

# Using Evidence to Guide Education Reforms

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Human Capital and Inequality  
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# Outline

- ❑ Why Evidence Matters
- ❑ Engaging Stakeholders in Using and Generating Credible Evidence
  - Evidence-based grant-making
  - Responding to state and local demand
- ❑ Promoting Common Standards
- ❑ Making Evidence Accessible

# Why Evidence Matters

- ❑ Expenditures for education are high & rising
  - Absolute \$
  - Per pupil \$
  - \$ as % of GDP, esp. for PSE
- ❑ Performance has been relatively flat & with big trouble spots
  - High % “failing” to meet standards
  - Many leave school without career skills
- ❑ Budgets are tight and shrinking
  - Need to do more with less

# Engaging Stakeholders in Using & Generating Evidence

- ❑ Tiered Evidence Grant-making
  - Investing in Innovation (I-3)
  - Race to the Top Early Learning Challenge Grants (RTT-ELC)
- ❑ Pay for Success
  - Social impact bonds & performance-based contracting
- ❑ Evidence-linked Policy waivers
  - Expanded Pell Grant eligibility & ESEA waivers
- ❑ Facilitating Conditions
  - Access to evaluation technical assistance
  - Federally managed & funded evaluations
  - Tight budgets & tough trade-offs → incentives

# Interagency Workgroup to Develop Common Evidence Standards

## □ Rationale

- Increase the pace & efficiency of research to support policy and practice
- Raise the quality of evidence to support policy decisions & practice

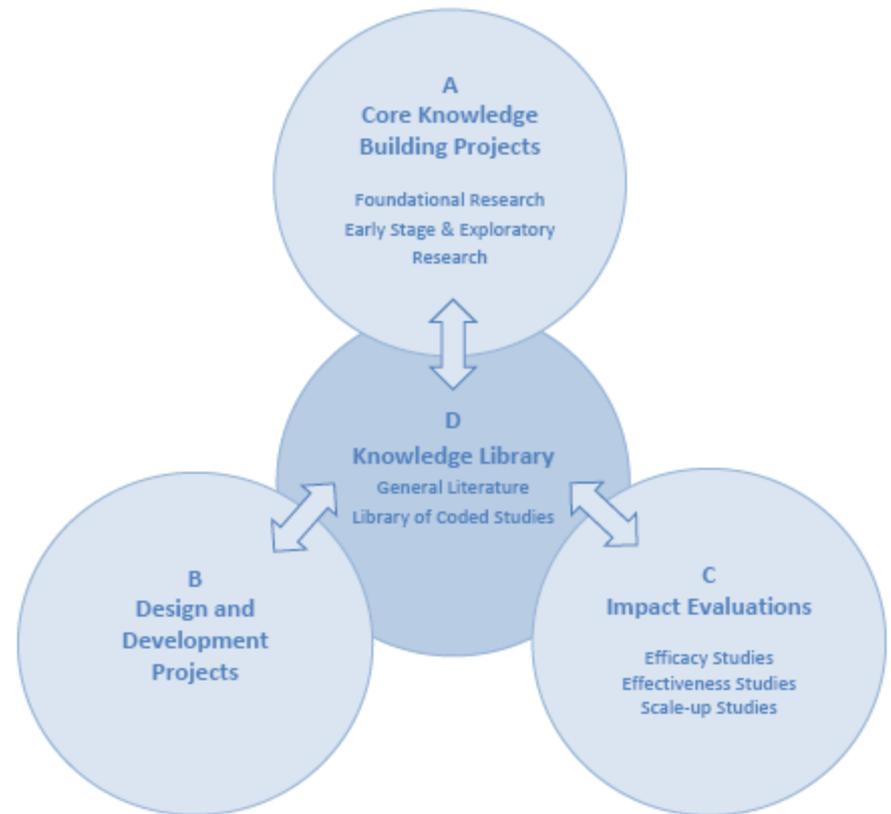
## □ Differentiate Standards by Purpose

- Fundamental & Exploratory Research
- Design & Development Projects
- Efficacy, Effectiveness & Scale-up Testing

## □ Promote Dissemination of All “Learnings”

# Evidence Generation & Sharing Framework

- ❑ Differentiate types of R&D
- ❑ Create central “knowledge” library
  - Systematic coding
- ❑ Define & apply evidence standards
  - Investment potential
  - Knowledge creation



# Structure of Common Standards for Education Research

Funding Criteria	Content & Subheadings
Purpose	<ul style="list-style-type: none"> <li>• What services will be delivered</li> <li>• What will we learn</li> </ul>
Justification (Entrance) Standards	<ul style="list-style-type: none"> <li>• Significance for policy and/or practice</li> <li>• Basis in theory or empirical evidence</li> </ul>
Evidence (Exit) Standards	<ul style="list-style-type: none"> <li>• Likely project outcomes</li> <li>• Quality of research plan</li> <li>• External feedback plan</li> </ul>

