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CONNECTICUT STATE
DEPARTMENT OF EDUCATION

EVIDENCE-BASED PRACTICES AND INTERVENTIONS

MAY 2021

INTRODUCTION

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LEARNING TARGETS

- Identify the requirements for selecting evidence-based practices and interventions

- Gain understanding of the key terms and concepts of the Every Student Succeeds Act (ESSA) tiers of evidence

- Learn how to utilize the CSDE Evidence-Based Practice Guides

ESSA EVIDENCE-BASED REFERENCES

(21) EVIDENCE-BASED.—
    (A) IN GENERAL.—Except as provided in subparagraph (B), the term "evidence-based", when used with respect to a State, local educational agency, or school activity, means an activity, strategy, or intervention that—
        (i) demonstrates a statistically significant effect on improving student outcomes or other relevant outcomes based on—
            (I) strong evidence from at least 1 well-designed and well-implemented experimental study;
            (II) moderate evidence from at least 1 well-designed and well-implemented quasi-experimental study; or
            (III) promising evidence from at least 1 well-designed and well-implemented correlational study with statistical controls for selection bias; or
        (ii)(I) demonstrates a rationale based on high-quality research findings or positive evaluation that such activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes; and
            (II)[12] includes ongoing efforts to examine the

WHY IS IT IMPORTANT TO FOCUS ON EVIDENCE?

The Elementary and Secondary Education Act (ESEA) calls for the use of evidence-based activities, strategies and interventions to accelerate student learning.

No Child Left Behind: Used the words "research based" but there was no focus on the outcome of the research.
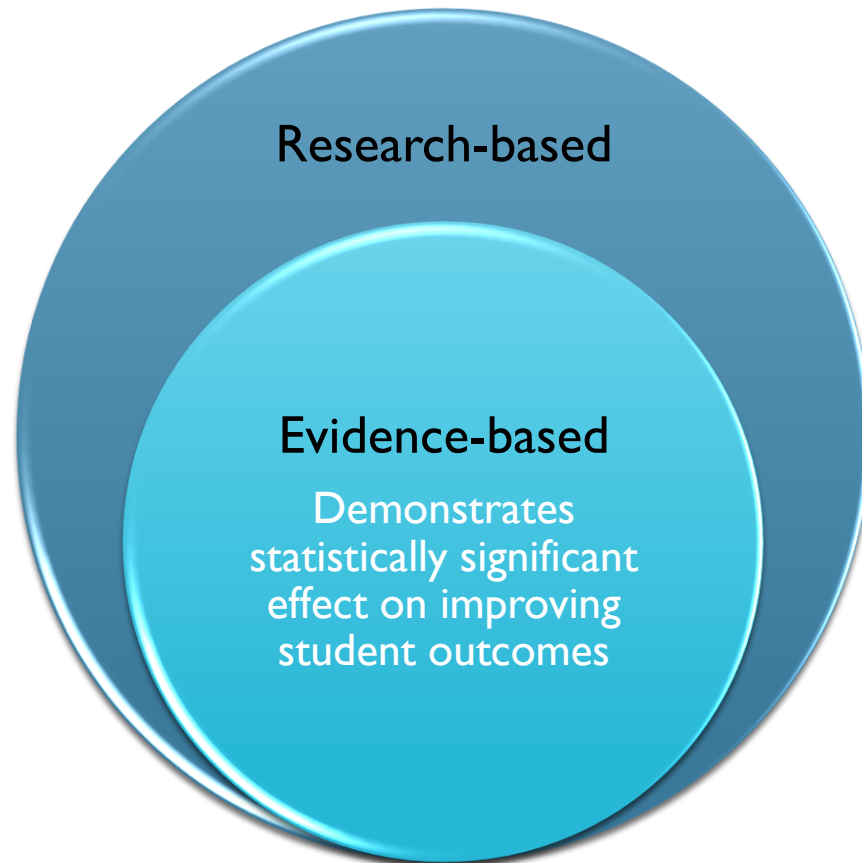
ESSA: Establishes a framework with tiers of evidence for consideration and by use of school districts when selecting evidence-based activities, strategies and interventions – especially related to school improvement.

Evidence-based practices and interventions go one step further:
- What is the extent to which the outcomes improved?
- What are the odds of achieving the desired outcome?
- Is it proven with students similar to your populations and setting?

RESEARCH-BASED VS. EVIDENCE-BASED

Research-based

Evidence-based

Demonstrates
statistically significant
effect on improving
student outcomes

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UNDERSTANDING EVIDENCE-BASED STRATEGIES

Develop an evidence-based mindset

- Are we seeing the improvements we expected? If not, why?

- How do we know for sure? What does the data tell us?

- Are there strategies out there that have been tested and proven to work?

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CSDE CYCLE FOR CONTINUOUS IMPROVEMENT

Selecting evidence-based strategies is only part of the cycle for continuous improvement

REVIEW THE DATA AND PRACTICES TO PRIORITIZE IMPROVEMENT AREAS

To choose the most appropriate evidence-based practice for your specific circumstances, leaders must first engage in the needs-assessment process.

