







Introduction to the PEERS Data Hub – A Platform Serving the STEM Research Community

ECR AWARDEE CONFERENCE

December 1, 2020 | 3:15 – 4:30 pm

Margaret C. Levenstein (ICPSR) and Felice J. Levine (AERA), Principal Investigators



PEERS AIMS AND ASPIRATIONS











PEERS DATA HUB

ICPSR



www.peersdatahub.net

NEW PEERS DATA HUB – An Introduction

Discovering through Data

PEERS DATA HUB

Data Discovery through PEERS

What is your next research project?

Search archives for publicly available datasets from studies such as the Measure of Effective Teaching and Mathematics Teaching in the 21st Century, just to name a couple.

PEERS Data Hub is a partnership between AERA and ICPSR.





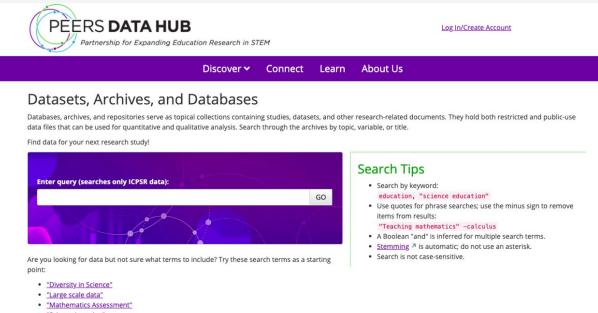






NEW PEERS DATA HUB – An Introduction

Discovering through Data



- <u>"Science Learning"</u>
- "Student Outcomes"
- "Workforce Development"
 - Search over 15,000 ICPSR studies
 - Canned searches
 - Data by type
 - Archives and databases

Discover Data by Type

General Population Data

School Context Data

International Data

Early Childhood and K-12 Longitudinal Data

Bachelors and Postdoctorate Data

Postsecondary Data

Adult Level Data

Race, Disparities, and Inclusion in STEM Education

Administrative Data

State-level Education Data

Archives and Databases

- Child and Family Data Archive
- <u>Child Care and Early Education Research Connections</u>
- <u>CivicLEADS</u>
- Education Research Data Sharing Initiative
- Databrary
- Measures of Effective Teaching Longitudinal Database
- Dataverse
- National Center for Education Statistics (NCES) K12 data and Restricted Access datasets
- Office of Civil Rights Data Collection (OCRDC)
- National Center for Science and Engineering Statistics (NCSES)
- American Educational Research Association (AERA)
- Qualitative Data Repository
- Household Pulse Survey—Post Secondary Education





NEW PEERS DATA HUB – An Introduction

Discovering through Data

Discover Data by Type

General Population Data

- General Social Survey
- <u>Current Population Survey</u> 7
- Office of Civil Rights (OCR) 2015-2016 data collection 7
- Equality of Opportunity Project
- National Center for Education Statistics (NCES) Private School Universe Survey (PSS)
- National Student Loan Data System (NSLDS) 7
- National Student Postsecondary Student Aid Study (NPSAS) 7
- U.S. Census Bureau American Community Survey (ACS) 5-year estimates

School Context Data

- Public Elementary-Secondary Education Finance Data from the Census Finance Survey (F-33)
- School Atteendance Boundary Information Systems (SABINS)
- School Attendance Boundary Survey (SABS) 7
- School Survey on Crime and Safety (SSOCS) 7
- National Center for Education Statistics (NCES) Common Core of Data (CCD)

International Data

- International Association for the Evaluation of Educational Achievement (IEA) Trends in International Mathematics and Science Study (TIMSS)
- Programme for International Student Assessment (PISA) 7
- Teaching and Learning International Survey (TALIS) 7

Early Childhood and K-12 Longitudinal Data

- Head Start Family and Child Experiences Survey (FACES) 1997, 2000, 2003, 2006, and 2009
- Head Start Impact Study
- National Center for Education Statistics (NCES) Early Childhood Longitudinal Study (ECLS)
- National Center for Education Statistics (NCES) Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K)
- National Center for Education Statistics (NCES) National Education Longitudinal Study: 1988 (NELS:88)