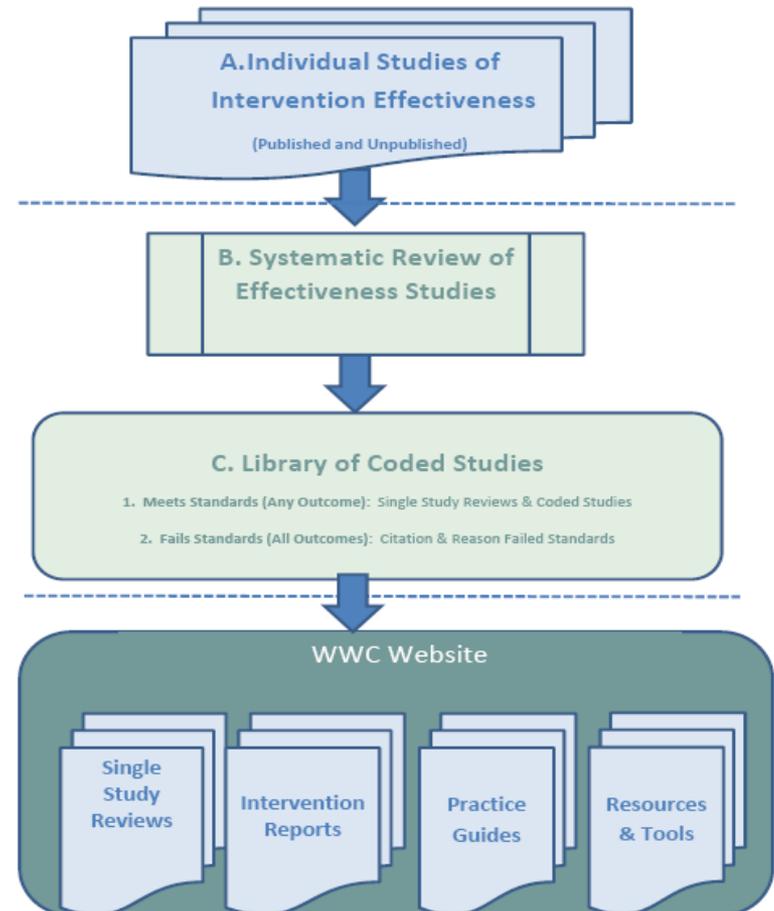
# Keeping Track of What We Know: The What Works Clearinghouse (WWC)

## Mission:

- ❑ To be a central and trusted source of scientific evidence for what works in education

## Strategy:

- ❑ Identify relevant evidence
  - Extract credible evidence
- ❑ Disseminate findings and tools
  - Ready-to-use reports
  - Custom reports
  - Resources and tools to support new analyses



# The WWC Systematic Review Process



# WWC Evidence Standards

- ❑ Studies eligible for review by the WWC
  - Provide causal evidence between intervention and outcomes
  - Use a comparison group
- ❑ Eligible designs
  - Randomized controlled trials (RCTs)
  - Quasi-experimental designs (QEDs)
  - Piloting other designs (RDD and SCDs)
- ❑ Ineligible designs
  - Testimonials, descriptions, correlations, and case studies

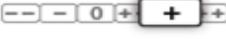
# WWC Standards: Evaluating Research Quality

- ❑ Study design supports reliable conclusions
- ❑ Ratings
  - ❑ Meets WWC Evidence Standards
    - Randomized controlled trials with little loss of sample
  - ❑ Meets WWC Evidence Standards with Reservations
    - Quasi-experimental designs with similar groups
  - ❑ Does Not Meet WWC Evidence Standards

# Summaries of Evidence for Individual Interventions

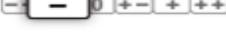
- ❑ Rating of effectiveness
- ❑ Magnitude of effect
- ❑ Extent of evidence
- ❑ Or, “No Evidence”

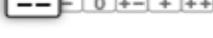

*Positive:* strong evidence that intervention had a positive effect on outcomes.


*Potentially Positive:* evidence that intervention had a positive effect on outcomes with no overriding contrary evidence.


*Mixed:* evidence that intervention's effect on outcomes is inconsistent.


*No Discernible:* no evidence that intervention had an effect on outcomes.


*Potentially Negative:* evidence that intervention had a negative effect on outcomes with no overriding contrary evidence.


*Negative:* strong evidence that intervention had a negative effect on outcomes.

**Table 1. Summary of findings<sup>4</sup>**

Outcome domain	Rating of effectiveness	Improvement index (percentile points)		Number of studies	Number of students	Extent of evidence
		Average	Range			
Alphabetics	Potentially positive effects	+14	-17 to +36	2	3,000	Medium to large
Fluency	No discernible effects	-8	-8 to -9	1	41	Small
Comprehension	Mixed effects	+3	-12 to +17	2	171	Small

# Intervention Reports – Current Topics

Adolescent Literacy

Autism

Beginning Reading

Character Education

Children Classified as Having an  
Emotional Disturbance

Dropout Prevention

Early Childhood Education

Early Childhood Education for  
Children with Disabilities

Elementary School Math

English Language Learners

High School Math

Middle School Math

Science

Students with Intellectual Disabilities

Students with Learning Disabilities

## Specific Interventions

Accelerated Reader

Daisy Quest

Ladders to Literacy

Peer-Assisted Learning

Strategies

Reading Recovery

Saxon Phonics

Stepping Stones to Literacy

*Etc. (over 150 more...)*

# Practice Guides

## What They Are

- ❑ Recommendations for educators to address challenges in their classrooms and schools.
- ❑ Clear statements of the level of research evidence supporting each recommendation

## Development Process

- ❑ Expert panel to develop recommendations
- ❑ Comprehensive literature search & review against WWC standards

## Sample Topics

- ❑ Data driven decision-making
- ❑ School turnaround
- ❑ Teaching Fractions

# WWC Influence on Research and Practice

## ❑ Reviewing the research

- 6,410 studies reviewed (about 6% meet standards)