KEY RESOURCE: CSDE Needs Assessment Toolkit

IDENTIFYING EVIDENCE-BASED PRACTICES THAT MEET LOCAL PRIORITIES

After the gap between current practices and important strategies for action has been defined, the next step is to explore key resources and identify potential strategies that meet the evidence requirements for a given tier.

- AIR ESSA Action Guide

ESSA TIERS OF EVIDENCE

What are the levels?

ESSA breaks down the definition of evidence-based into four distinct levels. Each level reflects the rigor of the study design used to study the intervention.

Why do the levels matter?

Federal funding sources will be tied to different evidence levels. For example, school improvement (SIG) funds can only be spent on interventions supported by Tier 1, Tier II or Tier III evidence.

TIER 4: DEMONSTRATES A RATIONALE

- A well-specified logic model explains how the intervention is likely to improve outcomes.

- It is supported by rigorous research in the field. Based on existing research, the intervention cannot yet be defined as Tier 1, Tier 2 or Tier 3. However, based on existing research and data, there is a good reason to believe the intervention could improve a relevant student outcome.

- A study that would otherwise meet Tier 1, 2, or 3 but does not meet the significant favorable effect requirement for those tiers.

- **NOTE**: A Tier 4 evidence-based intervention does not fulfill the requirement that all CSI and TSI schools must have at least one evidence-based intervention in their school improvement plans.

TIER 3: PROMISING EVIDENCE

- Well-designed, well-implemented correlational study

- Evidence that the strategy improves a student outcome, but that research may consist of correlational studies – studies that can show a relationship between the strategy and outcome, but cannot show that the improved outcome was the result of the strategy.

- No other studies show that this strategy negatively impacts an outcome.

- A strategy that would otherwise be considered Tier 1 or Tier 2, but it does not meet the sample size requirements, is considered Tier 3.

TIER 2: MODERATE EVIDENCE

- Well-executed experimental or quasi-experimental study (matched groups, interrupted time series, et al.)

- Studies have found that the strategy improves a relevant outcome (e.g. reading scores, attendance rates).

- Students in these studies have not been randomly assigned, but researchers have used statistical matching methods that allow them to speak with confidence that the strategy results in an improved outcome.

- Large, multi-site sample

- Either population or setting in the study are similar to your population and setting.

- No other studies show that this strategy negatively impacts an outcome.

TIER 1: STRONG EVIDENCE

- Supported by strong evidence from at least one well designed, well implemented experimental study (randomized control groups).

- Studies show that this strategy improves a relevant student outcome (e.g. reading scores, attendance rates).

- In these studies, students have been randomly assigned to treatment groups or control groups, so that researchers can speak with confidence that those who participate in the intervention strategy outperform those who do not.

- Large, multi-site sample

- Both population <u>and</u> setting in the study are similar to your population and setting.

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KEY CONSIDERATIONS

- What **resources** are required to implement this intervention?

- Will the potential impact of this intervention justify the **costs**, or would more **cost-effective interventions** accomplish the same outcomes?

- What is the **local capacity** to implement this intervention? Are **funds** available? Do staff members have the needed **skills**? Is there **buy-in** for the intervention?

- How does this intervention fit into **larger strategic goals** and other **existing efforts**?

- How will this intervention be **sustained over time**?

KEY RESOURCE: Hexagon Tool from National Implementation Research Network for evaluating local fit of evidence-based practices

CONNECTICUT'S EVIDENCE-BASED PRACTICE GUIDES

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CSDE EVIDENCE-BASED PRACTICE GUIDES

Over the past four years, the CSDE has published a suite of Evidence-Based Practice Guides, intended to inform school and district decision-making regarding instructional and student support programming, and to optimize the use of local, state, and federal improvement funds.

CSDE EVIDENCE-BASED PRACTICE GUIDES

- The CSDE has collaborated to identify the leading practices that research suggests will increase the likelihood of improved student outcomes.

- Aligned to local, state, and federal long-term education goals.

- The collection of guides is expanded and updated as our stakeholders require and as the field of research grows.

AVAILABLE GUIDES – UPDATED SPRING 2021

- Climate and Culture
- Early Learning
- English Language Proficiency
- Equity Driven Leadership
- Mathematics

