# SI logo (2)C:\Users\disherw\Pictures\Capture.PNGGuidance on ESSA Levels of Evidence

# for School Improvement Grants

Along with the flexibility of ESSA comes the responsibility for LEAs and SEAs to ensure that evidence-based interventions are selected and implemented so that students attending schools in need of Comprehensive or Targeted Support and Improvement have the best opportunity to improve achievement.

Schools in need of Comprehensive Support and Improvement will develop Integrated Action Plans, based on needs identified in the Comprehensive Needs Assessment, which reflect these evidence-based interventions.

ESSA requires all school improvement strategies, activities and interventions funded through Title l 1003(a) meet specific evidence requirements and demonstrate a statistically significant effect on improving meaningful student outcomes. The Arizona Department of Education will not fund any strategies, activities and interventions that do not meet the rigorous ESSA evidence requirements.

**Strong** evidence from at least 1 well-designed and well-implemented experimental study;

**Moderate** evidence from at least 1 well-designed and well-implemented quasi-experimental study; or

**Promising** evidence from at least 1 well-designed and well-implemented correlational study with statistical controls for selection bias

LEA and school leadership teams can utilize multiple resources to determine whether or not an intervention, strategy, or activity meets the Strong, Moderate, or Promising ESSA evidence requirements based on rigorous studies from a reputable third-party evaluator.

**Resources**

Search professional educational research journals and websites of reputable organizations for studies to help your team identify a range of evidence-based interventions. Some general research sites are below. Additional websites are included at the end of this document.

[**ERIC**: http://www.eric.ed.gov/](http://www.eric.ed.gov/) **ERIC** is an online library of education research and information, sponsored by the Institute of Education Sciences (IES) of the U.S.

Department of Education.

[**JSTOR:** http://www.jstor.org/action/showAdvancedSearch](http://www.jstor.org/action/showAdvancedSearch)   
**JSTOR** is a digital library of academic journals, books, and primary sources (requires registration).

[**Google Scholar:** www.google.com/scholar](http://www.google.com/scholar) **Google Scholar** is a freely accessible

[web search engine](https://en.wikipedia.org/wiki/Web_search_engine) that indexes the full text or metadata of [scholarly literature](https://en.wikipedia.org/wiki/Scholarly_literature) across

an array of publishing formats and disciplines. The Google Scholar index includes most [peer-reviewed](https://en.wikipedia.org/wiki/Peer_review) online [academic journals](https://en.wikipedia.org/wiki/Academic_journal) and books, conference papers, [theses](https://en.wikipedia.org/wiki/Thesis)

and [dissertations](https://en.wikipedia.org/wiki/Dissertation), [preprints](https://en.wikipedia.org/wiki/Preprint), [abstracts](https://en.wikipedia.org/wiki/Abstract_(summary)), [technical reports](https://en.wikipedia.org/wiki/Technical_report), and other scholarly literature (some journals require registration).

**Results First Clearinghouse**: [http://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2014/09/](http://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2014/09/results-first-clearinghouse-database) [results-first-clearinghouse-database](http://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2014/09/results-first-clearinghouse-database)

This website includes a downloadable excel spreadsheet of compiled interventions by: category, policy area, intervention type and rating. The intervention rating included is based on a compilation of data from eight different clearinghouses. A direct link to the intervention website is also included in the downloadable spreadsheet. This is a great starting place to find interventions, as well as a quick check to see if interventions being used are considered effective.

**American Institute for Research** <http://www.air.org/> AIR is one of the world's largest behavioral and social science research and evaluation organizations. Our overriding goal is to use the best science available to bring the most effective ideas and approaches to enhancing everyday life. For us, making the world a better place is not wishful thinking. It is the goal that drives us.