## ❑ Summarizing the evidence

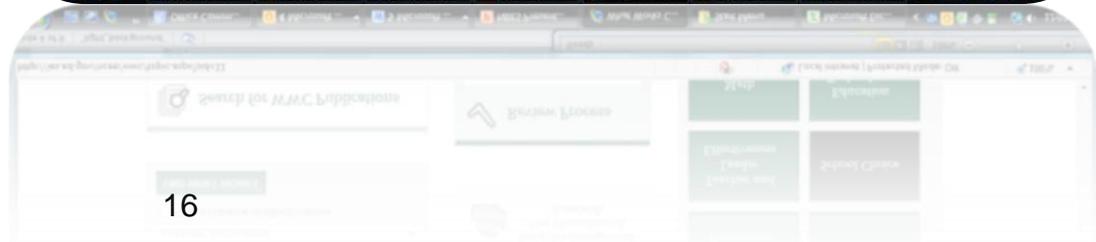
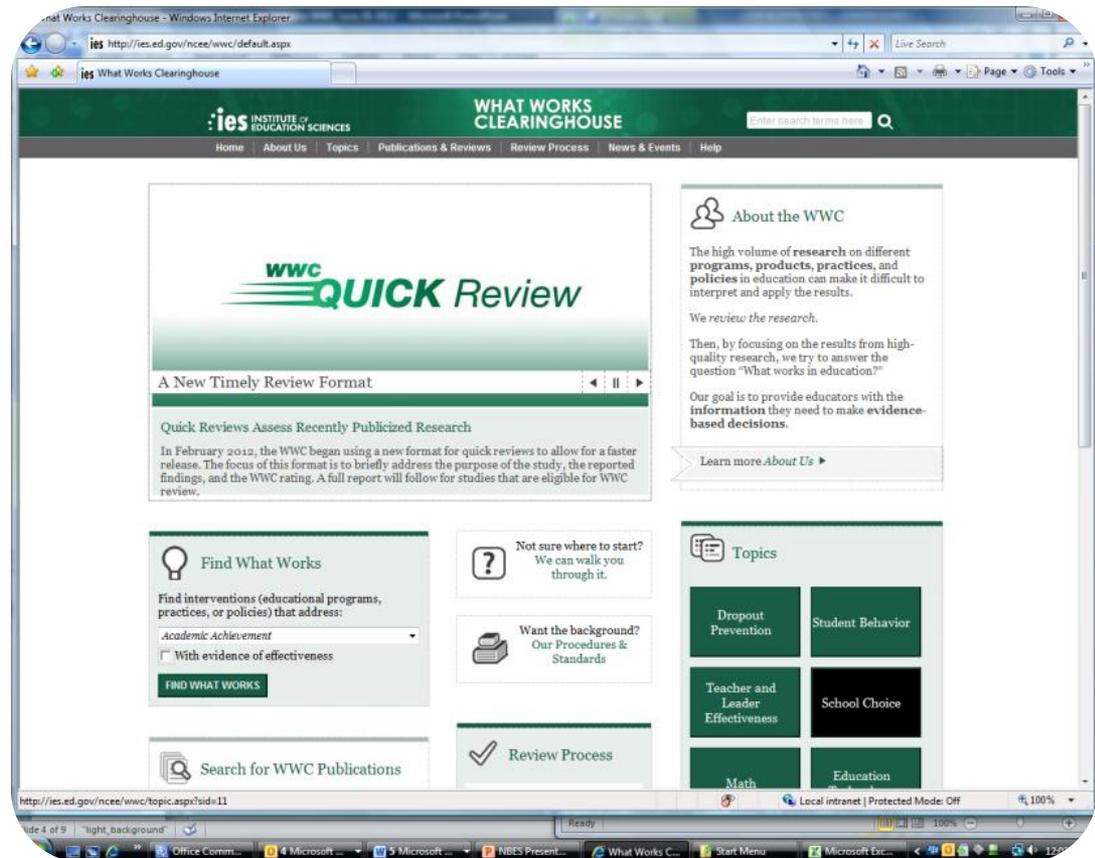
- More than 550 intervention reports (about 150 with evidence)
- 16 practice guides released (4 in progress)
- 73 single study & quick reviews

