Integrating Evidence-Based Practices Into the Continuous Improvement Cycle

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August 6, 2019
Objectives

- Understand the Every Student Succeeds Act (ESSA) evidence tiers (Part 1)
- Understand where practitioners can find evidence-based practices (Part 1)
- Consider common pitfalls related to using evidence-based practices throughout the continuous improvement cycle (Part 2)
Part 1: Finding and Selecting Evidence-Based Practices
PreK–12 Continuous Improvement Process

From Continuous Improvement Framework Overview (Minnesota Department of Education [MDE])
Many Decisions Factor Into Selecting Improvement Strategies (Step 3)

Level of evidence is just one of those decisions.
Quick Check:
Who has an understanding of the ESSA Evidence Tiers?
## ESSA Evidence Tiers

At least 1 improvement practice in CSI and TSI schools must demonstrate a favorable statistically significant impact on outcomes based on Tier 1, 2 or 3 evidence.

<table>
<thead>
<tr>
<th>Tier</th>
<th>Evidence rigor</th>
<th>Evidence rigor details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strong evidence</td>
<td>Experimental study that is well-designed and well-implemented</td>
</tr>
<tr>
<td>2</td>
<td>Moderate evidence</td>
<td>Quasi-experimental study that is well-designed and well-implemented</td>
</tr>
<tr>
<td>3</td>
<td>Promising evidence</td>
<td>Correlational study with statistical controls for bias that is well-designed and well-implemented</td>
</tr>
</tbody>
</table>
| 4    | --              | • Demonstrates a rationale based on high-quality research findings or a positive evaluation that the practice is likely to improve outcomes  
• Includes on-going efforts to examine the effects of the practice |

(Source: Elementary and Secondary Education Act, 2015)
Evidence Sources

Districts must *find research* that studies the *proposed* practice from one of the following resources:

- **Online clearinghouses** that compile and evaluate research studies
- **Research studies** not evaluated in clearinghouses
- **Single study reviews** can be commissioned through the Institute of Education Sciences

The intervention may be a *current practice* (if the district finds a study for the practice that meets Tiers 1–3) or may be a *practice that is new* to your school/district.
Local Activity Around Federal Evidence Tiers

Turn and talk with a partner:

• Are the federal tier requirements a priority in your district?

• What actions or conversations are happening in your district around the federal evidence tier requirements?

• What are some of the challenges you and your district are facing right now around the evidence tiers and evidence-based practices?
**Handout: Evidence Tier Criteria for Evaluating a Study**

ESSA Evidence Tier Criteria

At least one intervention for Comprehensive Support and Improvement (CSI) and Targeted Support and Improvement (TSI) schools must meet Tier 1, Tier 2 or Tier 3.

<table>
<thead>
<tr>
<th>#</th>
<th>Tier Criterion</th>
<th>Tier 1</th>
<th>Tier 2</th>
<th>Tier 3</th>
<th>Tier 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Design rigor (minimum)</td>
<td>Experimental Random assignment of participants to control and treatment</td>
<td>Quasi-experimental Control and treatment groups not random (but purposeful)</td>
<td>Correlational Well-designed correlational research</td>
<td>Logic model based on high-quality research or positive evaluation</td>
</tr>
<tr>
<td>2</td>
<td>Group equivalence</td>
<td>Low attrition (baseline equivalence is assumed)</td>
<td>Higher attrition acceptable, but then must have baseline equivalence</td>
<td>Statistical controls for participant selection bias</td>
<td>n/a</td>
</tr>
<tr>
<td>3</td>
<td>Statistically significant favorable effect (by outcome)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓ includes evaluation plan</td>
</tr>
<tr>
<td>4</td>
<td>No significant unfavorable effect from any Tier 1 or Tier 2 study (by outcome)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>n/a</td>
</tr>
<tr>
<td>5</td>
<td>Large study sample</td>
<td></td>
<td></td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Slide Notations

- *Italics* on slides refer to the tier criterion used in the evidence tier table.
- Circled numerals in the upper right corners of slides correspond to the numbering in left column of the evidence tier table.
“Evidence-based” refers to evidence of a significant relationship between a practice and an outcome.

**Practice**
- Dual/concurrent enrollment program
- Instructional adjustments

**Outcome**
- College enrollment increases
- Achievement score increase

**Tiers**
- Tiers 1 and 2: Causal
- Tier 3: Correlational
Tier 1 (highest tier) experimental research randomly assigns research subjects (i.e., students) to control and treatment groups.

Tier 2 quasi-experimental research assigns research subjects control and treatment groups (non-randomly).

Tier 3 correlational research often looks at existing data to determine any relationship between practice and outcome.
Group Equivalence

- Controls for bias ensure that the study conclusions take into account student demographic factors and school factors like rural setting (Tier 3).

- Baseline equivalence means that the control and treatment groups have similar students (Tier 2).