Hard to find datasets

- Longitudinal studies
- STEM Education specific data

PEERS DATA HUB









https://umich.instructure.com

Log In/Create Account

Discovering through Data

Discover Connect Learn About Us

Search Variables

The variable search tool allows researchers to find data elements of specific interest and, where applicable, to discover the question text used in collecting each variable. The search tool also reports and links variables derived from the combination of other variables (indices, multi-variable measures, etc.) and root variables which have been used in the creation of such derived variables.

Enter query (searches only ICPSR data):	
	GO
	K

browse variables by study

Compare Variables

Compare variables using the checkboxes and the "Compare" button on the search results page.

				Sort by:			H	<	1	2	3 4	>	,
				Relevance	~				-				
ELEC	•T	COMPARE											
v	ar. Na	me	Label/Question Text			Var. Type					Data	set	
	ELLC	O CLASSOBS	Classroom observation scale Classroom Observation-ELL	e (Early Language and Literacy CO) [derived variable]		numeric					- Class servat		n
				ele (Early Language and Litera LCO) Notes: Derived variable	cy.								
			Taken from: Migrant and Se States, 2017-2018.	asonal Head Start Study, United	r.								
ELLCO TOTAL SC ORE		O TOTAL SC		oom observation scales (Early room Observation-ELLCO) [deri	ved	numeric					- Class servat		n
				room observation scales (Earl) ssroom Observation-ELLCO)	/								
			Taken from: Migrant and Se States, 2017-2018.	asonal Head Start Study, United	t.								

Search Tips for Variables

 Enter words or strings that are likely to appear in a variable name, label, question, and value labels: education

will return variables dealing with all education.

science education

will return only variables dealing with education with some element of science.

- Use quotes to search for specific phrases: "science education" "classroom observations" "teaching mathematics"
- The minus sign may be used to remove certain types of results: "Teaching mathematics" -calculus will eliminate variables related to teaching mathematics which
- specifically mention calculus.
- A Boolean "and" is implied in the search.
- The search automatically does stemming; there's no need to type in an asterisk. It's also case-insensitive.

- Find suitable data through the hub
- Tips on how to explore

www.peersdatahub.net







Research question informs types of data needed

Some questions require very specific data types:

- Comparison over time (study design and method: repeated cross-section)
- Change over time (study design and method: longitudinal)
- Subgroups (sampling: oversample)
- o Data from multiple sources (e.g., teacher, parent, child)
- o Data about states, communities, organizations, schools, school district, etc.



THE STUDY HOME PAGE: A Treasure Trove of Information!

The National Study of Learning Mindsets, [United States], 2015-2016 (ICPSR 37353)

Version Date: Jul 27, 2020 ② <u>Cite this study</u> | <u>Share this page</u>

Principal Investigator(s): 🕄

David S. Yeager, University of Texas at Austin

https://doi.org/10.3886/ICPSR37353.v3

Version V3 (see more versions)

Download -	🗠 Analyze Onl	ine (0)	Access Restricted Data	898	2
At A Glance Data & Documentation Variable	es Data-related Publications	Export Metadata		Downloads * Usage Report * past three years	Data-related Publications
 Project Description Scope of Project 				Notes	
Methodology				 The public-use data files in access by the general public 	this collection are available for ic. Access does not require
 Version(s) 				affiliation with an ICPSR meOne or more files in this data	

CONNECTING AND COMMUNITY BUILDING OVERVIEW

- $_{\odot}~$ PEERS INTERACTIVE RESEARCHER GALLERY
- PEERS PODS
- FILL OUT THE FORM (quick and easy!)
- $_{\odot}~$ PEERS CONNECTING QUESTIONS TO ANSWERS
- PEERS PODCASTS



CONNECTING AND COMMUNITY BUILDING – PEERS Interactive Researcher Gallery

WHY JOIN?