**UCLA/CRESST** <http://cresst.org/> UCLA CRESST IS a world-renowned research and development center at the forefront of improving the quality of learning. For half a century, our sole focus has been on advancing the field of education through rigorous assessment and evaluation

*Note: In a rigorous research study, critical and relevant information can be found in a few specific sections. The Methodology section provides an explanation of the research design. The Findings section presents the research findings of the study (e.g., if the intervention had a positive statistically significant effect on student achievement). Further conversation about the findings can be found in the Discussion or Implication section, and the Summary section briefly covers all of this information.*

[**An LEA Guide**](http://www.fcrr.org/documents/essa/essa_guide_lea.pdf) **for Identifying Evidence-Based Interventions for School Improvement[[1]](#footnote-1)** outlines the process for Florida, but has helpful information regarding gathering the necessary evidence for strategies, activities and interventions as required by ESSA. It summarizes the body of research, references relevant studies for several strategies focusing on systemic change, leadership, instruction, hiring, retaining quality staff and positive climate and culture providing the ESSA evidence level.

Example from the guide:

|  |  |  |
| --- | --- | --- |
| **Visible Change:** |  | |
| LEAs or schools will create a climate of change evidenced by visible improvements early in turnaround process. |  |  |
| Evidence Level: | | |
| Promising | | |
| Summary of Research: | | |
| Successful turnaround schools commonly implement visible changes that can be easily recognized as improvements and accomplished quickly. Although the changes made depend upon the school, changes can oftentimes quickly occur in the areas of use of time, resources, the physical plant, and student discipline.2 | | |
| Additional Information Regarding Relevance and Appropriateness: | | |
| School achievement data; master schedules; maintenance and custodial plans; procedures for ordering and disbursing instructional materials and supplies; map of the school building; school improvement plans; and school climate survey results.[[2]](#footnote-2) | | |

**Existing Partnerships**

Many schools and LEAs across the state have on-going partnerships with external service providers. These partnerships and programs may be funded through 1003(a) funds, only if the school and LEA clearly demonstrate that the program intervention meets the rigorous ESSA evidence requirements (Strong, Moderate, or Promising).

To do this, school and LEA leaders must find rigorous, high quality studies that examine the impact of that specific program intervention. These studies must be from reputable third-party evaluators (not internal organizational data). School and LEA leaders must determine whether or not the findings indicate that the intervention has a statistically significant positive effect on student achievement and meets the ESSA evidence requirements, as discussed above. The Department encourages LEA and school leaders to seek support from high quality, evidence-based external service providers who can easily share rigorous third-party studies on their program/intervention that demonstrates their program/intervention meets ESSA evidence requirements.

If the intervention clearly meets the Strong, Moderate, or Promising ESSA evidence levels, school and LEA leaders must summarize the findings and write it into the Integrated Action Plan as described below\*.

If an intervention does not meet the ESSA evidence levels, the Department of Education cannot fund it through 1003(a) funds.

## **LEA and School led Strategies, Activities and Interventions (e.g. coaching)**

If a school seeks to use an LEA or school led intervention, such as a staff member hired as a coach, the LEA/school is responsible to find rigorous, high quality studies that examine the effectiveness of that specific intervention, strategy, or activity.

It is the responsibility of the LEA and school to demonstrate that any LEA or school led intervention has a strong likelihood to make a positive impact on student achievement. If the intervention clearly meets the Strong, Moderate, or Promising ESSA evidence levels, school and LEA leaders must summarize the findings and write it into the Integrated Action Plan\* (see example on the next page).

\*Required:

**Summary of research**

**Data and evidence to suggest that the school or LEA led intervention and the person identified to lead the intervention have a positive impact on the population served?**

**Job description**

A description of the tasks, duties and specific responsibilities of the position. It includes expectations, expected deliverables and intended results. It specifies the to whom the position reports and the required qualifications or skills.

**Specific implementation plan as part of the Integrated Action Plan including\*:**

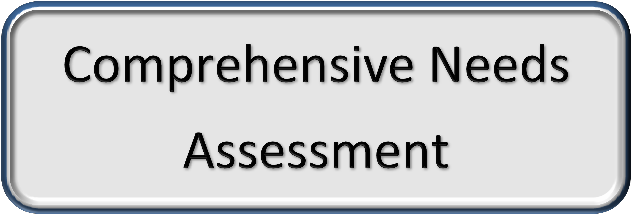
* **Desired Outcome/s, goal of the intervention and the impact on student achievement and learning**
* **Implementation Action Steps**
* **Progress Monitoring**: Evidence of Implementation • Specifies what evidence will be analyzed to determine the effectiveness of the implemented action steps. Note: Evidence of Implementation may be quantitative or qualitative.

