

EBITE Decision Toolkit

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Roadmap to the EBI Decision Toolkit

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EBITE RESOURCE GUIDE

Cycle of Continuous Improvement for use of EBIs

Purpose

In this guide, we introduce how the cycle of continuous improvement can be used to help educators, schools and districts put new education practices and interventions into place and identify “what works” for their students and schools! The Evidence-based Intervention Training for Education program (EBITE) uses and adapts the cycle of continuous improvement (for example, as outlined in [Ohio’s Improvement Process](#)) to clarify steps and feedback loops in the EBI process specifically, and has compiled a series of tools and strategies for educators and education leaders into our *EBITE Toolkit* to strengthen capacity for effective EBI decision making.

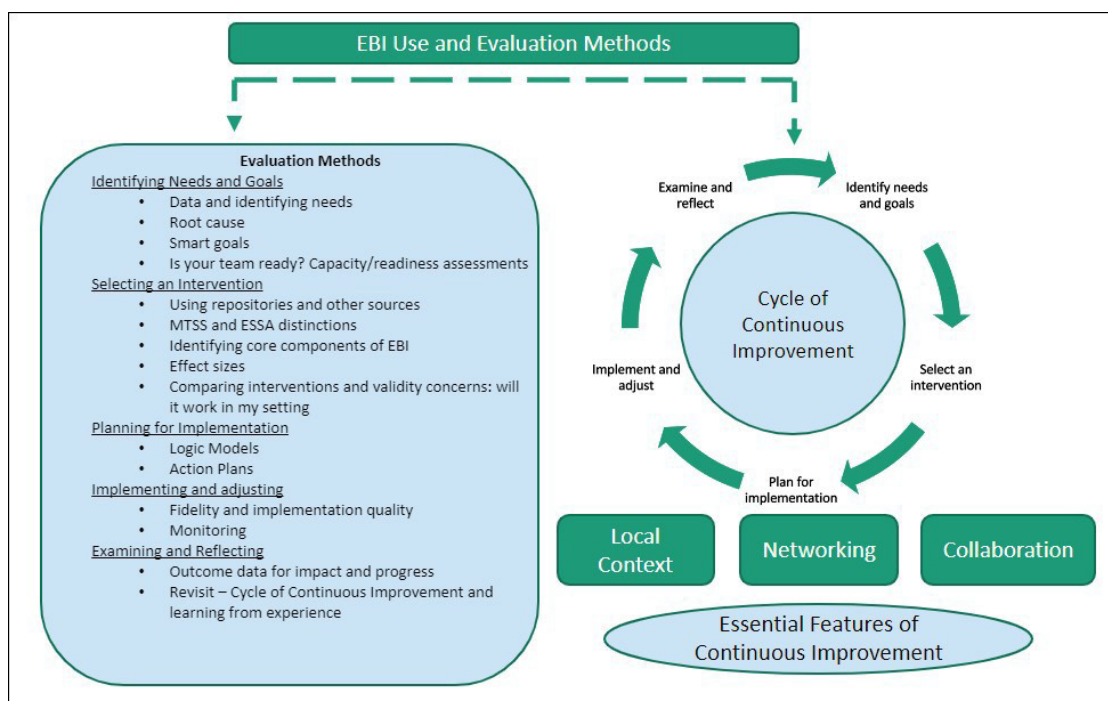
What does the EBI Continuous Improvement Process look like?

A cycle of continuous improvement is circular, which implies a continuous learning process. Regarding EBI use, evaluation tools and techniques are essential to this continuous process and to the investment schools are making in integrating evidence-based interventions into their instructional activities.

This focus on evaluation and continuous improvement assures that the funds invested in educational practices and interventions are likely to have the best possible results for students, families, and schools.

Below we present our EBITE continuous improvement model, links to additional resources for Ohio, and provide a brief summary of our EBITE Roadmap for successful selection and use of EBIs, along with links to associated tools and materials in the EBITE Toolkit.

Figure 1. Cycle of Continuous Improvement in Relation to EBI Use and Evaluation Methods



Essential Features of Continuous Improvement for EBIs

While the EBITE model for continuous improvement emphasizes a process for using evaluation tools and strategies to support use of EBIs in schools and classrooms, there are three connected and essential elements of the cycle that contribute to its success.

First, the local context in which the intervention will be implemented can make or break its implementation as well as its outcomes. Evidence-based interventions are not always universally applicable, and the context should be used to help determine what intervention among possible options may fit best. Second, networking with your Ohio peers in education research and practice is a great way to share and learn more about how interventions are used in other schools and contexts, and what works best in schools or districts similar to your own. Through networking, local expertise becomes essential to brokering knowledge on “what works” in Ohio. Similarly, collaboration is key to leveraging ideas, successes and overcoming challenges regarding selecting and implementing interventions. Limited resources can be enhanced through collaboration; for example, education researchers at colleges and universities are often good resources for evaluation assistance or for intervention expertise and implementation activities. Collaboration and sharing information on “what works” for you and others is a great way to expand your own knowledge and contribute to Ohio’s continually growing Evidence-based Clearinghouse.

Be sure to visit the **TESTIMONIALS** section of the [Ohio Evidence-based Clearinghouse](#) (OEBIC) to learn about EBI experiences across Ohio, and find out how to share your own challenges and successes!

Resources

Selected guides on the Continuous Improvement Process

- [Ohio Improvement Process](#) (2023) Provides extensive information on Ohio’s organizational strategy in support of implementation of the continuous improvement framework.
- [Education Development Center](#) (2019) Resource Guide presenting an integrated model based on the Plan, Do, Study, Act (PDSA) approach to continuous improvement.
- [IES Regional Education Lab Northeast and Islands Continuous Improvement Toolkit](#) (2020) Comprehensive resources and tools on continuous improvement, root cause (fishbone diagrams), PDSA approaches, and evaluation strategies.
- [Collaborative for Academic, Social, and Emotional Learning \(CASEL\)](#) (2020) Collection of resources on implementing socio-emotional learning interventions through a continuous improvement process.
- [WestEd](#) (2017). *Continuous Improvement in Practice* (downloadable resource guide).

Videos

- [IES Regional Education Lab Northeast and Islands Continuous Improvement Toolkit](#) (2020) Collection of videos on aspects of the continuous improvement process.
- [WestEd](#) (2023) Series of videos on *Facilitating Improvement in Teacher Practice*, including Learning Modules Trainer’s Guide.

EBITE RESOURCE GUIDE

Understanding ESSA Levels 1 and 2 Interventions

Purpose






The purpose of this guide is to provide a general overview of the ESSA Tiers of Evidence (“ESSA Levels”) used to evaluate Evidence-Based Interventions--with a focus on Levels 1 and 2.

How to Use This Guide

Review this guide if you are new to using EBIs and the ESSA evidence framework or if you simply need a refresher before you start your school improvement work.

Overview of the ESSA Tiers of Evidence (“ESSA Levels”)

The ESSA (Every Student Succeeds Act) is a U.S. federal law that governs K-12 education policy and emphasizes evidence-based practices to improve educational outcomes for all students. Under ESSA, Evidence-Based Interventions (EBIs) are categorized into four tiers (or levels) based on their level and type of evidence determined via research studies conducted on the interventions. These tiers are known as "ESSA Levels" (see Figure 1) and educators can use this framework to help select EBIs that would align best to the SMART goals they have identified based on needs assessment.