- The gallery is the place to introduce your "research self" to others. Create your own narrated web-based overview of your research interests and work.
- Find other researchers of interest studying STEM education.
- Schedule chat times or virtual meetings; it is engaging, user friendly, and easy to do.
- The gallery is the HUB's way of providing virtual space to support building new and inclusive communities and connecting to others well beyond your own teams and networks.

JOIN THE GALLERY



ICPSR

PEERS DATA HUB



JOINING THE RESEARCHER GALLERY – What Would I say?

Introduce yourself

Hi, I am . . . however you would put it to be comfortable in saying who you are and where you are from.

Might say a few words autobiographically about your professional self, such as:

I taught high school physics before getting my doctoral and university xx. I also worked in the stem learning center and focused on video analysis.

Here and now – what are your primary areas of research, your scope of interest?

What are your current research interests and general scope of work?

Current key study or studies underway – briefly what populations, what data (if data bases are extant, say so), general methods/modes of inquiry.

If there are ways you might be interested in connecting - say so

I have been focused on state administrative data and would love to connect with other researchers doing so.

I have primarily been involved in doing surveys on undergraduate mathematics learning, but would very much like to connect to researchers doing experimental or observational work. Send me a message if you have similar interest.

Any takeaways?

Be yourself . . . you can update and schedule meetups as the gallery unfolds.

Meet Krystal Williams (University of Alabama) in the gallery

https://peersdatahub-aera.ipostersessions.com/Default.aspx?s=peers_datahub_2020_gallery

CONNECTING AND COLLABORATING – *PEERS Pods*

Connect to your peers in a pod organized around shared research topics, methodological approaches, goals, or identities. Support one another and improve your research.



PICK YOUR POD

- Working Group on State Longitudinal Data Systems (SLDS)
- $\circ~$ Working Group on Race, Inclusion, and STEM Education
- Working Group on LGBTQ+ in STEM Education
- Data and Research Analysis Working Group
- Research Writing and Communications Working Group

PROPOSE A POD

A PEERS resource person to support your interests is only a step away!







CONNECTING AND COLLABORATING – a quick google form and go!



PEERS DATA HUB

PEERS Connections

Thank you for your interest in actively engaging in the PEERS Data Hub! You can participate in the Interactive Researcher Gallery and meet up with others, join a Research Pod, or both. Fill out the information below so that you can get to where you want to go! You will receive an email confirmation; please save it in order that, in the future, you can add options and change your preferences.

Required items will permit us to contact you. We encourage you to complete all items, so that we can serve you better using the searchable functions.

N.				

Email address *

Your email

First name *

Your answer

Last name *

Your answer

Institution/Organization *

Your answer

Country	PEERS Pods are research working groups on specified topics with expert leader participation. Would you be interested in joining a	Please identify the types of research, data, and methods that most typically describe your work (check all that apply).
Choose	Working Group on State Longitudinal Data Systems (SLDS)	Administrative Data
	Working Group on Race, Inclusion, and STEM Education	Archival Research
	Working Group on LGBTQ+ in STEM Education	Big Data
Highest Degree Conferred	Data and Research Analysis Working Group	Computational/Data Science
O Ph.D.		Counseling-Clinical Research
O Ed.D.	Research Writing and Communications Working Group	Ethnography
		Evaluation
O Professional Doctorate (e.g., JD, LLB, MD, PsyD, DAud)	Suggestions for a PEERS Pod	Experimental
O Master's		Field-based
O Professional Master's (e.g., MBA, MSW, MPA, MPH)	Your answer	Focus Groups International/Comparative Study
O Bachelor's		Longitudinal
O Associate's		Mixed Methods
O Other:	Please tell us about your primary areas of research interest (select up to three; select at least one). Please select a first one here.	Observation
	select at least one). Flease select a first one field.	Public Use Data
	Choose	Qualitative
Year of Degree (YYYY)		Quantitative
		Restricted Data
Your answer	Please select a second area of research interest, if you wish.	Surveys Theoretical/Conceptual Analysis
		Other:
The Interactive Researcher Gallery provides an easy opportunity to share your	Choose 👻	
research interests and connect and meet up with others. Would you be		Thank you for your interest in participating in the PEERS Hub community. You will be hearing from us
interested in joining the Gallery? *		8007.
O Yes - You will receive an email to join the Gallery	Please select a third area of research interest, if you wish.	-The PEERS Team
O No		Construction of Construction
O Maybe	Choose 👻	Send me a copy of my responses.
N - 1 1 2 200 1 0		Submit