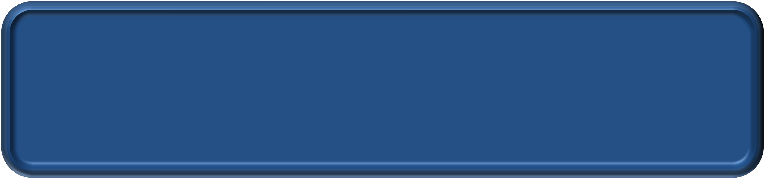
•Monitoring Plan Timeline • Specifies when evidence of implementation will be collected.

•Monitoring Plan Position Responsible • Describes who will be involved in collecting and analyzing the evidence of implementation (analyzing and interpreting evidence of implementation and making adjustments to action steps as appropriate).

* **Evaluation**: Performance Benchmarks • Identifies the summative measure(s) that will be used to evaluate the effectiveness of the action step(s).

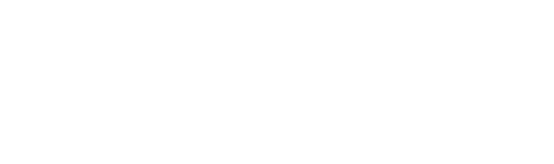


***IAP Example***



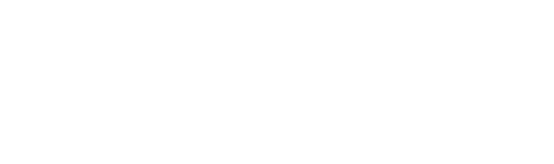
**Integrated Action Plan**

Impacting student learning



Identify Measures

Success Criteria and Evidence



Identify Measures

Success Criteria and

Evidence

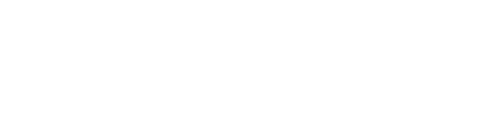
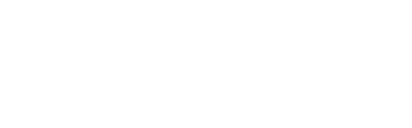
70% of students will score proficient on 2018 AzMERIT EOC assessments; increasing by 14% over 2017, 56% proficient.

SMART Goal

Desired Outcome

Need statement

Add summative evaluation action steps \*May 2018



Principle 2: Effective Teachers and Instruction

Teachers need to plan for DOK, increasing rigor and relevance

Teachers increase rigor and relevance

By Jan. 5, 2018, 80% of lessons, taught at appropriate level of rigor as evidenced by walkthrough data, lesson plans and PLC discussions.

Hire instructional coach

Add implementation plan activities as action steps w/timelines

Add progress monitoring action steps w/ timelines

Activities

The Department strongly recommends that LEA and school leaders choose interventions that have strongest statistical significance and effect sizes in like contexts.

*Effect Size and P-Values Primer*

*The Department of Education strongly encourages LEA and school leaders to choose school improvement strategies based on their context that are the most effective and have the strongest positive impact on student achievement, which can be identified by strong effect sizes. Effect sizes are widely accepted figures indicating the impact a program intervention, strategy, or activity has made on student achievement and learning. Effect sizes of +0.2 to 0.5 are generally considered to be “small,” whereas effect sizes of +0.5 to 0.8 are considered to be “medium” and anything over +0.8 is considered “large.” Larger effect sizes indicate larger impacts. If there are multiple rigorous studies of one program intervention, your team should average all of the qualifying studies of the program, not just use the effect size in those studies that indicate the program meets the ESSA evidence levels of Strong, Moderate, or Promising. When looking at studies, the p-value determines the statistical significance of the program’s results. The p-value is between 0 and 1. A small p-value is less than or equal to 0.05 and indicates strong evidence against the null hypothesis. This means that the program intervention is statistically significant. A large p-value is greater than 0.05 and indicates weak evidence against the null hypothesis, which means that the program intervention is not statistically significant.*

The school and LEA will need to demonstrate that the selected strategy, activity or intervention meets the ESSA evidence requirements by supplying the research evidence.