UNDERSTANDING THE ESSA TIERS OF EVIDENCE				
	TIER 1 Strong Evidence	TIER 2 Moderate Evidence	TIER 3 Promising Evidence	TIER 4 Demonstrates a Rationale
 Study Design	Well-designed and implemented experimental study, meets WWC standards without reservations	Well-designed and implemented quasi-experimental study, meets WWC standards with reservations	Well-designed and implemented correlational study, statistically controls for selection bias*	Well-defined logic model based on rigorous research
 Results of the Study	Statistically significant positive effect on a relevant outcome	Statistically significant positive effect on a relevant outcome	Statistically significant positive effect on a relevant outcome	An effort to study the effects of the intervention is planned or currently under way
 Findings From Related Studies	No strong negative findings from experimental or quasi-experimental studies	No strong negative findings from experimental or quasi-experimental studies	No strong negative findings from experimental or quasi-experimental studies	N/A
 Sample Size & Setting	At least 350 participants, conducted in more than one district or school	At least 350 participants, conducted in more than one district or school	N/A	N/A
 Match	Similar population and setting to your setting	Similar population or setting to your setting	N/A	N/A

a. Findings from experimental and quasi-experimental studies that either (a) meet the first three criteria for Tiers 1 and 2 but not the sample size, setting, or match requirements, or (b) do not meet WWC standards but statistically control for selection bias between the treatment and comparison groups are also eligible to meet Tier 3 Promising Evidence.

Figure 1: [Chart explaining the ESSA Tiers of Evidence](#) and the five criteria educators should examine to determine if it aligns with established SMART Goal(s).

What are ESSA Levels 1 and 2 Interventions?

EBIs categorized as Levels 1 and 2 are deemed to have the strongest evidence for effectiveness based on a review of findings from experimental research (Level 1) or quasi-experimental research (Level 2) conducted on the intervention.

In addition to meeting the study design criteria, Levels 1 and 2 interventions must meet the four other criteria as shown in Figure 1. It is important to note that the educators who are evaluating the intervention should pay close attention to the last criterion to determine if the EBI should be considered—the population studied and the setting in which the study took place. If your team determines that the research on the EBI was conducted using a population and setting that matches your target population and setting, this makes for a very strong alignment of the EBI to your local needs.

ESSA Level 1: Strong Evidence

Interventions with this designation have been supported by strong evidence from well-conducted experimental studies, such as randomized controlled trials (RCTs). These studies demonstrate a statistically significant and meaningful positive impact on student outcomes, and their effectiveness has been proven through rigorous research.

ESSA Level 2: Moderate Evidence

Interventions with this designation have evidence from quasi-experimental studies or other research designs that provide moderate support for their effectiveness. While the evidence may not be as strong as in Level 1, it still suggests a positive impact on student outcomes.

To Remember

It's important to note that, in terms of rigorous research evidence, ESSA Levels 1 and 2 are usually most desirable for evidence-based interventions when making decisions about education policies, funding allocations, and program implementations in school improvement efforts. These levels prioritize interventions that have a solid research base and have demonstrated positive effects on student learning and achievement. However, Levels 1 and 2 interventions are not always the best for every context. These EBIs are sometimes costly or require certain contextual attributes (e.g., human resources, materials, culture, etc.) that some settings may not have readily available for effective implementation. Also, there are many EBIs that just have not been researched enough to be categorized as Level 1 or 2. In these cases, it is a great idea to look for Levels 3 and 4 EBIs that may be a better fit for your needs.

Resources

Brief REL Midwest, American Institutes for Research Handout explaining ESSA Tiers of Evidence and their determining factors: [ESSA Tiers of Evidence: What You Need to Know](#).

What Works Clearinghouse Website explaining ESSA Tiers 1 and 2 and how to use information on WWC to identify interventions within those tiers: [Using the WWC to Find ESSA Tiers of Evidence](#).

Institute of Education Sciences Video (5:46) explaining the four ESSA tiers of evidence and how schools and districts can utilize them to assess interventions: [Understanding the ESSA Tiers of Evidence](#).

EBITE RESOURCE GUIDE

ESSA Level 3 and 4 Interventions

Purpose

This guide describes ESSA Level 3 and Level 4 interventions. According to the *Every Child Succeeds Act* (PUBLIC LAW 114–95, DEC. 10, 2015), Level 3 interventions are those that have “*promising evidence from at least 1 well-designed and well-implemented correlational study with statistical controls for selection bias.*” Level 4 interventions are those that “*demonstrate 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.*” We discuss Levels 3 and 4 together because in databases that do not refer to ESSA Levels of Evidence, it is often not clear which level applies to an intervention. What they have in common is the lack of experimental or non-experimental evidence. For a useful crosswalk of how ESSA levels/tiers of evidence relate to evidence criteria of a number of clearinghouses, see [Aligning Evidence-based Clearinghouses with the ESSA Tiers of Evidence from REL Midwest](#).

How to Use this Guide

Use this Guide to get a full understanding of the kind of research evidence ESSA Level 3 and 4 interventions have, how educators may determine if an intervention could be considered as Level 3 or 4, and how to decide if they are appropriate for your needs.

What are ESSA Level 3 and 4 Interventions?

Level 1: Strong Evidence

Level 2: Moderate Evidence

Level 3: Promising Evidence

Level 4: Demonstrates a Rationale

Interventions that are characterized as ESSA Levels 3 or 4 typically do not have as strong a research base as interventions at ESSA Levels 1 or 2. Level 3 and 4 interventions could still favorably influence student outcomes, but educators should recognize that there isn’t the same degree or amount of evidence in support of student change or impact as there is with Level 1 and 2 interventions. See [ESSA Tiers of Evidence: What You Need to Know](#).

Level 3 interventions may be based, for example, on an evaluation of an intervention without a comparison condition. For example, scores on an outcome may have improved from pretest to post-test for the students using that intervention, but the evaluators cannot claim with confidence that improvement was *caused* by the intervention, only that the intervention was *associated* with better scores.

Level 3 and 4 interventions are often derived from multidisciplinary basic science on child development, education, human behavior, mental health, psychology, social psychology, sociology, motivation, risk and resilience, and other areas. Examples of specific theories that might support the interventions are social learning theory, cognitive behavioral theory, ecological systems theory, cognitive theories, stereotype theory, self-determination theory, and teaching and learning theories.

According to ESSA, Level 4 interventions require a logic model that clearly links how the theory and activities of the intervention or practice connects to the desired change in student outcomes. Although only the definition of ESSA Level 4 interventions refers to theory and **logic models** Level 3 interventions also have those foundations. Implementation of the interventions should include the use of appropriate measures and metrics for monitoring progress and outcomes of interventions (covered in other Resource Guides). It is also important to examine study characteristics supporting Level 3 and 4 interventions for match or adaptability to your student population and intervention context. Level 3 and 4 interventions are good choices in many practice situations if they address the intervention need. They allow for educator creativity in meeting the needs of their own students while relying on existing research and program theory and logic.

Resources

Ohio Department of Education and Workforce has created a comprehensive guide focusing on Level 4: [Empowered by Evidence: Using Level 4 Evidence-based Strategies](#).

Brief REL Midwest, American Institutes for Research Handout explaining ESSA Tiers of Evidence and their determining factors: [ESSA Tiers of Evidence: What You Need to Know](#).

Institute of Education Sciences Video (5:46) explaining the four ESSA tiers of evidence and how schools and districts can utilize them to assess interventions: [Understanding the ESSA Tiers of Evidence](#).

EBITE RESOURCES

Glossary Of Research Terms

ANCOVA (Analysis of covariance). Like ANOVAs, ANCOVAs compare the outcome means of three or more groups. ANCOVAs, however, include additional predictor variables, not just an intervention variable. They may include, for example, gender, age, or race/ethnicity, allowing a look at intervention effects over and above the effects of those demographic factors. (See ANOVA, Mean, Regression, and *t*-test.)

ANOVA (Analysis of variance). ANOVA is a statistical procedure that compares three or more group means (average scores) to see if they are statistically significantly different. There are only two variables in an intervention study ANOVA: the variable with information on intervention group (with at least 3 categories) and the outcome. ANOVAs are useful for testing whether average scores on an outcome are better for a group who received an intervention compared to a control group and a treatment-as-usual group. Some EBIs you'll encounter in online repositories have been tested with ANOVAs. As with any means comparison, ANOVAs summarize results for the students in each condition. They do not give specific information on how many students benefited from the intervention or characteristics of those who benefited or did not benefit. (See ANCOVA, Mean, Regression, Treatment-as-usual, and *t*-test.)