## ❑ Web-based Dissemination

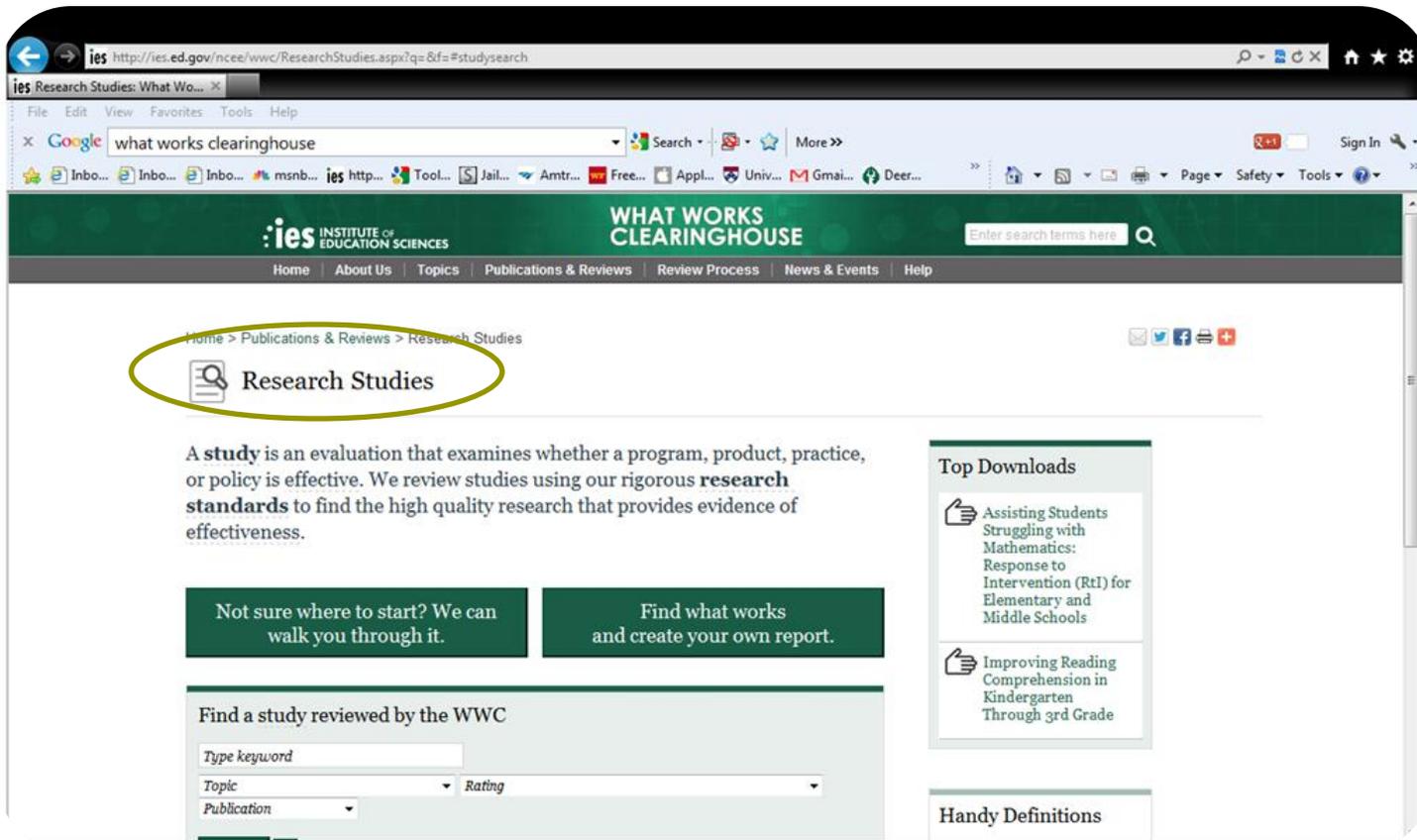
- Top 3 Practice Guides – over 140,000 downloads each
- Top Intervention Reports – over 9,000 downloads
- Procedures and Standards Handbook – 11,000 downloads
- Web visits since September 2011 – 961,000 (and 8.7 million hits)

# WWC Home Page

- ❑ Rotator
- ❑ Quick Search
- ❑ Prominent Links
  - Find What Works
  - Topic Search
  - Pub Search
  - Technical & Support Resources



# Find Studies Reviewed by WWC



# View and Export Lists of Studies

## □ Filter

- Keyword
- Evidence Rating
- Associated Publication

## □ Full Citation

## □ Rating

- And, Reasons if Fails Standards

Research Studies: What Works Clearinghouse - Windows Internet Explorer

http://ies.ed.gov/ncee/wwc/ResearchStudies.aspx

ies Research Studies: What Works Clearinghouse

WHAT WORKS CLEARINGHOUSE

Home | About Us | Topics | Publications & Reviews | Review Process | News & Events | Help

Home > Publications & Reviews > Research Studies

Research Studies

A **study** is an evaluation that examines whether a program, product, practice, or policy is effective. We review studies using our rigorous **research standards** to find the high quality research that provides evidence of effectiveness.

Not sure where to start? We can walk you through it. Find what works and create your own report.

Find a study reviewed by the WWC

Type keyword  
Topic  
Publication

SEARCH ? Reset Search

Showing 1 to 10 of 6456 results. Next 10 >

Aaron, P.G., Joshi, R.M., Gooden, R., & Bentum, K.E. (2008). Diagnosis and treatment of reading disabilities based on the component model of reading. *Journal of Learning Disabilities*, 41(1), 67-84.

**Rating:** Does Not Meet Evidence Standards because the measures of effectiveness cannot be attributed solely to the intervention - the intervention was combined with another intervention.

Top Downloads

- Assisting Students Struggling with Mathematics: Response to Intervention (RtI) for Elementary and Middle Schools
- Improving Reading Comprehension in Kindergarten Through 3rd Grade