**Additional Resources**

1. **Evidence for ESSA Johns Hopkins University/Center for Data-Driven Reform in Education** <http://www.evidenceforessa.org/>

*This website provides information on programs and practices that meet each of the top three ESSA levels in a given subject and grade level (e.g., secondary math, elementary reading). It includes brief program descriptions, information on costs, availability, and other pragmatics, and links to program web sites. You can refine a search to look for programs that have been successful with particular populations (e.g., English learners, special education), communities (e.g., urban or rural), and other special interest areas.*

*You can also search by program name, enabling you to find information about evidence for all programs, including those that have not yet been successfully evaluated. The website currently contains information on reading and math programs in grades K-12. Additional topics will be added in the future, and the website will be continually updated to include new programs and to reflect new evaluations.*

1. **What Works Clearinghouse, developed by the Institute of Education Sciences (IES)** (not categorized in ESSA evidence tiers) <https://ies.ed.gov/ncee/WWC/>

*The What Works Clearinghouse (WWC), established in 2002, is an entity of the Institute of Education Sciences (IES) within the U.S. Department of Education. The WWC reviews evidence of effectiveness for programs, policies, and practices using a consistent set of standards. WWC is a database organized by topic and content area to locate studies on specific intervention types to meet ESSA standards. Search for the specific program intervention on WWC; if the WWC has reviewed a study for that program intervention, and then examine the “Review Details” and “Findings” tabs to determine whether interventions meet the ESSA evidence levels. In the “Findings” tab, your team will want to confirm that there is at least one statistically significant positive effect found. The WWC also creates products including Intervention Reports, Single Study Reviews, Quick Reviews, and Practice Guides to present findings on evidence-based best practices.*

1. **Learning Policy Institute Research, Action, Impact** <https://learningpolicyinstitute.org/product/evidence-based-interventions>

*Achieving an equitable school system that leads to meaningful, relevant, and engaging learning opportunities for all children will require that states, LEAs, and schools undertake the different tasks—such as curriculum design, access to materials, and educator development—that will enable students to develop much richer learning supported by quality instruction. This resource examines the options available to states to redefine their accountability systems as they begin to implement the Every Student Succeeds Act (ESSA). It analyzes the research base and identifies the conditions under which they have shown to be effective. The four program areas identified in this resourc*e are:

* + - *high-quality professional development,*
    - *class-size reduction,*
    - *community schools and wraparound services, and*
    - *high school redesign.*

1. **Promising Practices Network on Children, Families and Communities**

<http://www.promisingpractices.net/resources_highschoolgrad.asp>

*This website began as a partnership between four state-level organizations to improve the well-being of children and families. The Promising Practices Network (PPN) funding has concluded, so the website has been archived and materials have not been updated since 2014.*

*The PPN site features summaries of evidence-based programs and practices that are proven to improve outcomes for children. All programs have been reviewed for quality and to ensure that they have evidence of positive effects. Programs are assigned to one of three category levels:* ***Proven, Promising****, or* ***Other Reviewed Programs****.*

*The Programs that Work section can be browsed in several ways:*

* + - *by outcome area*
    - *by indicator*
    - *by topic*
    - *by evidence level*
    - *alphabetically*

*PPN relied on publicly available information for reviewing a program’s effectiveness and was interested in programs as they were designed and evaluated. Programs were assigned a “Proven” or “Promising” rating, depending on whether they met the evidence criteria. The “Other Reviewed Programs” are ones which did not undergo a full review by PPN, but evidence of their effectiveness has been reviewed by one or more credible organizations that apply similar evidence criteria.*

***Evidence Criteria***

* + - *Types of Outcomes Affected*
    - *Substantial Effect Size*
    - *Statistical Significance*
    - *Comparison Groups*
    - *Sample Size*
    - *Availability of Program Evaluation Documentation*

1. **Best Evidence Encyclopedia, developed by the Center for Data Driven Reform in Education at Johns Hopkins University** (not categorized in ESSA evidence tiers) <http://www.bestevidence.org/>