Attrition. Attrition is the loss of sample members during an intervention study. Attrition means some intended recipients of an intervention did not receive it. Participants may drop out for many different reasons, some of which can affect conclusions made about the effectiveness of the intervention. For example, if teachers stopped implementing an intervention because they did not think it was helping their students, researchers would end up analyzing results only from students who were most responsive to the intervention—making it look more effective. Some online EBI repositories will report attrition rates in studies. (See Intent-to-treat.)

Baseline Equivalence. Baseline equivalence refers to how similar the groups assigned to conditions are before the intervention begins. We want students (or others) who receive the intervention to be as similar as possible to those who receive a different intervention (e.g., the usual services) or no intervention. The more similar the starting characteristics of study participants across conditions, the more confident we can be that differences in outcomes at the end of the study were due to the intervention. Random assignment to conditions is the best strategy to achieve baseline equivalence, but some other strategies can allow some degree of confidence in results. Typical characteristics that are examined at baseline are gender, race/ethnicity, pretest scores on the outcomes of interest, and any other characteristics that may be predictive of outcome scores.

Bias. Bias refers to inaccuracies of estimates obtained in analyses. Statistical analyses can only provide values that are *estimates*, based on data from a study sample, of *true* values (the actual real but unknowable effect) for the theoretical population of students like those in the study. If an estimate of an intervention's effect on an outcome is biased, it may be higher or lower than

the true value for the population represented by the sample. Often researchers do not know how biased their estimates are. (See Standard error.)

Causality/Causal Inference. Researchers want to claim that better outcomes in the intervention condition are *caused by* their intervention. If groups are different at the beginning of the study (e.g., in terms of demographics, scores on outcome variables, willingness to participate, etc.), researchers cannot claim their intervention caused differences in outcome scores. The differences could be at least partly due to initial group differences. Demonstrating causality, is a central issue in intervention research. Researchers' ability to infer causality is derived from study design. (See Design, Experimental design, Internal validity, and Random assignment.)

Comparison group. Technically, a comparison group in a study comprises participants who are *non-randomly* assigned to the condition that does not receive the intervention. Outcome scores from members of the comparison group (or comparison condition) will be compared at the end of the study to scores from participants in the experimental group or condition. Because members of a comparison group were not randomly assigned to that group, researchers generally cannot claim their intervention *caused* different outcome scores across groups. Participants in the comparison and experimental groups may have differed from the start. There are some statistical procedures that can increase confidence in causal inference in this situation, but we will not be studying them. Often, the terms control group and comparison group are used interchangeably. (See Causality, Condition, Control group, and Random assignment.)

Condition (in a study). Condition refers to the group participants are assigned to in an intervention study. Most intervention studies have an experimental condition—the one receiving the intervention—and a control or comparison condition that does not received the intervention. Other studies may have more groups, such as a treatment-as-usual group or a group getting another version of the intervention. (See Comparison group, Control group, Random assignment, and Treatment-as-usual.)

Control group. Technically, a control group is the *randomly* assigned group in an experimental study that does not receive the intervention. Outcome scores from members of the control group (or control condition) will be compared at the end of the study to scores from the experimental group or condition. Having a randomly assigned control group helps researchers claim causality—that their intervention *caused* better outcome scores. Often, the terms control group and comparison group are used interchangeably. (See Design, Experimental study, Quasi-experimental study, Random assignment, and Comparison group.)

Correlation. Researchers want to claim that better scores in the intervention condition are *caused by* their intervention. The design of many studies, however, makes it impossible to make that claim. In cross-sectional studies, for example, data are collected at one time point. It is not possible to infer causality when no time passed in the study. Therefore, researchers can demonstrate only that two variables are *correlated* or *associated* with each other. Correlated



means that when scores on one variable go up, scores on the other also tend to predictably go up (positive correlation) or down (negative correlation). Correlations can also be used in studies with multiple time points and conditions, however. In a study with internal validity, a correlation between the intervention and an outcome is evidence of effectiveness. (See Design and specific study designs.)

Cross-sectional design. Studies using a cross-sectional design collect data at only one time point. Scores for different groups can be compared, but no claims can be made that one variable (e.g., the intervention variable) caused differences in those scores across groups. (See Design and specific study designs.)

Design (of a study). The design of a study includes how participants are grouped and the timing and number of data collections. (See Cross-sectional, Experimental, Longitudinal, Pretest/Post-test, Quasi-experimental, Single-subject design.) For example, in an educational intervention study, students may be placed into two groups, one of which receives the intervention and one of which does not; or students may not be separated into groups at all. (See Condition, Comparison group, Control group, Treatment-as-usual, and Random assignment.) Data may be collected once; before and after the intervention; or multiple times during and after the intervention. (See Follow-up data collection, Pretest, Post-test, Longitudinal.)

Disaggregating data. Disaggregating data means breaking it down by groups of interest (e.g., by race/ethnicity, gender, grade level, school) to see separate scores for each of those groups. Disaggregating data allows school staff and researchers to identify group-specific needs and strengths, and potential targets of tier 1 and 2 interventions. Disaggregating data is critical for evaluating interventions. Some interventions may help some students but do nothing for others. When choosing EBIs, you'll want to know if students like yours benefited.

Effect Size (ES). Effect size refers to the magnitude of change in outcomes that can be attributed to an intervention. The most commonly used ES is a simple formula based on group means. The difference in means between two experimental conditions or between the pre- and post-test scores for one group, is divided by a standard deviation (one of three possible standard deviation formulas). The result is an ES that can be compared across interventions. Some researchers say interventions worth using should have an ES of at least .20; other say .40. Larger effect sizes are better. Analyses can also show if the ES of an intervention is higher for one group of students than others. (See Disaggregating data.) ESs can be calculated for correlations, regression values, means comparisons and other statistics. (See ANOVA, ANCOVA, Correlation, and Regression.) The What Works Clearinghouse uses ESs based on an "improvement index," which is based on the average change in percentile ranking of students in an intervention group versus students in the control or comparison group.

Equivalent groups. The best way to isolate the effects of an intervention on recipients is to start a study with conditions comprising participants who have the same characteristics, experiences, scores on targeted concerns (academic performance, mental health) and other



variables. Many characteristics of individuals can be measured and compared across groups, meaning researchers can test equivalence on some characteristics across non-randomly assigned groups. However, even if conditions are equivalent in terms of observable characteristics such as gender, age, reading scores, etc., they may be different in terms of hidden or unmeasured characteristics. Random assignment is the only way to be confident that groups are equivalent. (See Causality, Conditions, Experimental design, and Internal validity).

Every Student Succeeds Act (ESSA). ESSA is federal legislation that has been in effect since 2015 requiring that schools achieve equitable educational outcomes for populations of students that have historically had lower performance. It also mandates the use of evidence-based interventions and annual assessments that provide school-, district-, and state-level performance scores. ESSA lists four levels of evidence that EBIs must demonstrate—strong, moderate, promising, and demonstrates a rationale. (See EBITE ESSA lessons and resources.)

Evidence. Evidence of intervention effectiveness comes from intervention studies. Study design and magnitude of effects are essential to claims that there is evidence of an intervention's effectiveness. Online repositories of EBIs use a variety of evidence rating systems. (See Design and Effect size.)

Experimental condition. In an intervention study, the experimental condition or group is the one that receives the intervention. Outcome scores from that group are compared to those of one or more other groups (control or comparison groups) that did not receive the intervention.