CONNECTING AND COMMUNITY BUILDING – Ask a Question?

Connect your questions to where you can find answers?

The PEERS Hub is not just a place to find data that meets your needs, but to have user friendly access to answers through:

- Your peers and
- The two primary primary
 STEM statistical agencies—
 NCES and NCSES

www.peersdatahub.net

ASK A QUESTION



PEER-to-PEER forum 7. Have a question about data? Looking for feedback on a research topic? Enter your comments and question in the PEERS discussion forum and let your peers help you.

Explore the National Center for Science and Engineering Statistics (NCSES) Interactive Data tool 7. Ask NCSES data-related questions 7.

Explore the National Center for Education Statistics Interactive Data tools, explorers, table dashboards, and the Bibliography Search tool **7** to find articles related to the NCES data program. Ask questions of NCES program staff **7**.



IES: NCES National Center for Education Statistics







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CONNECTING AND COLLABORATING – *PEERS Podcast Series*

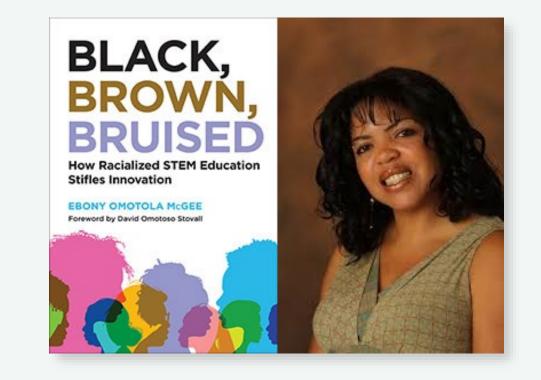
A regular podcast series with STEM researchers, funders of research, policy leaders committed to fundamental (ECR-CORE) investment.

FIRST PODCAST, OCTOBER 2020

 Book talk with Dr. Ebony McGee, Vanderbilt University Member, PEERS Hub Advisory Board

FUTURE INTERVIEWS

- Hear from education researchers across career stages, arenas of inquiry, methodologies and methods, personal stories.
- Get a no-nonsense perspective on how to get funding for an early-career stage STEM research program.
- Learn what journal editors are seeing in submissions during this COVID-19 time – are woman falling behind?



PEERS DATA HUB

ICPSR



PEERS LEARNING AND CAPACITY BUILDING OVERVIEW

PEERS PROFESSIONAL DEVELOPMENT

- PEERS Methods Series
- PEERS Series in STEM Data and Data Use
- AERA and ICPSR Training
- PEERS Open-Access STEM Article Repository
- PEERS Dedicated Resources for STEM Research
- Connecting to Relevant Resources

PEERS SPECIAL EVENTS

Forum on Data Use and Methods---the Global Teaching InSights (video) Study
 January 2020 | 09:30 AM Eastern Time (US and Canada)