*The Best Evidence Encyclopedia (BEE) is a free web site created by the Johns Hopkins University School of Education's Center for Data-Driven Reform in Education (CDDRE) under funding from the Institute of Education Sciences, U.S. Department of Education. It is intended to give educators and researchers fair and useful information about the strength of the evidence supporting a variety of programs available for students in grades K-12. The BEE provides summaries of scientific reviews produced by many authors and organizations, as well as links to the full texts of each review. The summaries are written by CDDRE staff members and sent to review authors for confirmation. Program reviews include; Mathematics, Reading, Science Early Childhood and Comprehensive School Reform.*

1. **National Center on Intensive Intervention at American Institutes for Research**

<http://www.intensiveintervention.org/>

*This website provides information on data-based individualization (DBI), a research-based process for individualizing and intensifying interventions through the systematic use of assessment data, validated interventions, and research-based adaptation strategies.*

1. **Blueprints for Healthy Youth Development Database** <http://www.blueprintsprograms.com/> Helps you easily identify evidence-based programs that help young people reach their full potential. Get ahead of serious challenges that influence children's success with programs that have the highest standards for promoting prosocial behavior, academic success, emotional well-being, physical health and positive relationships.
2. **Roadmap to Evidence Based Reform for Low Graduation Rate High Schools, developed by the Every Student Graduates Center at Johns Hopkins University** [http://new.every1graduates.org/everyone-graduates-center-roadmap-to- evidence-based-reform-for-low-graduation-rate-high-schools/](http://new.every1graduates.org/everyone-graduates-center-roadmap-to-evidence-based-reform-for-low-graduation-rate-high-schools/)

*The Everyone Graduates Center provides a roadmap to evidence-based reform for low graduation high schools. Resources include full reports, presentations, and teacher resources-all focused on addressing the dropout cri*sis.

1. **Rand Corporation**[*http://www.rand.org/topics/education-curriculum.html*](http://www.rand.org/topics/education-curriculum.html)RAND's mission is both simple and incredibly complex: We exist to help policymakers make decisions that are based on the best available information. This may not sound much different from the goals of other policy research institutions, but the difference is in the details. At RAND, our results are fueled by the best data, the strongest methods, and the brightest minds.

RAND's tradition of high-quality research and analysis, begun in our early years, flourished during one of the defining challenges of the United States in the 20th century: the West's dangerous competition with the Soviet Union in a nuclear age. In a time when emotions ran high, RAND remained committed to sober, objective research and to an approach to problem-solving that is founded on rigor and stripped of speculation.

**RAND report on school leadership interventions under ESSA (categorized in ESSA evidence tiers)** http://www.rand.org/pubs/research\_reports/RR1550-2.html

*The Every Student Succeeds Act (ESSA) presents a renewed focus on school leadership and acknowledges the importance of school principals to school improvement and effective instruction. ESSA repeatedly calls for the use of evidence-based activities, strategies, and interventions and establishes a framework with tiers of evidence when considering their proven impact on student success. This represents a shift in thinking regarding the justification of funds tied to Title funding, particularly as it relates to supporting school leadership. This report seeks to resolve some of the ambiguity that may still exist as states, LEAs, and schools seek to determine if activities qualify as evidence-based and therefore allowable.*

1. **Using Evidence to Create Next Generation High Schools, developed by the U.S. Department of Education** (not categorized in ESSA evidence tiers) [https://www2.ed.gov/rschstat/eval/high-school/using-evidence-create-next- gen-highschools.pdf](https://www2.ed.gov/rschstat/eval/high-school/using-evidence-create-next-gen-highschools.pdf)

*Next Generation High Schools are schools that redesign the high school experience to Generation High Schools, schools, districts, and States should utilize evidence-based strategies to transform high schools in ways that engage students and help prepare them for college and career success. Evidence-based strategies encompass a variety of approaches.*

*This document highlights six general evidence-based strategies to improve America’s high schools for the next generation. Though many of the effective strategies may share common features, each has been identified by the research literature as a stand-alone intervention or model for improving students’ educational outcomes. Reviewed strategies for enhancing students’ high school and college outcomes include: 1) participation in rigorous curriculum; 2) small learning communities/small schools of choice; 3) career academies; 4) dual enrollment; 5) early college high schools; and 6) college and career counseling.*