Experimental design. Experimental designs by definition use random assignment of the full initial group of potential participants to the experimental and control or comparison conditions. In an experimental design that is adequately implemented, researchers can claim the intervention *caused* improved outcomes and not variations in the initial characteristics of participants across conditions. Many online repositories, including What Works Clearinghouse, rate the evidence for interventions' effectiveness based on their design. Experimental studies are always considered the best. (See Design, specific designs, Control group, Comparison group, Random selection, and Random assignment.)

External validity. The external validity of an intervention study is the degree to which its findings can be generalized to other schools, districts, and student populations. EBITE's emphasis on the context in which an intervention will be implemented relates to external validity. If an intervention is not appropriate for your setting or students, it does not matter how effective it was in an intervention study. Greater external validity often is associated with less *internal* validity. (See Internal Validity and Causality.)

Fidelity. Fidelity refers to how fully an intervention is implemented as intended. Many EBIs have manuals that describe in detail how the intervention is supposed to be implemented and tools for monitoring and documenting fidelity. Straying from fidelity is likely to lead to less



optimal outcomes. There can be tension between fidelity and adaptation to the cultural and contextual realities of an educational setting.

Follow-up. In many intervention studies, researchers collect data from participants one or more times after they collect post-test data at the end of the intervention. Follow-up data helps researchers determine if an intervention is associated with a lasting effect on participants. Whether or not the intervention *caused* the effect, of course, is based on the study design. (See Design and specific designs.)

Improvement Index. The improvement index is a measure of the effectiveness of an intervention used by the What Works Clearinghouse. It represents the expected change in the average outcome score of those students who *did not* get the intervention if they *had* gotten the intervention. It is basically the difference between post-test scores of those who received the intervention and those who didn't. The unit of change for the improvement index is the percentile rank of students on the outcome of interest. The index is a standardized value but can be converted into the point difference on the outcome between students in the different conditions. (See: <https://ies.ed.gov/ncee/wwc/Glossary/improvement%20index>, Effect size and Percentile rank.)

Intent-to-treat (ITT). Intent-to-treat studies include outcome data from participants who were *supposed* to receive the treatment but didn't. For example, students in a school may all have been assigned to receive one of two interventions. Some students didn't like the intervention, declined to take part, or dropped out because it wasn't helping them. To best capture the real-life effects of the intervention, data from all the students assigned to each condition should be included. The possible lack of uptake needs to be taken into account when a school or district is selecting interventions. Online repositories with detailed descriptions of evidence for interventions might refer to ITT analyses. Positive effects are harder to demonstrate with ITT analyses because some students included in the analyses didn't receive the intervention.

Internal validity. The internal validity of an intervention study is the degree to which its design and implementation allow for claims of causality. Therefore, well-executed experimental designs (with random assignment to conditions) have the most internal validity. Unfortunately, maximizing a study's internal validity often reduces its external validity because only a narrow group of students in a carefully selected setting is targeted. (See Causality, Experimental design, Designs, and External validity.)

Logic model: A logic model is one important tool for planning and monitoring the implementation of an intervention. It details the sequence, resources, activities, intended outputs, and expected outcomes of the intervention. A logic model provides a graphical overview of the intervention process. (See EBITe logic model lesson and resources.)

Longitudinal design: Outcome data in longitudinal study designs are collected at more than two data points allowing for an examination of when and how much change happens over the



course of the study and/or at one or more time points after the study ends. There are special analysis methods for evaluating longitudinal intervention effects. (See Design and specific designs.)

Mean: The mean or average of an outcome score for a group of students or study participants is the sum of the scores divided by the number of individuals. Comparison of the means of participants in different conditions is the most common way of evaluating interventions and calculating effect sizes. Reporting school-level mean scores is a common way of evaluating schools' performance. However, mean scores say little about how many students within a group or school have improved or achieved desirable scores. Therefore, means are not useful for informing schools which students may or may not need intervention. Some scholars recommend looking at percentages of students with different ranges of scores or the mode of a set of outcome scores. It is also important to disaggregate means and percentages by demographics. (See Disaggregating data, Mean, Median, Mode, and Standard deviation.)

Median: The median score in a list of outcome scores arranged from lowest-to-highest is the point at which half of the scores are above and half are below. Median scores can be informative in evaluating students' performance or comparing intervention groups, but are not commonly reported in online repositories. (See Mean, Mode, and Standard deviation.)

Meta-analysis. A meta-analysis is a systematic, quantitative study of studies. In intervention research, meta-analyses are used to synthesize the findings of multiple studies of the same or similar interventions. They transform quantitative findings across the studies into comparable units (effect sizes) so they can be summarized, often graphically. Meta-analyses usually report the significance and magnitude of effects of multiple outcomes because most interventions target more than one narrow outcome. When well-implemented, meta-analyses provide rigorous evidence of the effectiveness or lack of effectiveness of interventions. It should be noted, that they often reveal a range of results, suggesting differences in implementation, context, and populations.

Mode: The mode of a set of outcomes scores is the value that occurs the most often. The mode of outcome scores can be useful in cases where outcomes can be categorized, e.g., into "1=got worse," "2=stayed the same," or "3=improved." If the most common category among students in the experimental group is "3=improved" compared to "2=stayed the same" for the control group, the intervention may have been effective. (See Mean, Median, and Standard deviation.)

Multi-tiered systems of support (MTSS). Different names have been used for multi-tiered systems of support (e.g., Response to Intervention, RTI; Positive Behavioral Interventions and Supports, PBIS), but they all refer to three levels of intervention/prevention. Universal, or tier 1 strategies, occur at the school level to benefit all students and prevent the need for more intensive intervention among the majority of students. Selective, or tier 2 strategies, are interventions for students who need more targeted intervention in addition to tier 1 strategies. They are usually implemented at the group level. Indicated, or tier 3 interventions, are for



students who need supports beyond tiers 1 and 3. Special education services are tier 3 interventions, but not all tier 3 interventions are special education services.

Non- or pre-experimental design. Non-experimental designs do not have characteristics supporting claims of causality. Cross-sectional studies, pretest/post-test studies with only one group, and post-test-only studies are examples of non-experimental designs. Non-experimental studies do not provide evidence of intervention effects, but they may provide information valuable for designing interventions at ESSA's levels 3 and 4.

P value: The p value of a statistical finding in intervention research indicates the probability that the conclusion of a positive intervention effect is wrong. The estimate is a possible but improbable value given the true population value. Most intervention researchers use a p value of .05, meaning they are willing to accept a 5% chance that their conclusion of effectiveness is wrong. The smaller the p value of an estimate, the less likely it is that an estimate is wrong. Because there is always a statistical chance that conclusions in one study are inaccurate, it is important for interventions to be replicated. Online repositories will give higher ratings to interventions with consistent positive effects across multiple studies. (See Bias, Replication, and Standard error.)

Percentile rank. The percentile rank of a student is based on scores from a normed measure—that is, scores on an outcome measure obtained from an external group of students. In intervention research, it indicates how well students in a study condition performed relative to the external group of students used to norm the outcome measure. A student with a percentile rank of 85 performed as well as or better than 85 percent of students in the normed group. The average percentile rank of students in an intervention group is compared to the average in a control or comparison group to determine how much change in performance the intervention was associated with. That change score can be converted into an ES that can be compared across studies. (See Effect Size and Improvement index.)

Post-test: Post-test data are data collected at the end of an intervention. Post-test scores can be compared to pretest scores and to post-test scores of other groups. (See Follow-up, Pretest and Pretest/Post-test design.)

Power (of a study): The power of an intervention study refers to its ability to determine that an intervention had an effect. Sample size and other statistical considerations determine the effect size a study may be able to detect. It is harder to detect a small effect (e.g., .20); and easier to detect a big effect (e.g., .60). Sample size is an important factor in power; with larger samples, studies can detect smaller intervention effects. Researchers want to avoid the situation where an intervention actually has a beneficial effect, but they don't see it because the number of study participants was too small.