PROFESSIONAL DEVELOPMENT AND TRAINING – *Methods*

2021 PEERS Methods Series with NSF Building Capacity in STEM Education Research Institutes

- o Modern Meta-Analysis Research (Terri Pigott, Director; Georgia State University), January 2021.
- Cutting Edge Quantitative and Computational Methods for STEM Education Research (Guanglei Hong, Co-Director; University of Chicago and Ken Frank, Co-Director; Michigan State University), February 2021
- Quantitative Research Methods for STEM Education Scholars Program (Laura Stapleton, University of Maryland; Gregory Hancock, University of Maryland; March 2021)
- Institute for Meta-Synthesis: A Practicum through the Lens of STEM Equity and Inclusion Literature (Maria Ong, TERC; May 2021)
- Maryland Collaborative for Research in Urban STEM Education (Roni Ellington, Morgan State University; September 2021)
- The Pro-Qual Institute for Research Methods in STEM Education A Novel Problem-Led and Research Quality-Focused Approach (Joachim Walther, University of Georgia; October 2021)
- Professional-development for Emerging Education Researchers (Eleanor Sayre, Kansas State University; November 2021)



PROFESSIONAL DEVELOPMENT AND TRAINING – *Data*

2021 PEERS Series in STEM Data and Data Use

- STEM School Level Achievement in Grades 3-8 use of the Stanford Education Data Archive (Andrew D. Ho, Harvard University; Sean F. Reardon, Stanford University; Benjamin R. Shear, University of Colorado, Boulder; Erin M. Fahle, St. John's University) February, 2021
- Using Longitudinal and Large-scale Data to Address STEM (Chandra Muller, Director; University of Texas at Austin) May 2021



PROFESSIONAL DEVELOPMENT AND TRAINING

AERA Virtual Research Learning Center (VRLC)

- \circ Research Methods
- Statistical Techniques (e.g., sensitivity analysis, meta-analysis, factor analysis)
- Large-Scale Data Sets (e.g., NAEP Process Data)
- Publishing courses
- PEERS recorded mini-courses and webinars (2-4 hours)
- o <u>www.aera.net</u>

ICPSR Summer Program in Quantitative Methods of Social Research

- Research Methods
- Statistical Techniques
- \circ Data Analysis
- o Integrate research methods with theory and substantive issues
- \circ 3-5 day workshops and 3-week short courses
- o https://www.icpsr.umich.edu/web/pages/sumprog/courses.html







Resources and Research

Learn about STEM research and improve your practices at the PEERS Hub. Whether you are looking for access to relevant STEM research, guidance through resources, or links to support your engaging in best practices, PEERS aim to anticipate your needs and get you to where you want to go.

- PEERS Podcast: Book talk with Dr. Ebony McGee, Black, Brown, Bruised: How Racialized STEM Education Stifles Innovation 🗷
- Handbook for new NSF grantees Best Practices for Managing Data throughout the Data Life Cycle
- STEM Education Research Articles of Interest—A PEERS Open Access Repository from AERA Journal Publications (coming soon)
- AERA Online Paper Repository 7
- <u>REES Registry</u> 7
- AERA Open Registered Reports
- Deposit your data to AERA-ICPSR-NSF archive
- See the data behind STEM education research: <u>The AERA OpenICPSR repository</u> 7

Find all that you need for your STEM education research project all in one spot!



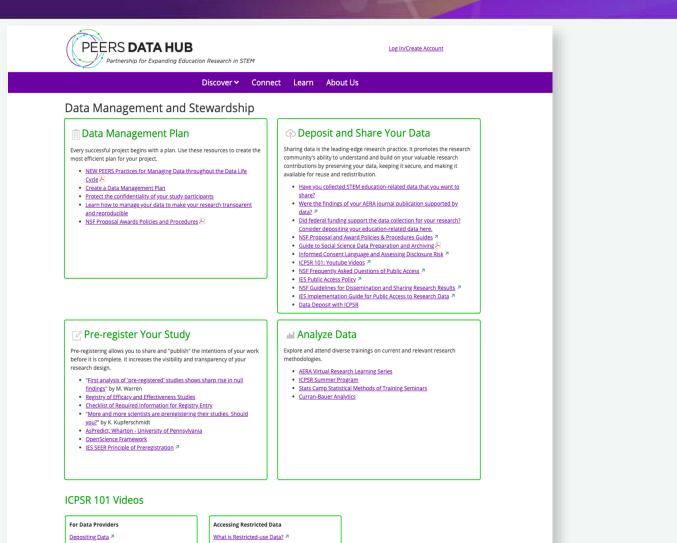
PEERS Data Hub will help you simplify data management so you can focus on your research analysis and writing

Transparency and reproducibility increase impact

- $_{\circ}~$ On your career
- On educational practice and policy



RESEARCH THAT MAKES AN IMPACT!



