.947 *** | 5.944 | .722 |
| School Library | | | | - 30.893 *** | 9.557 | -.163 | - 32.744 *** | 9.588 | -.173 | - 30.880 *** | 9.406 | -.163 |
| Library Adequacy | | | | | | | 19.918 | 12.71 4 | .078 | 40.300 *** | 14.36 1 | .158 |
| Technology Adequacy | | | | | | | | | | - 48.238 *** | 16.97 0 | -.160 |
| R ² | .574 | | | .600 | | | .606 | | | .625 | | |
| F | 219.36 9 | | | 121.26 7 | | | 82.389 | | | 66.529S | | |

Quantile Regression

| Variable | WLS | Quantile | | | | |
|---------------------|------------------------|-----------------------|----------------------------|---------------------------|----------------------|--------------------------|
| | | .10 | .25 | .50 | .75 | .90 |
| Mean Family Wealth | 87.947 (5.994)*** | 76.264 (9.637)*** | 72.067 (10.865) *** | 88.091 (7.269))*** | 78.433 (6.155)*** | 78.673 (9.109) *** |
| School Library | -30.880 (9.406)*** | -28.614 (13.530)** | -39.014 (14.214) *** | -19.926 (56.657) | 9.046 (31.938) | 34.896 (8.450)*** |
| Library Adequacy | 40.300 (14.361)*** | 14.890 (39.248) | 21.067 (23.639) | 10.081 (15.573) | 23.641 (7.937)*** | 34.183 (28.809) |
| Technology Adequacy | -48.238 (16.970)*** | 11.113 (28.172) | 12.461 (24.606) | -4.604 (19.355) | -4.008 (13.801) | 1.106 (20.045) |

libadeq



Accessing PISA Data

- General information about PISA Exam
<http://www.oecd.org/pisa/pisaproducts/>
- PISA 2012 Database <http://pisa2012.acer.edu.au/>
- Options:
 - Download the data (if you have statistical software, e.g., SPSS, SAS)
 - [Interactive Data Selection](#)
 - [Multidimensional](#) Data Request (creates Excel spreadsheet)

Interactive Data Selection

In addition to assessing student performance, PISA also collects information on student attitudes and approaches to learning as well as the learning environment and organisation of schooling.

This interactive data selection facility allows you to select particular school-level and student-level questions and relate these to student performance.

In PISA 2012 there were four student questionnaires: A student questionnaire collecting background information on students and their learning environment, a questionnaire on computer familiarity, a questionnaire on educational career and questionnaire about reading for school. There was also a School Questionnaire filled out by the senior administrator in the school of the sampled students and a parent questionnaire for countries that chose for this international option.

When you have decided on the questions and countries of interest you should select them from the list boxes below. Then click "Create Tables" and a set of tables will be created for you. The tables will show the percentage of responses in each category and the mean achievement in each of the three cognitive PISA assessment domains (reading, mathematical and scientific literacy). The standard errors are also provided.

You can make multiple selections by holding down the "CTRL" key on your computer keyboard while clicking items on the list. You can make as many selections as you require but as more variables and countries are selected the download time will increase significantly.

[Download questionnaires](#)

| | |
|--|--|
| Countries | <div style="border: 1px solid gray; padding: 5px;"><ul style="list-style-type: none">ALB - ALBANIAARE - UNITED ARAB EMIRATESARG - ARGENTINAAUS - AUSTRALIAAUT - AUSTRIABEL - BELGIUMBGR - BULGARIABRA - BRAZIL</div> |
| Student Variables | <div style="border: 1px solid gray; padding: 5px;"><ul style="list-style-type: none">ST01Q01 - International GradeST02Q01 - National Study ProgrammeST03Q01 - Birth - MonthST04Q01 - GenderST05Q01 - Attend <ISCED 0>ST06Q01 - Age at <ISCED 1>ST07Q01 - Repeat - <ISCED 1>ST07Q02 - Repeat - <ISCED 2></div> |
| School Variables | <div style="border: 1px solid gray; padding: 5px;"><ul style="list-style-type: none">SC01Q01 - Public or privateSC02Q01 - Total funding - GovernmentSC02Q02 - Total funding - Student feesSC02Q03 - Total funding - DonationsSC02Q04 - Total funding - OtherSC03Q01 - School LocationSC04Q01 - Competition between schoolsSC05Q01 - Class size in <test language></div> |
| <div style="border: 1px solid gray; padding: 5px; display: inline-block;"><input type="button" value="Create Tables"/></div> | |

- > About PISA
- > PISA products
- > Key findings
- > Contacts

Database - PISA 2012

Interactive Data Selection - Results

Downloadable table in CSV / Excel format: [783760.CSV](#)

| | | |
|-----------------------|---------|---|
| Variable: | SC14Q08 | Shortage - Internet connectivity |
| Full question: | | Is your school's capacity to provide instruction hindered by any of the following issues? - Lack or inadequacy of Internet connectivity |
| Category: | 1 | Not at all |
| | 2 | Very little |
| | 3 | To some extent |
| | 4 | A lot |