Pretest: Pretest data are collected at the beginning of an intervention. They can be compared across experimental and control/comparison groups to see if the groups are equivalent before receiving the intervention. They are also compared to post-test data to see if outcomes changed between the beginning and end of an intervention. (See Post-test and Pretest/Post-test design.)

Pretest/Post-test design: Studies with pretest/post-test designs have data collection before and immediately after an intervention is implemented. Researchers are hoping that post-test scores (usually means) are better than pretest scores. The design can be used with one group or more than one group. To claim causality, two equivalent groups (obtained through random assignment) either receive or don't receive the intervention and have their post-test scores compared. Scores capturing change from the beginning to the end of the intervention can also be compared. (See Causality, Design, Equivalent groups, Post-test, Pretest, Follow-up.)

Quasi-experimental design: In contrast to experimental designs, quasi-experimental designs do not use random assignment of recruited participants to the intervention and comparison groups. Participants end up in conditions based on some other procedure or situation, such as first-come, first served; matching (finding comparison groups that are similar to the intervention group); willingness of a setting to take part in an intervention; parents who give consent to take part in an intervention; etc. Schools often decline to allow random assignment studies because it means denying potentially beneficial services to some students. Depending on the quality of the comparison group used, a quasi-experimental design could be considered almost as rigorous as an experimental design. (See Comparison group, Control group, Experimental design, and Random assignment.)

Random assignment: Random *assignment* refers to how study participants are placed in either the intervention group or control group. It means that every potential participant has the same chance of ending up in either condition. Random assignment can occur during recruitment of participants, for example, if students who are referred for services are alternately assigned to condition; or after the recruitment of a pool of study participants. In the latter case, assignment can be based on the flip of a coin or the use of a random number generator. With random assignment, researchers have confidence that the two conditions are equivalent at the beginning of the intervention. Then, differences in outcomes scores can be attributed to the intervention. (See Causality, Comparison group, Control group, Design, and Internal validity.)

Random sampling: Random *sampling* refers to how potential participants are recruited to take part in a study and before they are assigned to conditions. If researchers don't have enough money to provide an intervention to every classroom in a school, or every school in a district, for example, they might use a random process to select schools and/or students. Random selection is desirable because, if implemented well, it allows researchers to claim their findings from a subset of potential participants apply to the entire set—there is no reason to believe that the excluded units were different from the included units. (Compare to Random assignment.)



Regression. Regression analysis is one type of statistical analysis that can be used to examine the effects of an intervention on an outcome. (See ANOVA, ANCOVA, Mean, and *t*-test.) Instead of comparing group means, regression analysis looks at how much being in one condition versus another predicts outcome scores. Regression analyses can easily identify intervention effects over and above the potential effects of other variables, such as gender, age, and pretest scores. It can also be used to see if an intervention works better for participants with different characteristics. Evidence for ESSA levels 3 and 4 are often based on results of non-intervention studies using regression analyses.

Replication/Replicability. Positive evidence for an intervention is considered much stronger when more than one study has been conducted and found beneficial effects. Ideally, replication studies are separate studies conducted by researchers who were not part of the team that developed the intervention. Many interventions have not been replicated, especially by independent researchers (e.g., non-developers). Some online EBI sites report whether replications have been conducted and use them as a rating criterion. However, it is not uncommon to find interventions in the repositories that have not been replicated or that were replicated but replication findings were less positive than those found in the original study. Inconsistent findings reduce confidence in the effectiveness of an intervention. (See *P* value.)

Reproduction/Reproducibility. Reproducibility refers to whether or not the findings of an intervention study can be reproduced in a re-analysis of the study's data by separate researchers. When re-analysis of study data leads to the same results as the original study, researchers and practitioners can have more confidence in the reliability of the original research findings.

Single-subject or Single-case design. Single subject designs have been used extensively in educational research. In this type of study, the outcome(s) of one student or one group of students is measured multiple times during a baseline period (A) and plotted on a graph. The baseline trend is measured until a clear pattern of scores is obtained. Then an intervention phase is begun (B). The outcome continues to be measured regularly and graphed. The individual or group is its own control group because the trend in outcome scores in the intervention phase is compared to the baseline trend. Simple statistical procedures are used to see if outcome scores during baseline and intervention phase are statistically significant. The most rigorous single-subject designs use multiple A and B phases to see if outcome trends are consistently different for baseline (no intervention) and intervention phases. Using a single-subject design to simultaneously study AB trends in outcomes for multiple students or groups is also a rigorous design—the study of each student or group can be considered a replication of the intervention study. The What Works Clearinghouse considers well-implemented single-subject designs as experimental studies.

Standard deviation (SD). The standard deviation of a set of scores gives information about the spread of scores around the mean. Technically, 67% of scores in a set fall within + or – one SD of the mean. The size of the SD of outcome scores for two experimental groups affects whether



their mean differences are statistically significant. The wider the *SD* of each group's outcome scores, the harder it will be to determine their means are statistically significantly different. Some online EBI repositories will report *SDs* from intervention studies, and some scholars say they are important numbers to consider when evaluating effects of an intervention because they may demonstrate the intervention had a wide range of effects. (See Mean, Median, and Mode.)

Standard error (SE). The standard error of an estimated intervention effect indicates how precise or accurate the estimate is; that is, how much error there is in the scores. An estimate is an average score for all participants in the study. The farther each participant's score is from that average estimated effect, the less precise the estimate is across the whole sample and the more error it contains. The *SE* is part of the calculation of statistical significance—the larger the *SE*, the less likely the estimate effect is to be statistically significant. (See *P* value.)

Statistical significance. See *P* value.

Treatment-as-usual (TAU). In some intervention studies, the effects of an intervention are compared to the effects of treatment-as-usual—that is, the services students would get in the absence of the new intervention. For example, students in an experimental group may receive a new reading curriculum, while students in a control or comparison group continue to receive last year's curriculum. (There may also be a group who receives no intervention, but that is not likely to be acceptable to school staff.) At the end of the school year, group reading scores can be compared to see if the intervention led to significantly better reading scores. Some intervention reports in online repositories may refer to TAU comparisons. In general, if the usual treatment had any positive effect at all, it will be more difficult to demonstrate a significant positive effect of the new intervention.

T-test. T-tests compare two group means to see if they are statistically significantly different. There are only two variables in an intervention study *t*-test: the variable with information on intervention group (with two categories) and the outcome variable. T-tests are commonly used for intervention studies. As with any means comparison, they summarize results for the students in each condition. They do not give specific information on how many students benefited from the intervention or characteristics of those who benefited or did not benefit.

EBITE RESOURCE GUIDE

Identifying Needs: Data and Needs Assessment

Purpose

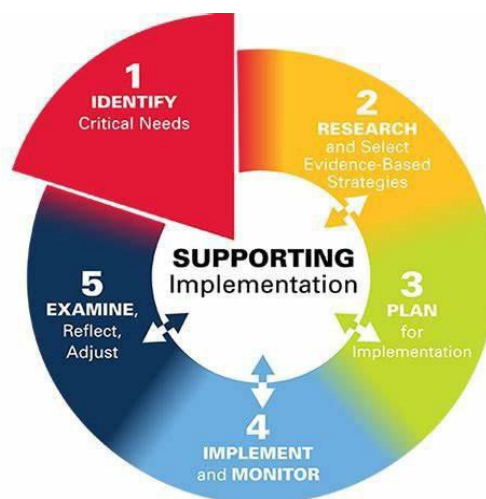
Data are a critical element of determining evidence-based solutions to the problems encountered in schools. The purpose of this guide is to provide a basic process for preparing to gather data to help identify a critical need as part of your school improvement work. In this guide, you will find some suggested approaches for conducting an initial needs assessment and determining possible data sources to help you explore critical needs.