1. **The Role of Supportive School Environments in Promoting Academic Success**

<https://www.collaborativeclassroom.org/research-articles-and-papers-the-role-of-supportive-school-environments-in-promoting-academic-success> *A number of research studies focus on this question of whether, and under what conditions, building a caring school culture or “community” helps or hinders academic achievement. Some of this evidence is correlational, coming from descriptive studies that assess the relationship between aspects of the school environment as they naturally vary and student outcomes. Some of the evidence is causal, coming from evaluations of programs or “interventions” that are intended to alter the school environment in desired ways. The findings from these two bodies of research converge, making it relatively straightforward to answer the question of how building community in school affects achievement-related outcomes.*

1. **The American Enterprise Institute** <https://www.aei.org/?s=education+k-12> A public policy think tank.
2. **National Registry of Evidence-based Programs and Practices (NREPP)**[*https://www.samhsa.gov/nrepp*](https://www.samhsa.gov/nrepp) *.* [*http://nrepp.samhsa.gov/AdvancedSearch.aspx*](http://nrepp.samhsa.gov/AdvancedSearch.aspx) *N*REPP is a searchable online registry of more than[**350 substance use and mental health interventions**](http://nrepp.samhsa.gov/AllPrograms.aspx)**,** includinginterventions and programs applicable to educational settings, such as Conscious Discipline, Historical Trauma, Cultural Competence, and other prevention programs**.** NREPP was developed to help the public learn more about evidence-based interventions that are available for implementation. Research adheres to ESSA’s evidence based levels, strong and moderate.
3. **Reviews of Collections of Programs, Curricula, Practices, Policies, and Tools: Evaluated According to Evidence** <http://nirn.fpg.unc.edu/resources/reviews> As of Fall 2012, fifteen topical sections annotate over 500 reviews of sets of programs, curricula, practices, policies, or products whose evidence of effectiveness has been evaluated according to criteria set forth by the sources of these reviews. These annotations pertain to literature reviews, meta-analyses, and other reports of multiple evidence sources.

**Other Tools and Resources**

**National Implementation Research Network** http://nirn.fpg.unc.edu/

A major goal of the National Implementation Research Network is to help establish an evidence base for the implementation processes and practices of evidence-based programs. The beginning steps in this effort have been taken with a review of the components thought to be necessary for implementation, a review of the research literature related to those components, and a review of the current implementation practices of evidence-based programs. The current work of the NIRN and the work of NIRN colleagues around the globe is creating fertile ground for rapid advancements in the science of implementation, organization change, and system reinvention. Includes numerous tools, videos, modules and courses.

**The Hexagon Tool** <http://implementation.fpg.unc.edu/sites/implementation.fpg.unc.edu/files/resources/NIRN-Education-TheHexagonTool.pdf> The Hexagon Tool helps states, districts, and schools systematically evaluate new and existing interventions via six broad factors: needs, fit, resource availability, evidence, readiness for replication and capacity to implement. i

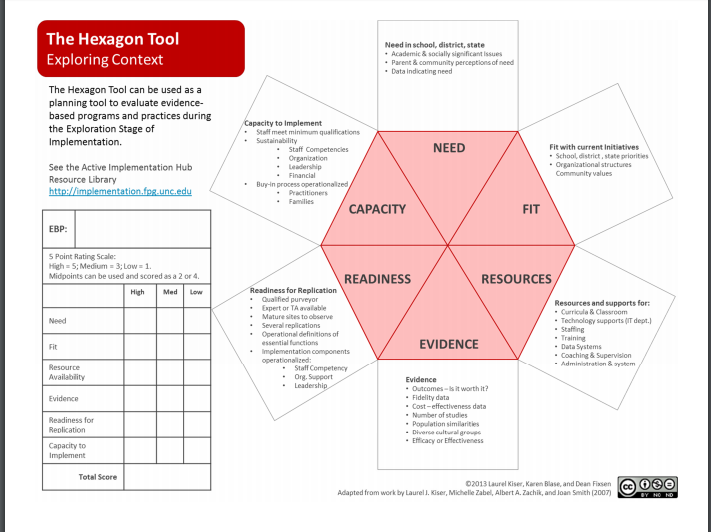
**Stages of Implementation** <http://implementation.fpg.unc.edu/sites/implementation.fpg.unc.edu/files/NIRN-Education-StagesOfImplementationAnalysisWhereAreWe.pdf> An analysis: Where Are We? This planning tool provides an Implementation Team the opportunity to assess, plan and track stage‐based activities and improve the success of implementation efforts for Evidence‐Based Programs.