What is the ICPSR Researcher Passport? 7

7 Habits of Data Deposit 7

What is Data curation? 7 ICPSR's 3 Levels of Data Curation 7 What are Metadata (any why are they so

important)? 7

Support from PEERS Data Hub

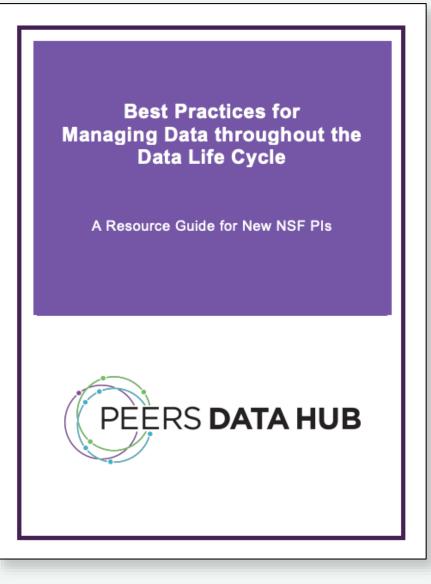
www.peersdatahub.net







RESEARCH THAT MAKES AN IMPACT!



https://www.icpsr.umich.edu/files/ICPSR/about/best-practices-peers.pdf







RESEARCH THAT MAKES AN IMPACT!

Planning transparent, reproducible research

Plan to share

- Share the data you use or create
- Share analysis code
- Share your research plan

Resources to help – not just data, but guidance on using data

- o Data Management Plan
- Research pre-registration
- Best practice consent statements and other tips for working with human subjects and sensitive data







Additional Resources

- ICPSR's Approach to Confidentiality
- American Statistical Association, Data Access and Personal Privacy: Appropriate Methods of Disclosure Control *7* Confidentiality and Data Access Committee (CDAC) forum for
- staff members of Federal statistical agencies **7**

Recommended Informed Consent Language for Data Sharing

Language to Avoid

Promises in the informed consent can appear to limit an investigator's ability to share data with the research community. In reality, investigators can inform study participants that they are scientists with an obligation to protect confidentiality and still share the study data with the broad scientific community. Many effective means exist to create public-use data files or share restricted-use data files under controlled conditions. That is, data can be modified to reduce the risk of disclosure or shared with additional safeguards while preserving their value for science.

Model Language

Here are two model statements investigators may use in informed consents to describe protection of confidentiality that also allows data sharing.

Sample 1. Study staff will protect your personal information closely so no one will be able to connect your responses and any other information that identifies you. Federal or state laws may require us to show information to university or government officials (or sponsors), who are responsible for monitoring the safety of this study. Directly identifying information (e.g. names, addresses) will be safeguarded and maintained under controlled conditions. You will not be identified in any publication from this study.

Sample 2. The information in this study will be used only for research purposes and in ways that will not reveal who you are. Federal or state laws may require us to show information to university or government officials (or sponsors) who are responsible for monitoring the safety of this study. You will not be identified in any publication from this study.