How to Use the Guide

This guide is most helpful at the beginning of your school improvement process—where you are ready to figure out where to start, but perhaps need some ideas and reminders to help you move forward with determining your school’s greatest needs. Keep in mind that there are many approaches to conducting a needs assessment and this guide reflects only one approach. The information in this guide can be used in conjunction with the [One Needs Assessment](#) toolset that is part of the [Ohio ED STEPS](#) process. Use the Resources section at the end for additional readings and information. Much of the tips and suggestions referenced in this guide comes from the AIR [Needs Assessment Guidebook by Cuiccio & Husby-Slater \(2018\)](#). Please use this guide for more detail when needed.

What is Needs Assessment?

Cuiccio & Husby-Slater (2018) defines needs assessment as, “... a systematic examination of the gap that exists between the current state and desired state of an organization and the factors that can be attributed to this gap.” (Cuiccio & Husby-Slater, 2018, p. 1). The goals of a needs assessment are to, 1) study the specific needs and challenges for which one is seeking a solution; and 2) examine the nature of the context within which those challenges and needs are situated. People conduct a needs assessment to help them understand what’s happening, where it’s happening, and determine the priority of the needs and challenges to inform the continuous improvement process.



A comprehensive needs assessment is a rather large undertaking that involves lots of people, data, communication, and resources. There are many approaches to conducting a needs assessment, but most of them would involve five basic phases.

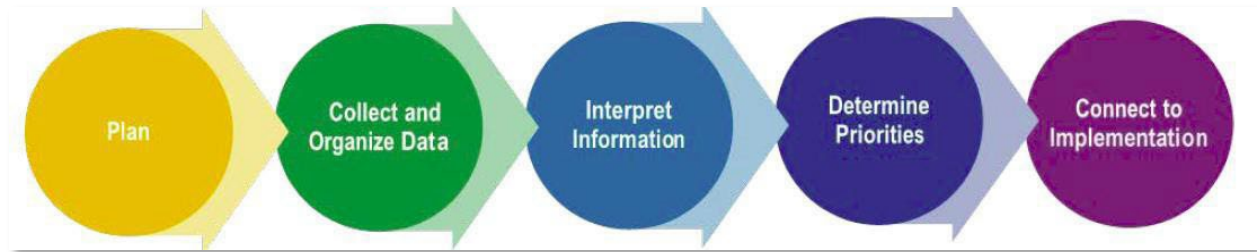


Figure 3 from Cuiccio & Husby-Slater (2018) *AIR Needs Assessment Guidebook*, p. 8

Preparing for Needs Assessment

Elements of a Successful Needs Analysis. According to Cuiccio & Husby-Slater (2018), an assessment that provides a comprehensive exploration of needs should involve four elements:

- 1) A focus on the local context and “needs framework” within that context;
- 2) multiple sources and types of **trustworthy** data;
- 3) inclusion of as many stakeholder groups as possible; and
- 4) collaborative perspective-taking and prioritizing of needs.

As you start the planning process, discuss each element with your team and brainstorm context-appropriate strategies for addressing each element in your needs assessment plan. For detailed explanation of these elements, consult the *Cuiccio & Husby-Slater (2018). AIR Needs Assessment Guidebook*, p. 5-7.



Figure from Cuiccio & Husby-Slater (2018) *AIR Needs Assessment Guidebook*, p. 24

Framing the Problem: Establishing a Needs Framework and Examining the Context

As part of the planning phase of needs assessment, Cuiccio & Husby-Slater (2018) suggest determining an organizing framework to guide your exploration of the needs and challenges that form the foundation of your target problem. Another approach is to use an exploratory

problem-framing process that can help you to leverage the voices of your stakeholders to create your context-specific needs framework.

To help you with this important phase, EBITE has created a working document, the [Problem-Framing Worksheet: Needs Framework & Context](#) (an editable GoogleDoc), that you can use with your team to start the process. Once you access the document, make a copy, share with your team, and use it during your team meetings. You can take notes directly in the document. Note that the worksheet prompts you to think of multiple data sources related to all aspects: the performance gap, the stakeholders/target audience, and the local context.

Data Sources

Another element of effective needs assessment is to rely on multiple sources of data that were collected using valid as reliable methods/instruments, and that are clean and trustworthy (as error-free as possible). Aim for a diverse set of data that includes formally and informally collected data, qualitative and quantitative data, and community data that include the following types:

- Input: Examples include improvement plans, curriculum materials, training materials, programs, data that show allocation of resources, facilities attributes, and other data on elements used to influence outcomes
- Output: Examples include attendance records (teacher and student), standardized test scores, classroom assessment results, student work samples, behavior records data, classroom observation data, and other data that help to document outcomes
- Demographic: Examples include student and employee and community demographics data, local census data, and data on any variables that are out of your control, but might influence how you might implement a solution
- Contextual: Examples include community variables such as local socio-economic trends and community resource information, family supports, and mobility/transiency data

Use your work documented in the [Problem-Framing Worksheet: Needs Framework & Context](#) to help you brainstorm the sources of the data.

Quick Tip: Preparing to Collect Data

How do you prepare to collect data? Here are some key questions to ponder with your team to help you prepare BEFORE you gather data.

- *What are all the types of data we have at our disposal?*
- *Who is our data contact person?*
- *Which types of data do we need: Student data, family/parent data? Data from teachers/colleagues or school/district documents?*
- *In what forms are these data? Numbers/scores, text/words, images/sounds?*
- *Do we have the skills, time, tools, and resources to understand and analyze these data? If not, what do we need and are we able to obtain it?*

Resources

- Cuiccio & Husby-Slater (2018). [Needs Assessment Guidebook: Supporting the Development of District and School Needs Assessments.](#)
- Ed STEPS Ohio - [Education Department's System of Tiered E-Plans and Supports.](#)
- Ed STEPS Ohio - [Trainings](#) (Includes a list of training resources for the ED STEPS process).
- First step of completing the ED STEPS process - [One Needs Assessment.](#)
- Ohio's systematic planning tool – [One Plan](#) (Site includes video help resources for using the One Plan tool).



EBITE RESOURCE GUIDE

Root Cause Analysis Guide

Purpose

This resource guide is designed to provide a brief overview of Root Cause Analysis (RCA) and how it can be used as part of the school improvement cycle to support educators in their use of Evidence-based Interventions (EBIs). When educators employ RCA during continuous improvement efforts, they can identify causes or sources of problems rather than just the symptoms—i.e., academic outcomes. This guide will discuss the purpose of RCA, some techniques for conducting RCA, and some real-world examples.

What is Root Cause Analysis?

Root Cause Analysis (RCA) is a problem-solving process designed to unearth the root and fundamental reasons for identified concerns. It requires a systematic investigation of the central causes of the student performance problems that schools and educators may face¹. RCA helps educators identify what, how, and why a problem is occurring so it can be addressed more effectively and prevented in the future. There are several methods and procedures that can be used in conducting root cause analysis; among them are these common steps; define the problem and gather data relevant to the problem; identify possible causes of the problem and determine potential underlying causes; and use evidence-based strategies to resolve the problem².

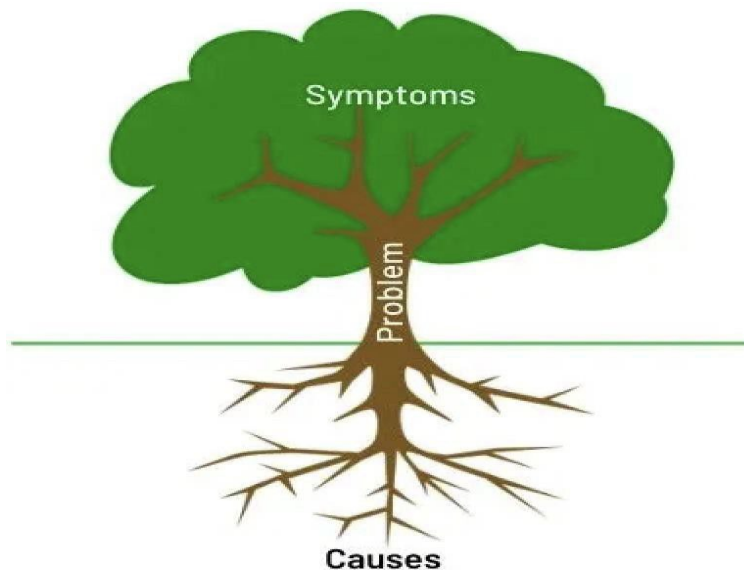
Why do educators need to conduct Root Cause Analysis? And how can data help this process?