- On-Track Graduation
- Reading
- Science
- Student/Family/ Community Engagement

PRACTICE GUIDES STRUCTURE

Systems

Instructional Practice

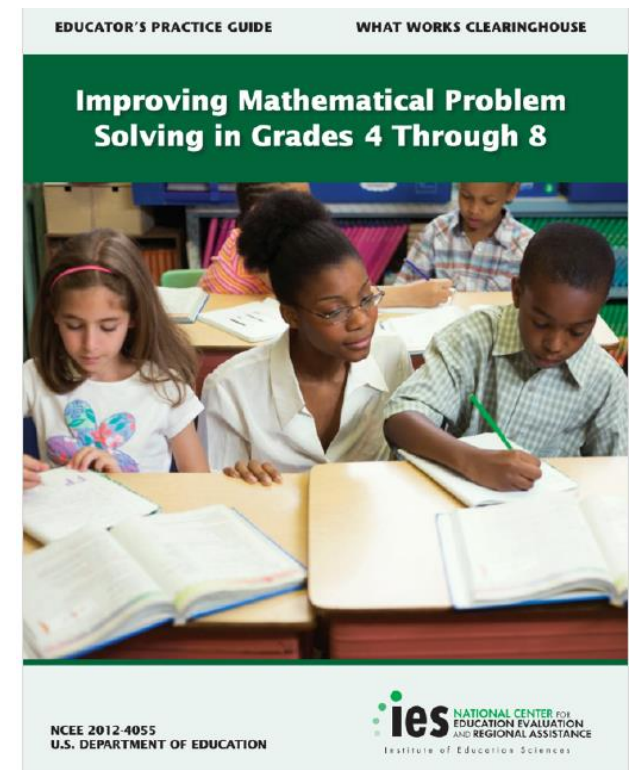**Professional Learning**

Extended Learning

PRACTICE GUIDES STRUCTURE

Evidence-based practice and rationale	Grade band	Evidence level and source
Utilize universal screening. *Screening all students will assist in identifying those at risk for potential mathematics difficulties so that interventions to students identified as at risk can be provided.*	**PreK-3** **4-5** **6-8**	**Tier 2, Moderate** Source: Assisting Students Struggling with Mathematics: Response to Intervention (RtI) for Elementary and Middle Schools (NCEE 2009-4060).
Provide peer-assisted instruction to students. *Cross-age peer tutoring and within-class peer-assisted instruction, where a student explains concepts to another student, is beneficial to students at risk.*	**PreK-3** **4-5** **6-8** **9-12**	**Tier 1, Strong** Source: Jayanthi, M., Gersten, R., Baker, S. (2008). Mathematics instruction for students with learning disabilities or difficulty learning mathematics: A guide for teachers. Portsmouth, NH: RMC Research Corporation, Center on Instruction.
Teach number and operations using a developmental progression. *Early experience with number and operations is fundamental for acquiring more complex math concepts and skills.*	**PreK-3**	**Tier 1, Strong** Source: Teaching Math to Young Children (NCEE 2014-4055).

ADDITIONAL EVIDENCE CLEARINGHOUSES

WHAT WORKS CLEARINGHOUSE

- The What Works Clearinghouse assigns levels of evidence to its resources.

- The WWC Practice Guides provide educators with evidence-based practices to tackle current challenges in education

- The WWC includes tools to assist state and local administrators, teachers, and others in finding research that meets the definitions of strong (Tier 1) or moderate (Tier 2) evidence under ESSA.

EDUCATOR'S PRACTICE GUIDE   WHAT WORKS CLEARINGHOUSE

Improving Mathematical Problem Solving in Grades 4 Through 8

NCEE 2012-4055
U.S. DEPARTMENT OF EDUCATION

ies NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Education Sciences

EVIDENCE CLEARINGHOUSES

- Evidence for ESSA

- Indiana DOE Clearinghouse of Evidence-Based Interventions

- Ohio Evidence-Based Clearinghouse

- Top Tier Evidence

- Blueprints Programs

- ArtsEdSearch

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ADDITIONAL RESOURCES

- <u>ERIC</u> – online library of education research

- <u>JSTOR</u> – digital library of academic journals, books, and primary sources

- <u>Google Scholar</u> – web search engine that indexes the full text or metadata of scholarly literature

CALL TO ACTION

- School improvement plan development

- Evaluation of current initiatives and interventions

- Applications for federal grant funding

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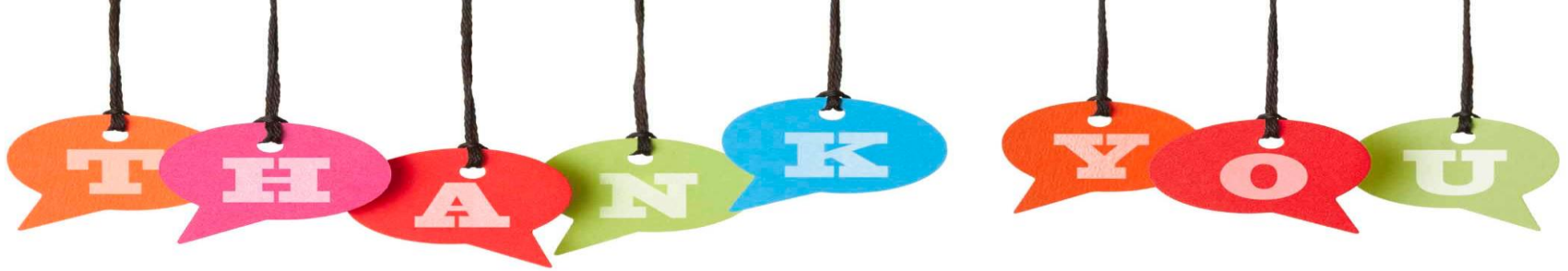
If you have questions regarding evidence-based interventions, please contact Jennifer Webb at the Turnaround Office: Jennifer.webb@ct.gov or 860-713-6603