Handy Definitions

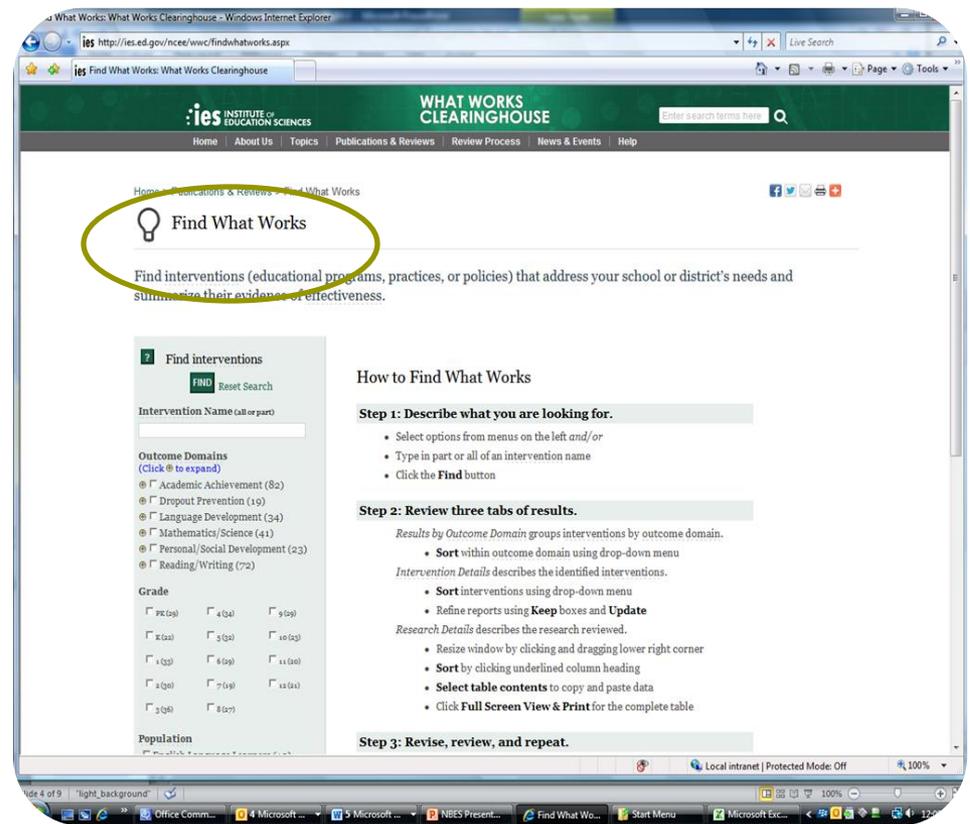
- study
- study rating
- meets evidence standards
- meets evidence standards with reservations
- does not meet

# Find What Works Tool

❑ **Creates Evidence Summaries**

❑ **Filtered by:**

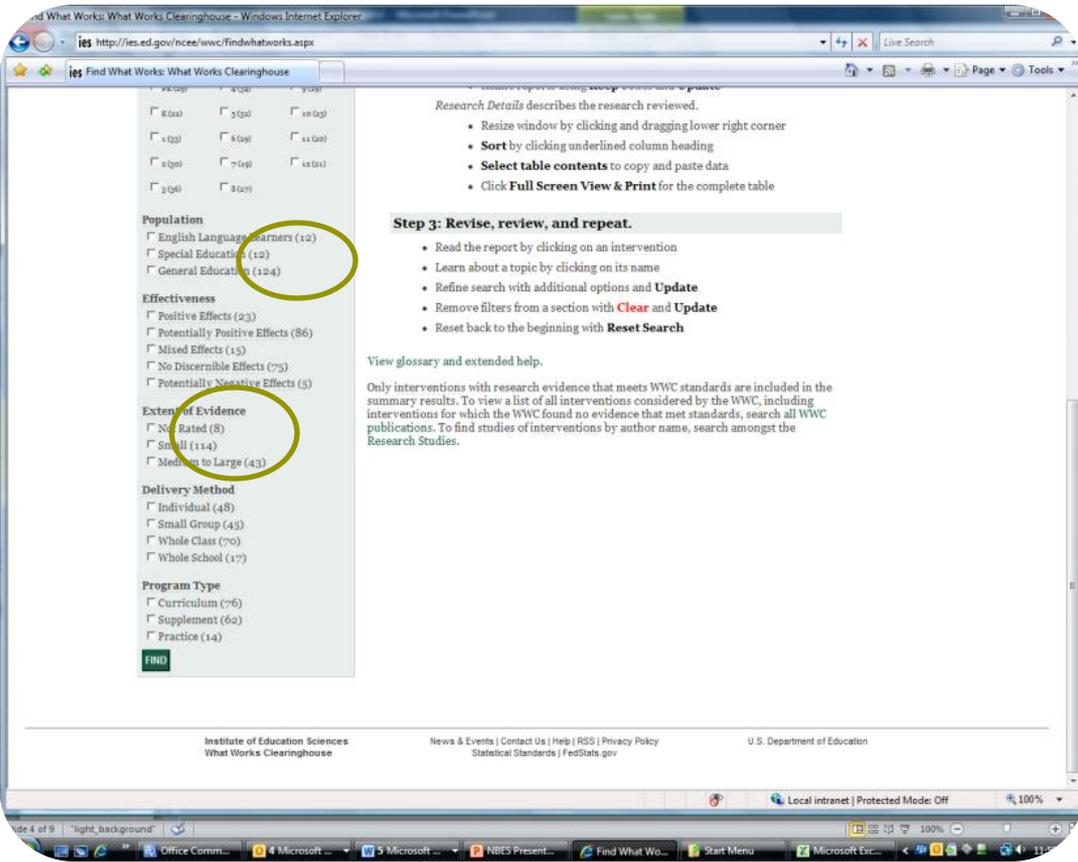
- Topic
- Outcome
- Grade
- Population
- Findings
- Extent of Evidence



# Find What Works Tool (Continued)

## Quick Counts of Studies with Evidence by:

- Population
- Effectiveness
- Extent of Evidence
- Delivery Method
- Program Type