Root Cause Analysis is a part of the needs assessment process where school districts systematically assess performance gaps as well as identify, recognize, and prioritize students' needs to improve academic outcome. There are several reasons why educators would need to conduct root cause analysis, but the most common reason would be to identify underlying factors that contribute to issues in their classrooms, individual students, and the school.

¹ Rooney, J. J., & Heuvel, L. N. (2004). [Root Cause Analysis for Beginners](#).

² United States Department of Education (2020). [Approaches to Root Cause Analysis](#).

Image from [Tech Learn](#)



As you can see from the tree diagram, the symptoms of the problem (branches) are more visible than the actual causes (roots). Hence, by conducting a thorough analysis, educators seek to understand these deep-rooted factors and search for targeted solutions to address them.

Relying on data in a root cause analysis can help educators make data driven decisions instead of making assumptions about the cause of the problem. When data and evidence related to the problem at hand is systematically analyzed, educators can uncover the potential cause for the problem and develop successful strategies to address it. This in turn will help improve their effectiveness in the teaching and learning process. When discussing their data, school teams should use their knowledge and expertise of students and the school setting.

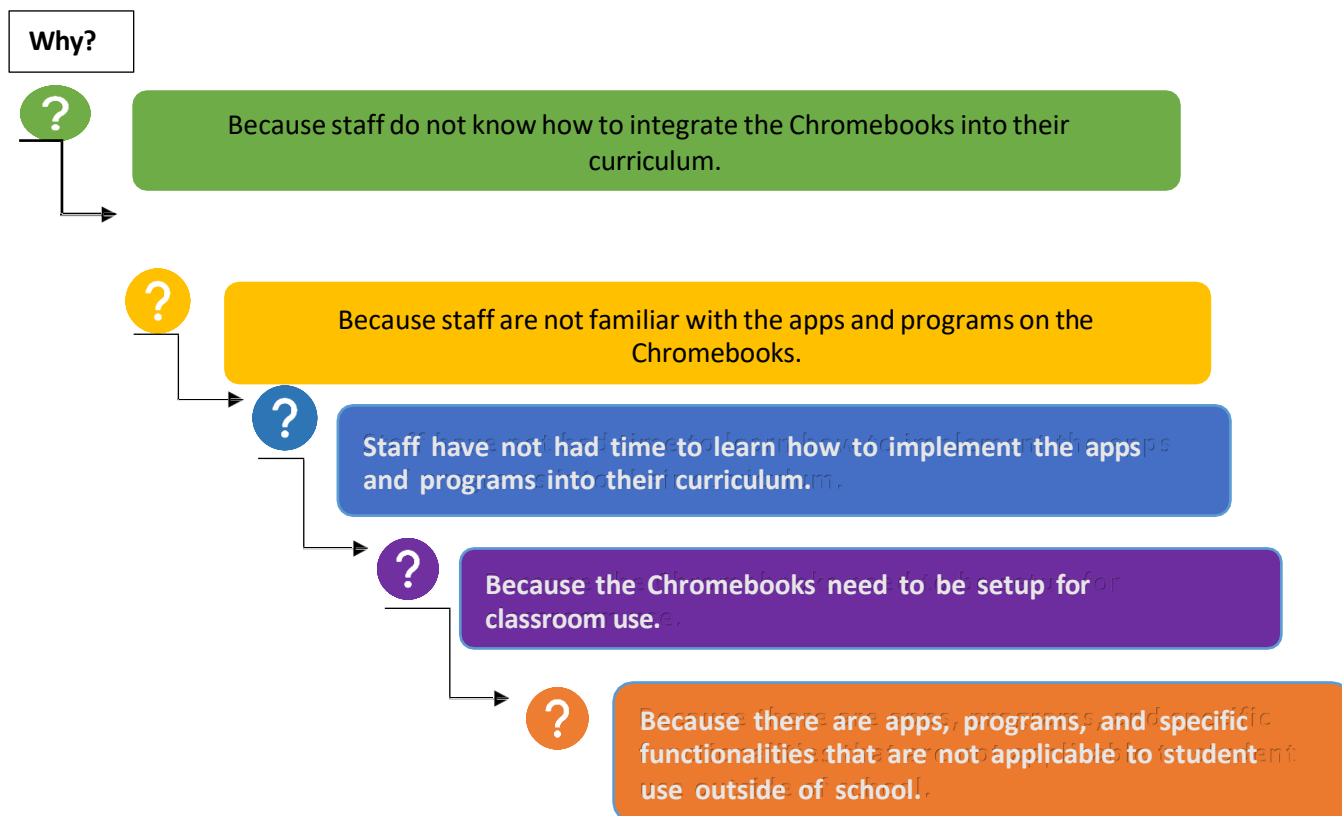
Common Approaches to Root Cause Analysis

There are several approaches used in conducting root cause analysis, but this guide will focus on the two that are commonly used in education. They are:

“Five Whys” exercise: This approach involves asking the question “why” repeatedly to identify the root cause of a problem. When the problem is identified, educators then ask why the problem occurred and continue to ask why until they arrive at an answer.

Example: [Adopted from the Consortium for Public Education](#)

Problem: Staff members have not integrated the students' new 1-to-1 Chromebooks into their curriculum.