- Low attrition refers to few students dropping out of the research study due to transferring schools, no parental consent, etc. (Tier 1)
Determining *Statistically Significant Favorable Effect*

- $p$ value = probability that the relationship between practice/outcome is caused by random factors
- $p$ value of .05 or less is significant: at least a 95% chance that the practice–outcome relationship is not random

<table>
<thead>
<tr>
<th></th>
<th>3rd Grade ELA achievement</th>
<th>3rd Grade Reading diagnostic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>With Reading 180</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English learner</td>
<td>.91*</td>
<td>.71**</td>
</tr>
<tr>
<td>Poverty status</td>
<td>.78</td>
<td>.90***</td>
</tr>
<tr>
<td><strong>Original Curriculum</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English learner</td>
<td>.83*</td>
<td>.61**</td>
</tr>
<tr>
<td>Poverty status</td>
<td>.71</td>
<td>.82***</td>
</tr>
</tbody>
</table>

*Asterisks denote $p$ value of .05 (95% probability)*

Magnitude of effect is not relevant, just that it is positive

*p<.05. **p<.01. ***p<.001.*
No Statistically Significant, Unfavorable Effects From Tier 1 or Tier 2 Studies

- No other Tier 1 or Tier 2 studies for the intervention/outcome may have statistically significant, unfavorable effects on the outcome of interest.

- There are shortcuts for determining this in What Works Clearinghouse (WWC).

Study 1: Favorable Effect

Outcome

Study 2: Unfavorable Effect

Not Acceptable for Tiers 1, 2, 3
Study Sample

To qualify for Tier 1 or Tier 2:

• Must be 350 study subjects

• Must have favorable impacts in at least two schools

• The study’s sample must overlap with your own school’s population and/or setting
Part 2: Using Online Resources to Identify Evidence-Based Practices
Evidence Clearinghouses

- **What Works Clearinghouse** (Find What Works and Practice Guides)
- **Evidence for Every Student Succeeds Act**
- **Social Programs That Work**
- **Attendance Works** (chronic absenteeism)
- **National Mentoring Resource Center** (chronic absenteeism)
- **Blueprints for Healthy Youth Development**
- **Campbell Corporation**
- **Crime Solutions**
- **ArtsEdSearch**
- **RAND Social and Emotional Evidence Review**

(see the [Guide to Evidence-based Clearinghouses](#) for more information)
Alignment Between Clearinghouses and Evidence Tiers

- Just because a practice is reviewed by a clearinghouse does not mean the practice meets federal requirements.
- Currently, none of the clearinghouses’ information aligns precisely with the federal tier requirements, so there is a need to really understand the tiers.
- Some analysis is required when you use the clearinghouse to determine which tiers are met.
What Works Clearinghouse (WWC)

Two resources include shortcuts for identifying studies that meet Tiers 1–3.
Short Video: Using “Find What Works” to Identify Evidence Based Practices

https://www.youtube.com/watch?v=hu4XnpyiKxw&feature=youtu.be
Part 3: Integrating Evidence-Based Practices Across the Continuous Improvement Cycle
PreK–12 Continuous Improvement Process

From Continuous Improvement Framework Overview (MDE)
Step 1:
Establish Leadership Team of Stakeholders

Pitfall:
No leadership team member has expertise in evidence-based practices.

Solution:
Assign someone with expertise in evidence-based practices to the leadership team and build capacity through key resources:

- For minimum expertise: [MDE / Midwest Comp Center Resource Page]
- For advanced expertise (recommended): [What Works Clearinghouse Certification]
Step 2: Assess Needs and Set Priorities

Pitfall:
Not aligning needs assessment results with research evidence

Solution:
Find research that addresses the outcomes and student groups that are identified in the needs assessment.

Research Practice
Drop-out prevention program

Needs assessment data point
Graduation rate for English learners
Outcome identified in the research
Step 3:
Select Strategies and Create a Plan

Pitfall 1:
Evidence-based practice selection process that relies too much or too little on the evidence base to select interventions

Solution:
Work with the Hexagon Tool to select practices by considering all factors, not just evidence base.
Step 3:
Select Strategies and Create a Plan (continued)

Pitfall 2:

Not having documented evidence to back up this claim: "What we’re already doing is evidence-based."

Solutions:

- Identify supporting research for the same practice and outcome as your current practice and require that the evidence is documented by someone at the district/school.
- Identify the critical features of the current practice and make sure they match the critical features of the identified research.
Step 4: Implement the Plan, Then Get Better

Pitfall:
Evaluating the impact of the practice without ensuring it is implemented with fidelity

Solutions:
- Establish formal feedback channels to gather implementation feedback at 30, 60, and 90 days across relevant stakeholders—focus on what successful implementation “looks like.”
- Evaluate impact on student outcomes after first establishing a satisfactory level of implementation fidelity.
Step 5: Reassess Needs, Priorities, and Strategies

Pitfall:
Not sharing, gathering information between schools and districts regarding which practices work

Solutions:
- Document, in an accessible central location, which practices, when implemented with fidelity, are improving student outcomes, and at which schools.
- Identify the critical features of the practice for its impact.
Final Reflections

Turn and talk with a partner, then let’s share:

• Reflecting on today’s session, what are two pitfalls or issues you will go back and discuss with your team? What do you think your district’s approach to these issues should be?