**Implementation Drivers** <http://implementation.fpg.unc.edu/sites/implementation.fpg.unc.edu/files/NIRN-Education-ImplementationDriversAssessingBestPractices.pdf> Assessing Best Practices Implementation Drivers are the key components of capacity and the functional infrastructure supports that enable a program’s success. The three categories of Implementation Drivers are Competency, Organization, and Leadership. ii

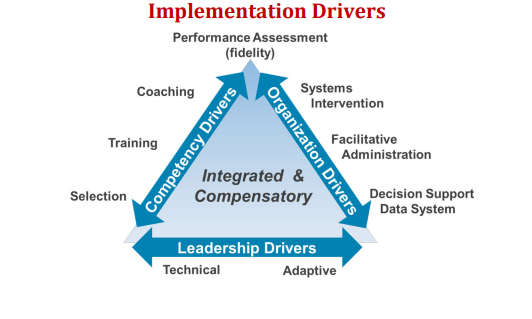
**An Instrument for Screening New Practices for Adoption** http://nirn.fpg.unc.edu/sites/nirn.fpg.unc.edu/files/resources/Davis-PracticeScreeningInstrument-11-2009.pd It is derived from the classic R&D literature on the dissemination, diffusion, adoption, and implementation of innovations in education and related disciplines. The instrument (with variations of an accompanying article) have been published over the years by the California School Boards Journal, the North Central Regional Educational Laboratory, and the Alliance Project at Vanderbilt University, the IDEA Partnership at NASDSE, and others. The instrument remains valid as (a) a set of criteria that potential adopters should examine when considering a new model, practice, or product and as (b) a guide for developers in providing information on essential adoption issues that make successful implementation possible.

**The IRIS Center** https://iris.peabody.vanderbilt.edu/ The IRIS Center is a national center dedicated to improving education outcomes for all children, especially those with disabilities birth through age twenty-one, through the use of effective evidence-based practices and interventions. IRIS resources address important instructional and classroom issues. Aligned with professional standards and high-leverage evidence-based practices, IRIS Modules, Case Study Units, Activities, and other materials are used by educators to improve the learning and behavioral outcomes of all children, especially those with disabilities. [IRIS Resources](https://iris.peabody.vanderbilt.edu/iris-resource-locator/) also include [Evidence-Based Practice Summaries](https://iris.peabody.vanderbilt.edu/ebp_summaries/); research annotations; and [EBP summaries](https://iris.peabody.vanderbilt.edu/ebp_summaries/) of research on the effectiveness of instructional strategies and interventions, containing links to reports with further information.

**Please consult with your Education Program Specialist for additional support and guidance.**



**[[3]](#endnote-1)**

**[[4]](#endnote-2)**

1. 1Lee, L., Hughes, J., Smith, K., & Foorman, B. (2016, November 29). *An SEA Guide for Identifying Evidence-Based Interventions for School Improvement.* [http://fcrr.org/documents/essa/essa\_guide\_sea.pdf.](http://fcrr.org/documents/essa/essa_guide_sea.pdf) [↑](#footnote-ref-1)
2. Herman, R., Dawson, P., Dee, T., Greene, J., Maynard, R., Redding, S., and Darwin, M. (2008). *Turning Around Chronically Low-Performing Schools: A practice guide* (NCEE #2008-4020). Washing- ton, DC: National Center for Retrieved from [http://ies.ed.gov/ncee/](http://ies.ed.gov/ncee/wwc/publications/practiceguides) [wwc/publications/practiceguides](http://ies.ed.gov/ncee/wwc/publications/practiceguides) [↑](#footnote-ref-2)
3. Based on the work of Kiser, Zabel, Zachik, & Smith (2007) and The National Implementation Research Network (NIRN) [↑](#endnote-ref-1)
4. NIRN [↑](#endnote-ref-2)