| | | | | | Reading | | Mathematics | | Science | |
|--------------------------|----------|----------|-------|--------|---------|---------|-------------|---------|---------|---------|
| Country | Variable | Category | % | (%SE) | Mean | (SE) | Mean | (SE) | Mean | (SE) |
| United States of America | SC14Q08 | 1 | 61.24 | (3.73) | 504 | (5.06) | 487 | (4.81) | 503 | (5.31) |
| United States of America | SC14Q08 | 2 | 22.60 | (3.26) | 488 | (7.74) | 472 | (8.03) | 492 | (7.62) |
| United States of America | SC14Q08 | 3 | 11.90 | (2.61) | 497 | (8.28) | 485 | (9.11) | 499 | (9.59) |
| United States of America | SC14Q08 | 4 | 2.98 | (1.34) | 467 | (17.04) | 458 | (15.87) | 469 | (15.77) |
| United States of America | SC14Q08 | m | 1.28 | (0.94) | 510 | (7.50) | 482 | (11.54) | 506 | (5.04) |
| OECD Total | SC14Q08 | 1 | 49.25 | (1.17) | 504 | (2.08) | 495 | (1.98) | 505 | (2.14) |
| OECD Total | SC14Q08 | 2 | 26.75 | (0.99) | 495 | (2.33) | 488 | (2.53) | 498 | (2.44) |
| OECD Total | SC14Q08 | 3 | 16.23 | (0.92) | 488 | (2.80) | 480 | (2.98) | 488 | (2.93) |
| OECD Total | SC14Q08 | 4 | 6.28 | (0.46) | 446 | (5.27) | 439 | (5.10) | 445 | (5.29) |
| OECD Total | SC14Q08 | m | 1.49 | (0.27) | 495 | (7.01) | 490 | (8.04) | 496 | (6.64) |
| OECD Average | SC14Q08 | 1 | 48.64 | (0.56) | 499 | (0.93) | 497 | (0.92) | 503 | (0.88) |
| OECD Average | SC14Q08 | 2 | 27.12 | (0.52) | 496 | (1.30) | 494 | (1.24) | 501 | (1.25) |
| OECD Average | SC14Q08 | 3 | 15.66 | (0.43) | 498 | (1.86) | 495 | (1.94) | 502 | (1.80) |
| OECD Average | SC14Q08 | 4 | 4.96 | (0.26) | 490 | (3.24) | 488 | (3.09) | 492 | (3.10) |
| OECD Average | SC14Q08 | m | 3.62 | (0.25) | 484 | (2.61) | 481 | (2.54) | 486 | (2.64) |

Then enter your email address, click "Submit Request" and a multi-dimensional table will be created in an MS Excel™ file. Your request will need to be processed and may take some time. You will receive the results of your request by email when they have been processed.

The tables will show the percentage of responses in each category (or nested categories in case of multiple questions) and the mean achievement in the selected assessment domains (reading, mathematical or scientific literacy). The standard errors are also provided.

[Download questionnaires](#)

Variables

(please select up to four)

Available Variables

EC01Q01 - Miss 2 months of <ISCED 1>
EC02Q01 - Miss 2 months of <ISCED 2>
EC03Q01 - Future Orientation - Internship
EC03Q02 - Future Orientation - Work-site visits
EC03Q03 - Future Orientation - Job fair
EC03Q04 - Future Orientation - Career advisor at sc
EC03Q05 - Future Orientation - Career advisor outsi
EC03Q06 - Future Orientation - Questionnaire
EC03Q07 - Future Orientation - Internet search
EC03Q08 - Future Orientation - Tour<ISCED 3-5> in



Selected Variables (maximum 4)

Empty box for selected variables.

Countries

Available Countries

ALB - ALBANIA
ARE - UNITED ARAB EMIRATES
ARG - ARGENTINA
AUS - AUSTRALIA
AUT - AUSTRIA
BEL - BELGIUM
BGR - BULGARIA
BRA - BRAZIL
CAN - CANADA
CHE - SWITZERLAND



Selected Countries

Empty box for selected countries.

Science

Reading

Mathematics

Email address:

National Center for Education Statistics <http://nces.ed.gov/>

- Elementary Secondary Information System (ELSI)
<http://nces.ed.gov/ccd/elsi/>
- National Assessment of Educational Programs (NAEP)
Data Explorer
<http://nces.ed.gov/nationsreportcard/naepdata/>
- International Data Explorer (PISA, PIRLS, TIMSS)
<http://nces.ed.gov/surveys/international/ide/>
- If you have statistical software (e.g., SPSS, SAS), you
might prefer Education Data Analysis Tool (eDAT)
<http://nces.ed.gov/edat/>

📄 ELSi Tutorial

quickFacts

↩ **Begin**

With *quickFacts* you may quickly view single data elements for a state, district or school

- View characteristic & financial data
- View contact information
- Chart and Print data
- Link to *expressTables* for additional analysis

expressTables

↩ **Begin**

With *expressTables* you may view most requested data tables at the state, county, district, and school levels

- Make refinements
- Sort a column with a single click
- Chart each row of data
- Print and export a table

tableGenerator

↩ **Begin**

With *tableGenerator* you may create custom tables for a state, district, or school

- Filter columns
- Chart & compare institutions
- Drag & drop, sort, and remove columns
- Export a table

The Elementary/Secondary Information System (ELSi) is an NCES web application that allows users to quickly view public and private school data and create custom tables and charts using data from the **Common Core of Data (CCD)** and **Private School Survey (PSS)**.

ELSi utilizes variables that are frequently requested by users for producing tables. It is a fast, easy way to obtain basic statistical data on U.S. schools. When generating custom tables, ELSi allows the user to choose row variables, column variables and filters to refine the data included in tables produced.



Questions to Ask of the Data

Questions or Comments?

Denice Adkins
adkinsde@missouri.edu