• Write down any additional challenges you are facing in this area or additional supports you might need from MDE and attach them to the chart paper on your way out.
Short Video: Establishing a District Evidence Base and Using Practice Guides

https://ies.ed.gov/ncee/wwc/multimedia/50
Feedback Survey

Before leaving, please complete the hard copy feedback survey for “Evidence-Based Practices Training” or view this code through your phone’s camera to complete online:
Contact Us

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Twitter: @MidwestCompC
References


NOTE

The slides that follow are for reference only.
# ESSA Evidence Provisions

<table>
<thead>
<tr>
<th>ESSA Program</th>
<th>Evidence Requirement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title I, Section 1003: School Improvement</td>
<td>Minimum of one intervention must meet <strong>Tiers 1, 2, or 3</strong> in CSI, TSI, and ATSI schools</td>
</tr>
<tr>
<td>Title I, Part A: Schoolwide/Targeted Assistance</td>
<td>External providers must have expertise in using (Tiers 1, 2, 3, or 4)</td>
</tr>
<tr>
<td>Title II, Part A: Effective Instruction</td>
<td>Some requirements for Tiers 1, 2, 3, or 4, where evidence is reasonably available (e.g., professional development, induction, and mentoring)</td>
</tr>
<tr>
<td>Title IV, Part A: Support Grant</td>
<td>Some requirements for Tiers 1, 2, 3, or 4, where evidence is reasonably available</td>
</tr>
<tr>
<td>Title IV, Part B: 21st Century Community Learning Centers</td>
<td>Use Tiers 1, 2, 3, or 4 evidence, when deemed appropriate</td>
</tr>
<tr>
<td>Title IV, Part D: Magnet School Assistance</td>
<td>Competitive preference is given for proposals with evidence-based activities (Tiers 1, 2, 3, or 4)</td>
</tr>
<tr>
<td>Title IV, Part F: Education Innovation</td>
<td>Proposed innovations must meet Tiers 1, 2, 3 or 4</td>
</tr>
<tr>
<td>Title IV, Part F: National Community Support</td>
<td>• Promise Neighborhoods: Competitive preference for <strong>Tiers 1, 2, or 3</strong></td>
</tr>
<tr>
<td></td>
<td>• Full-Service Community Schools: Competitive preference for <strong>Tiers 1, 2, or 3</strong></td>
</tr>
</tbody>
</table>

(Source: Elementary and Secondary Education Act, 2015)
Studies With Highest Significance Are Nearer to the Top of the Results

Review the Effectiveness Rating by Outcome

Determine if:

- statistically significant favorable effect and
- no unfavorable effects from other experimental or quasi-experimental (Tier 1 or Tier 2) on the outcome.

See Effectiveness Rating at Outcome Level

Determine if:

- statistically significant favorable effect and
- no significant unfavorable effect from other experimental or quasi-experimental study (Tier 1 or Tier 2).

Six possible effectiveness ratings:

- - - - -
- - 0 + -
+  ++

+ Potentially positive
++ Positive

At least meets Tier 3
Select a specific study to determine:

- **design rigor**
- **attrition or baseline equivalence**
What does “meets WWC standards without reservations” mean?

• **Design rigor**: well-designed, well-implemented experimental study
• **Attrition** is low.
• **Note**: Statistical significance badge is not at the outcome level.
What does “meets WWC standards with reservations” mean?

Reviewed: January 2018

For:
Knowledge is Power Program (KIPP) Intervention Report - Charter Schools

Using:
- Charter Schools Review Protocol 3.0
- Review Standards 3.0

Rating:
Meets WWC standards with reservations because it uses a quasi-experimental design in which the analytic intervention and comparison groups satisfy the baseline equivalence requirement.

This review may not reflect the full body of research evidence for this intervention. Please see the WWC summary of evidence for Knowledge is Power Program (KIPP).

Source: https://ies.ed.gov/ncee/wwc/Study/85518
What does “meets WWC standards with reservations” mean? (continued)

### Science achievement outcomes—Statistically significant positive effects found

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Comparison</th>
<th>Period</th>
<th>Sample</th>
<th>Intervention mean</th>
<th>Comparison mean</th>
<th>Significant?</th>
<th>Improvement index</th>
<th>ESSA rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statewide science assessments (z-score)</td>
<td>Knowledge is Power Program (KIPP) vs. Business as usual</td>
<td>2 Years</td>
<td>High school: matched-student sample (new entrants); 1,299 students</td>
<td>0.11</td>
<td>-0.22</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Social studies achievement outcomes—Indeterminate effects found

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Comparison</th>
<th>Period</th>
<th>Sample</th>
<th>Intervention mean</th>
<th>Comparison mean</th>
<th>Significant?</th>
<th>Improvement index</th>
<th>ESSA rating</th>
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</thead>
<tbody>
<tr>
<td>Statewide social studies assessments (z-score)</td>
<td>Knowledge is Power Program (KIPP) vs. Business as usual</td>
<td>2 Years</td>
<td>High school: matched-student sample (new entrants); 601 students</td>
<td>-0.13</td>
<td>-0.15</td>
<td>No</td>
<td></td>
<td></td>
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</table>