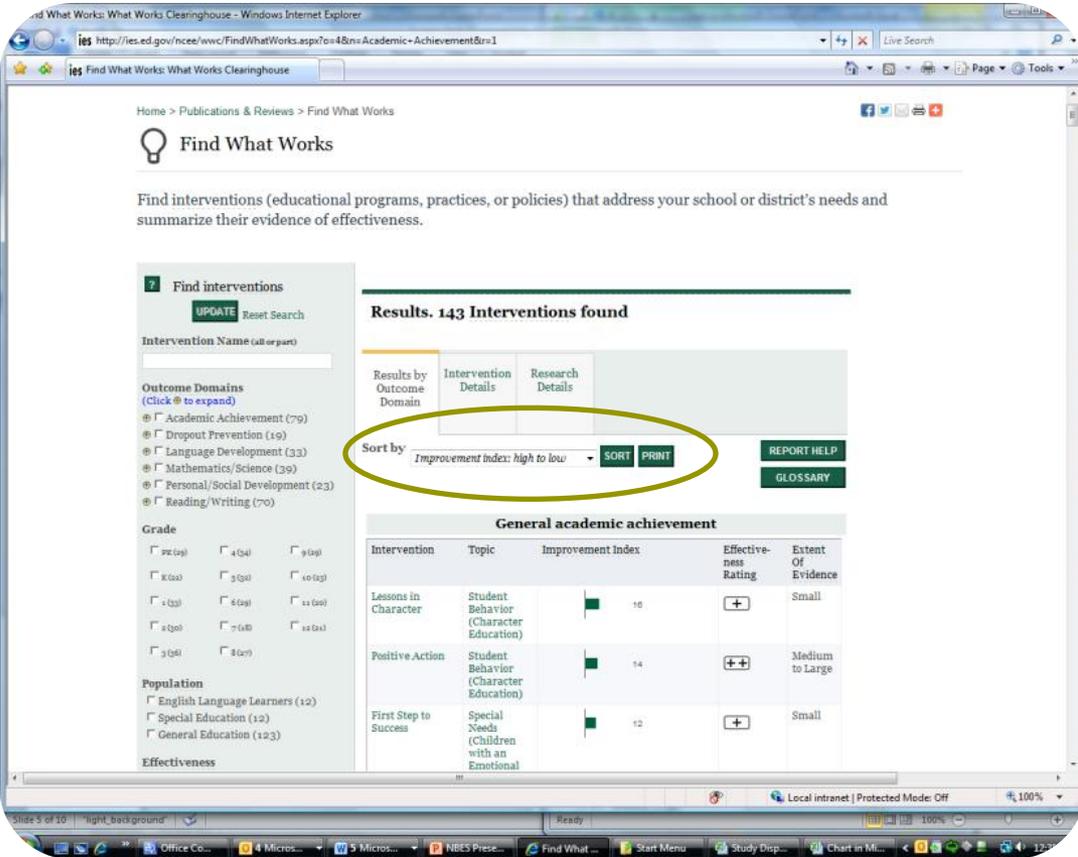


# WWC Custom Report View 1

## Quick Summary

- Improvement Effect
- Effectiveness Rating
- Extent of Evidence

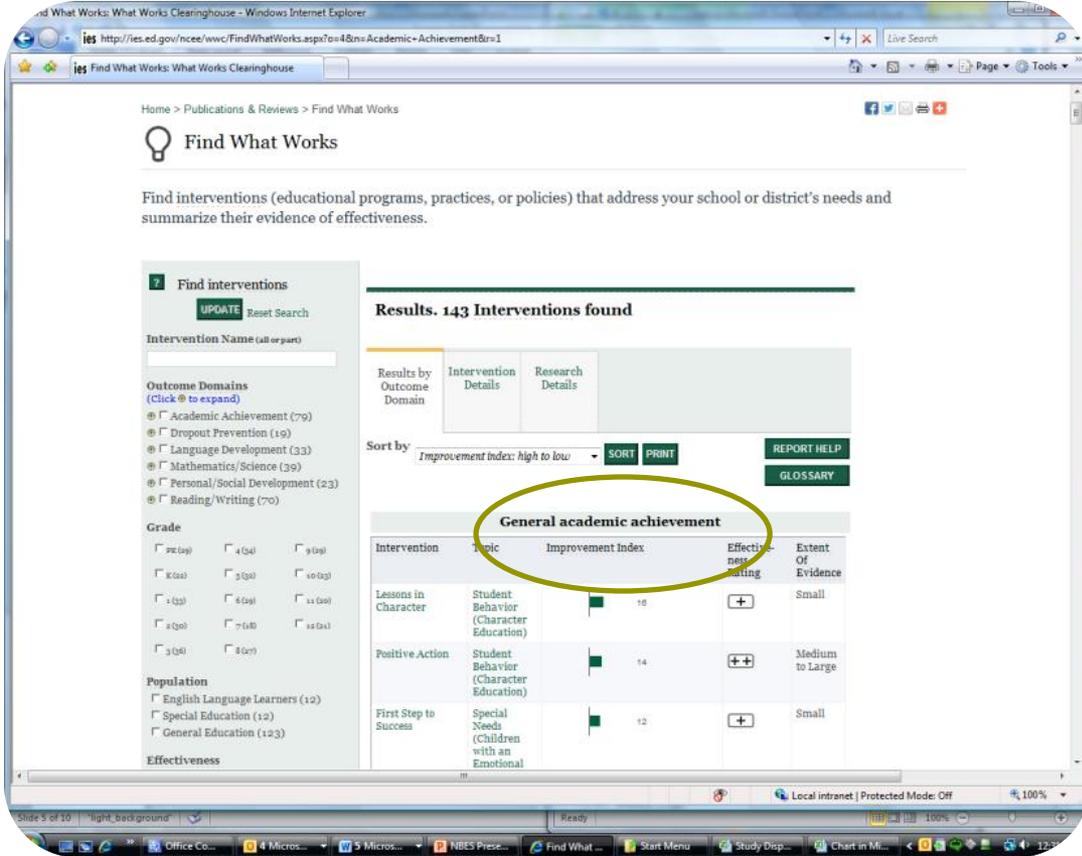
## Choice of "Sort" Criterion



# Custom Report View 1 (Continued)

## One Panel per Outcome Domain

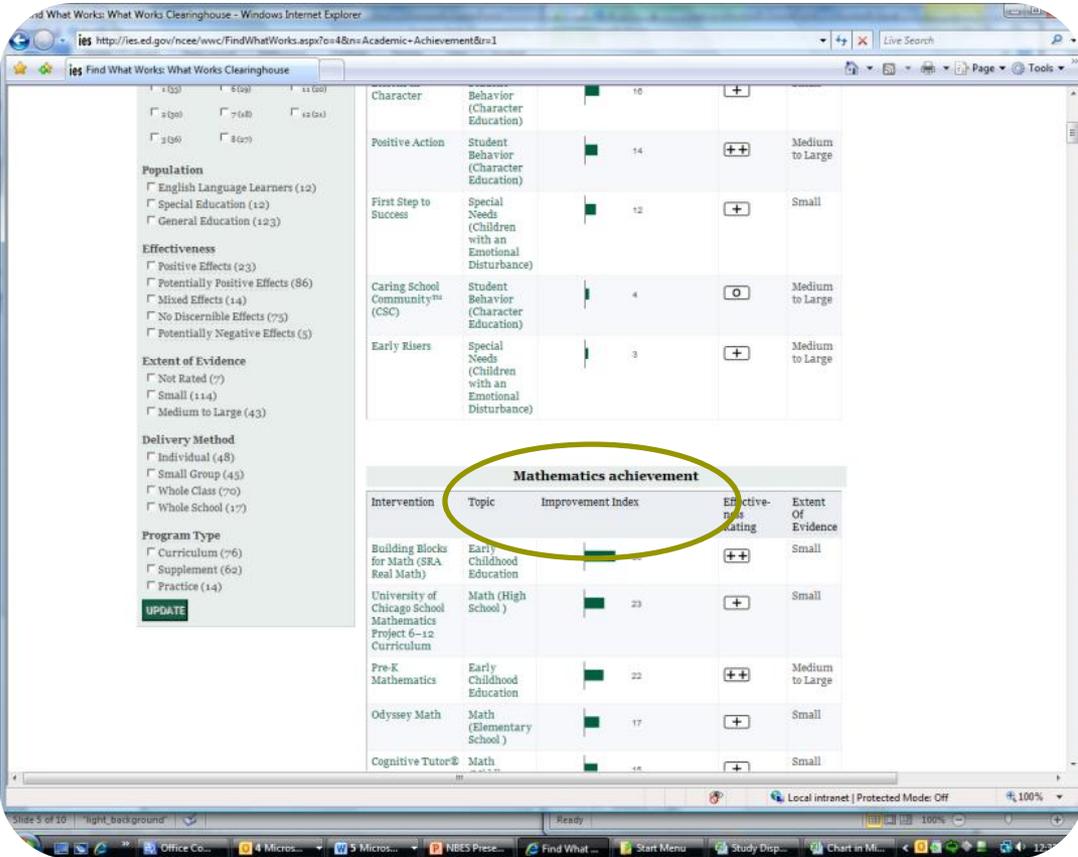
- General academic achievement
- Mathematics achievement



# Custom Report View 1 (Continued)

## One Panel per Outcome Domain

- General academic achievement
- Mathematics achievement



# Custom Report View 2

## Study by Study Summary

- Intervention
- Population groups & delivery method
- Findings & extent of evidence

The screenshot displays the IES Find What Works Clearinghouse interface. The main content area shows a custom report for 'Accelerated Math™ (Reviewed for Middle School Math)'. The report includes a 'Keep' checkbox, a description of the software tool, and a table of findings.

**Results. 143 Interventions found**

Sort by: Intervention name: A-Z

Check interventions' "Keep" boxes and click Update to limit results below.

**Accelerated Math™ (Reviewed for Middle School Math)**

Keep

Accelerated Math, published by Renaissance Learning, is a software tool used to customize assignments and monitor progress in mathematics for students in grades 1-12. Accelerated Math creates individualized assignments that align with state standards and national guidelines, scores student work, and generates formative feedback through reports for teachers and students. The software can be used in conjunction with the existing math curriculum to add practice components and aid teachers in differentiating instruction via the... [READ FULL REPORT.](#)

Outcome Domain	Improvement Index	Effectiveness Rating	Extent of Evidence
Mathematics achievement	4	0	Medium to Large

**Intervention Characteristics Examined in the Reviewed Research Studies**

**GRADE:** 6, 7, 8  
**POPULATION:** General Education  
**DELIVERY METHOD:** Whole Class, Whole School  
**PROGRAM TYPE:** Supplement

**Find interventions**

Intervention Name (all or part)

**Outcome Domains**  
 (Click @ to expand)

- Academic Achievement (79)
- Dropout Prevention (10)
- Language Development (33)
- Mathematics/Science (39)
- Personal/Social Development (23)
- Reading/Writing (70)