Known Concerns and Recommended Alternatives

https://www.icpsr.umich.edu/icpsrweb/content/datamanagement/confidentiality/conf-language.html

A REES entry includes:

SECTION 1: General study Information SECTION 2: Description of study SECTION 3: Research Questions SECTION 4: Study design SECTION 5: Sample characteristics SECTION 6: Outcomes SECTION 6: Outcomes SECTION 7: Analysis Plans SECTION 8: Additional materials



www.peersdatahub.net





Web-based interface

- o Quick to enter a study
- $_{\odot}\,$ Easy to navigate
- Currently 199 entries



Registry of Efficacy and Effectiveness Studies

MY REGISTRY SEARCH THE REGISTRY REGISTER A STUDY WWC REGISTRY HELP +

Welcome to the new home of REES at ICPSR, with a fresh new look and improved functionality. You can explore the registry, access existing registrations, or create one of your own. To make REES even more secure, you will need to sign in using your ICPSR MyData account. If you don't yet have an account, the process is quick, easy and free. As a bonus, you can access ICPSR's other data and features.

REGISTRY OF EFFICACY AND EFFECTIVENESS STUDIES

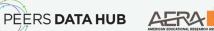
The Registry of Efficacy and Effectiveness Studies (REES) is a database of causal inference studies in education and related fields.

REES is designed to increase transparency of and access to information about both ongoing and completed efficacy and effectiveness studies.

REES accommodates a range of study designs, including randomized trials, quasi-experimental designs, regression discontinuity designs, and single case designs. The database is searchable and exportable.









WHERE TO SHARE?

FAIR data

○ Findable, Accessible, Interoperable, Reusable

Put your data where it will be

- Found by others
- $_{\odot}\,$ Preserved in the face of technological change
- Safe for provenance and confidentiality
- Uniquely and persistently identified
- \circ Cited
- $_{\odot}\,$ With the other articles in the journal





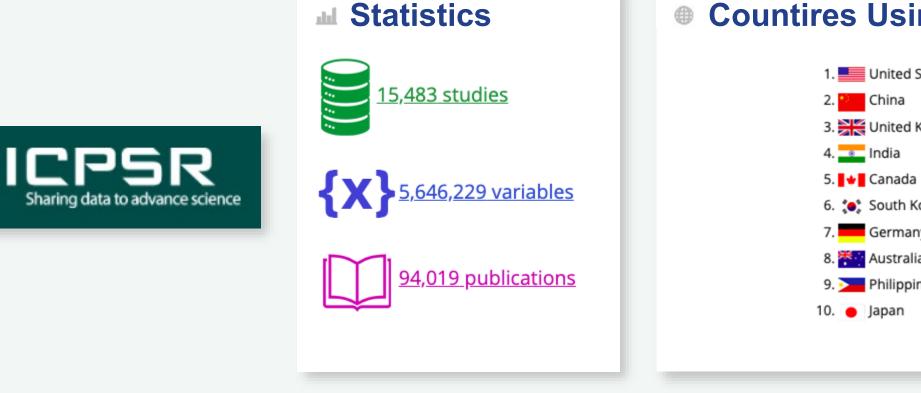
American Educational Research Association Data Repository

Depositing Data with openICPSR to fulfill the American Educational Research Association's Archiving and Replication Requirements





Research that makes an impact!



Countires Using Our Data ۲







An NSF funded collaborative initiative

- Found by others
- Build on the expertise and experience in the AERA Grants Program to promote high quality analyses of underutilized data
- Enable sustained contributions with data through training and capacity building
- Support research capable of adding foundational knowledge of wide significance about teaching and learning in STEM fields

https://www.icpsr.umich.edu/web/pages/AERA/index.html





THANKS AND VISIT THE PEERS HUB EARLY AND OFTEN

PEERS IS HERE FOR YOU

www.peersdatahub.net

CONNECT WITH YOUR PEERS

- o Join a PEERS Pod or participate in the Interactive Researcher Gallery
- $_{\odot}\,$ Ask a question
- PEER to PEER forum
- NCSES data users <u>forum</u>
- Keep in touch through the PEERS <u>mailing list</u>

QUESTIONS OR SUGGESTIONS?

You can always reach us at <u>AERA-ICPSR-PEERS@aera.net</u>