**Grade**

- PK (59)  4 (24)  9 (59)
- K (24)  3 (24)  10 (59)
- 1 (23)  8 (24)  11 (59)
- 2 (24)  7 (48)  12 (54)
- 3 (24)  8 (27)

**Population**

- English Language Learners (12)
- Special Education (12)
- General Education (123)

**Effectiveness**

- Positive Effects (23)
- Potentially Positive Effects (86)
- Mixed Effects (14)
- No Discernible Effects (75)
- Potentially Negative Effects (5)

**Extent of Evidence**

- Not Rated (7)
- Small (114)
- Medium to Large (43)

**Delivery Method**

# Custom Report View 3: Full Screen & Export

## Intervention-Specific Details

- Evidence of effectiveness
- Evidence base
- Characteristics of the intervention
- Report date

Printed on 6/14/2012  
Institute of Education Sciences U.S. Department of Education

**ies** WHAT WORKS CLEARINGHOUSE Find What Works

Results: 143 Interventions found

Intervention	Topic	Evidence			Number of Studies For Intervention			Combined Sample Size		Intervention Characteristics Examined in the Reviewed Research Studies			Report Date	
		Outcome Domain	Improve - ment Index	Effectiveness Rating	Extent of Evidence	Total	Meets Standards	Meets with Reservations	# of Schls	# of Students	Grades	Delivery Method		Program Type
Accelerated Math™	Elementary School Math	Mathematics achievement	7	Mixed Effects	Medium to Large	32	1	2	61	2179	2, 3, 4, 5	Whole Class, Whole School	Curriculum, Supplement	September 2010
Accelerated Math™	Middle School Math	Mathematics achievement	4	No Discernible Effects	Medium to Large	38	0	3	7	2259	6, 7, 8	Whole Class, Whole School	Supplement	September 2008
Accelerated Middle Schools	Dropout Prevention	Progressing in school	35	Positive Effects	Medium to Large	3	0	2	14	848	6, 7, 8	Whole School	Curriculum	July 2008
Accelerated Middle Schools	Dropout Prevention	Staying in school	18	Potentially Positive Effects	Medium to Large	3	1	2	14	848	6, 7, 8	Whole School	Curriculum	July 2008
Accelerated Reader™	Beginning Reading	Reading achievement	16	Potentially Positive Effects	Small	100	1	0	12	426	K, 1, 2, 3	Individual	Curriculum, Supplement	October 2008
Accelerated Reader™	Adolescent Literacy	Reading fluency	7	No Discernible Effects	Small	318	1	0	1	82	4, 5, 6, 7, 8	Individual	Curriculum, Supplement	August 2010
Accelerated Reader™	Beginning Reading	Reading fluency	3	No Discernible Effects	Small	100	1	0	1	32	K, 1, 2, 3	Individual	Curriculum, Supplement	October 2008
Accelerated Reader™	Adolescent Literacy	Reading comprehension	3	No Discernible Effects	Medium to Large	318	1	1	23	2877	4, 5, 6, 7, 8	Individual	Curriculum, Supplement	August 2010
Accelerated Reader™	Beginning Reading	Reading comprehension	0	Mixed Effects	Medium to Large	100	2	0	12	210	K, 1, 2, 3	Individual	Curriculum, Supplement	October 2008
Acceleration Via	Adolescent	Reading	na	No	Small	66	0	1	4	96	9, 10	Whole Class	Supplement	September

# Building Capacity for Creating & Using Evidence

## □ Evidence Generation

- Pre-doc & Post-doc Training
- IES Sponsored R&D
- WWC training & data sharing
- Regional Educational Laboratory Program
- Federal Support for SLDS & Interagency Data Sharing

## □ Evidence Use

- WWC and Initiatives in Health and Human Services, Labor, Justice
- Regional Educational Laboratories and Comprehensive Centers
- Technical Assistance Centers

# Busting Myths About Evaluating Education Strategies Using Experimental Designs

- ❑ It need not be costly
  - Example: The effects of using the 1040 data to complete FAFSA applications on college application and completion
- ❑ It need not be unethical; it may capitalize on opportunities for smarter implementation
  - Example: Alabama's decision to phase in a new Math & Science curriculum and learn about effectiveness in the process
- ❑ Good experimental studies need not take years to complete
  - Example: An experimental study of the effectiveness of on-line Algebra instruction for students in rural areas

# WVa Schools Act Without Evidence

Use of math software in W.Va. schools doesn't add up - News - The Charleston Gazette - West Vi - Windows Internet Explorer

http://wvgazette.com/News/201205250154

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**News**

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May 25, 2012

## Use of math software in W.Va. schools doesn't add up

U.S. Education Dept. finds 'no discernible effects' in raising test scores; state reviews are mixed  
By Amy Julia Harris

CHARLESTON, W.Va. -- West Virginia educators have paid millions of dollars to a company for a new high school math software that's supposed to boost student test scores even though the product produced "no discernible effects" on student achievement, according to the U.S. Department of Education.

Almost 15,000 West Virginia high school students in more than 20 school districts are using a state-approved program called Carnegie Learning Cognitive Tutor, a computer-assisted math course that the Carnegie Learning company promises will revolutionize math learning and increase test scores.

However, the U.S. Department of Education analyzed the Cognitive Tutor software in 2010 and found that, despite the company's claims, the programs had no effect on students' performance on standardized tests.

The report by the What Works Clearinghouse, a research arm of the Department of Education, analyzed four studies on Cognitive Tutor's effectiveness and found that the software had "no discernible effects on mathematics achievement for high school students."

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