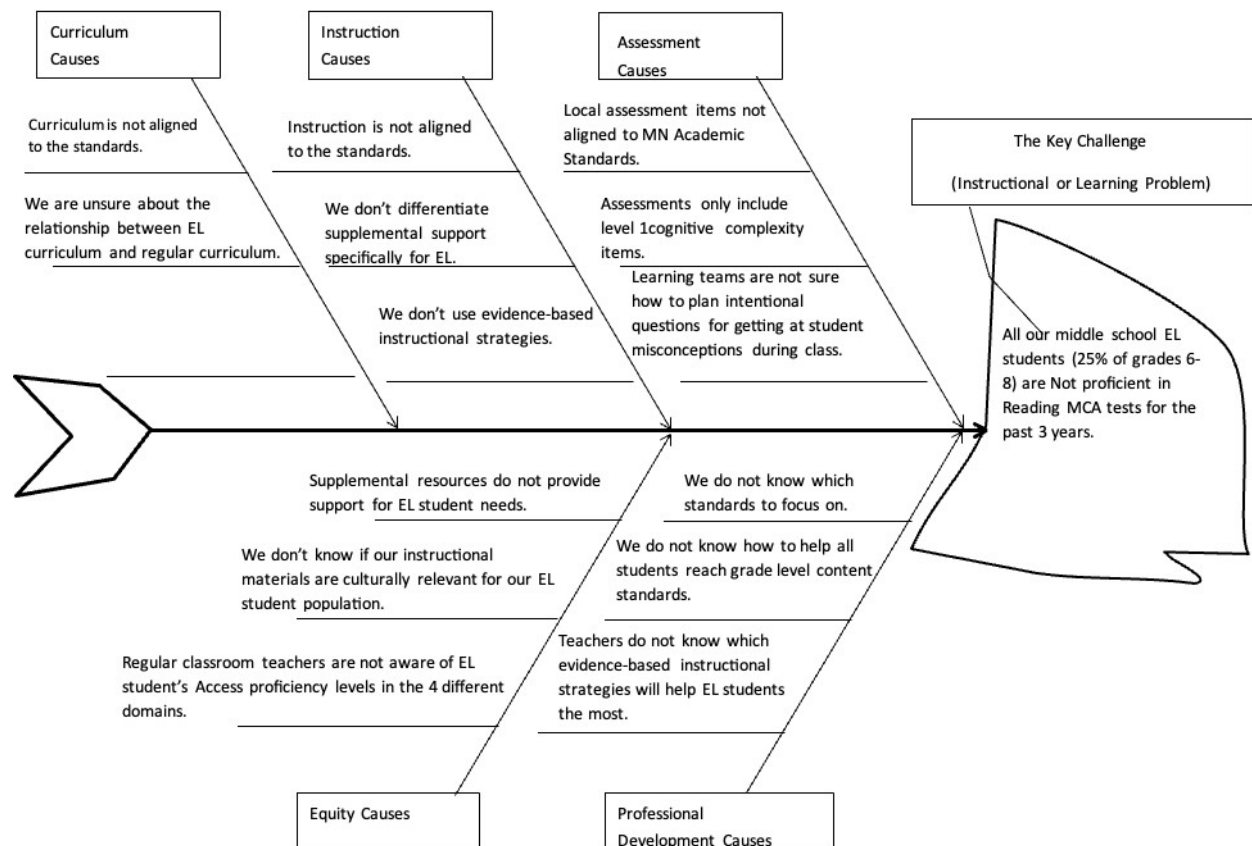


As you can see from this process, one needs to ask questions to unearth possible causes of the outstanding problem with the goal of curating solutions that address these deep-rooted issues. In this example, two counter-measures would include providing teachers with tools and resources on how to use the Chromebooks with school curriculum and ensuring the IT department set up specific classroom apps, programs, and functionality on all student Chromebooks.

Fishbone Diagram: Also known as a cause-and-effect diagram, the Fishbone approach involves creating a visual representation of potential causes of a problem. Typically, the diagram has horizontal lines that represent the problem and extending branches that represent the potential causes of the problem.

Problem: All our middle school EL students (25% of grade 6-9) are not proficient in reading MCA texts for the past 3 years.

Fishbone (Cause and Effect) Diagram



Source: [Minnesota Department of Education](https://www.doe.state.mn.us/assessment/reading-mca)

The Fishbone provides a visual which helps in breaking down potential causes of the problem. It helps in narrowing down the salient factors that are associated with the problem as well as creating multiple perspectives.

⇒ Your Turn: Use the Root Cause Analysis templates in [Appendix A](#) to sketch out your specific need(s). Other examples can be viewed in [Appendix B](#).

Additional Resources

Root Cause Analysis Guides with examples

- [Department of Education, Approaches to Root Cause Analysis \(2020\).](#)
- [Ohio Department of Education and Workforce, One Needs Assessment \(2023\).](#)
- [Quality Process, Root Cause Analysis for Beginners \(2004\).](#)
- [Ohio Department of Education and Workforce, An Introduction to Root Cause Analysis \(2020\).](#)
- [The National Center on Scaling Up Effective Schools, 5-Whys Activity & Template \(n.d.\).](#)
- [Clark County School District, School Improvement Planning Basics: Root Cause Analysis \(2012\).](#)
- [NIRN Tool for Root Cause Analysis: The Hexagon: An Exploration Tool.](#)

Videos

- [Video explaining “Five Whys” using the Jefferson Memorial Example, Danielle Young \(1:30 min\).](#)
- [Video explaining “Fishbone Diagram”, Institute of Education Sciences \(2:36\).](#)
- [Investigating the System-Root Cause Analysis, North Central Education Service District \(8:15\).](#)
- [Webinar Using Root Cause Analysis to Inform School Improvement Planning MSDE \(36:47\).](#)

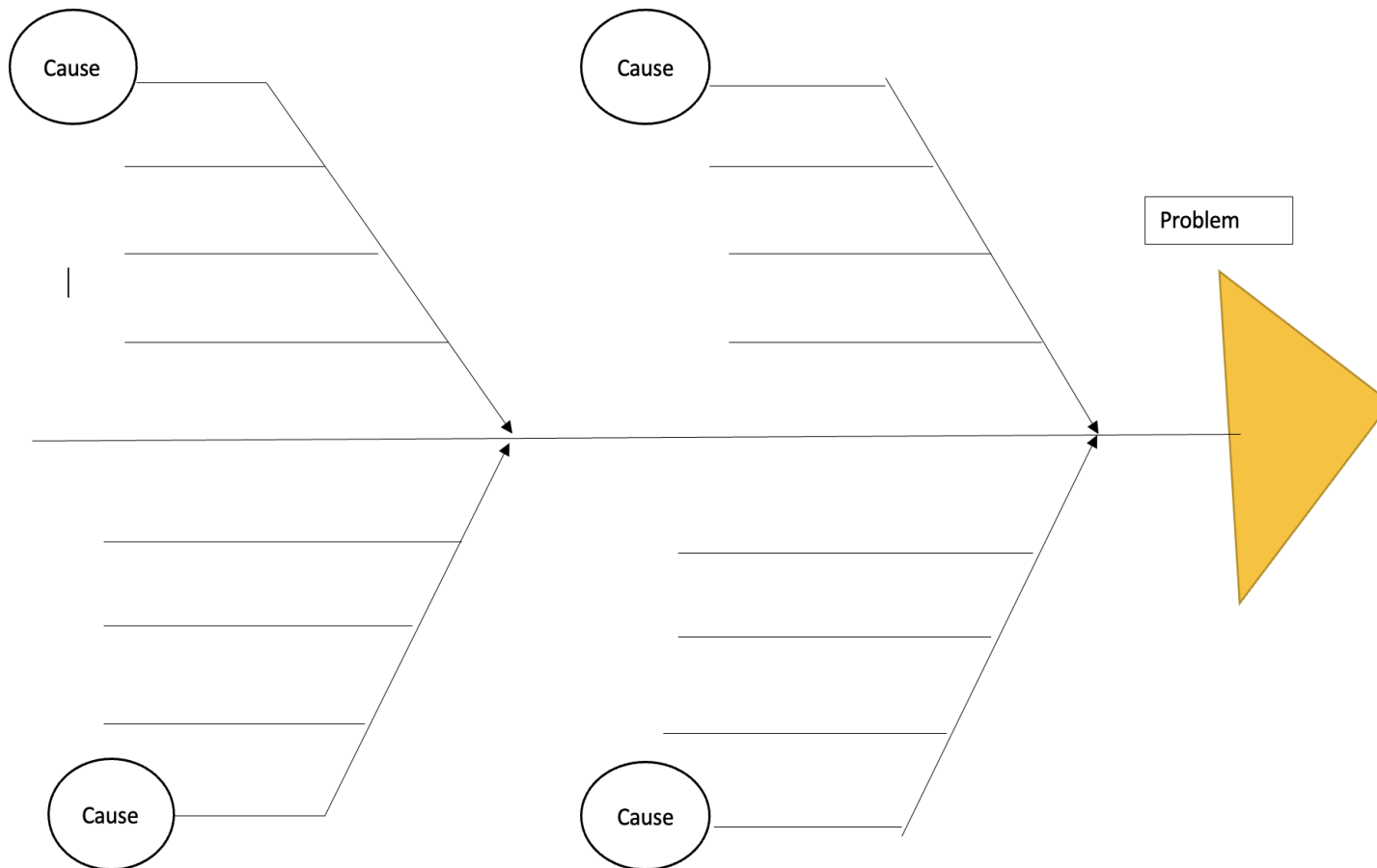
Appendix A:

I. Five Whys Template (Click [here](#) to download an editable copy)

The Five Whys

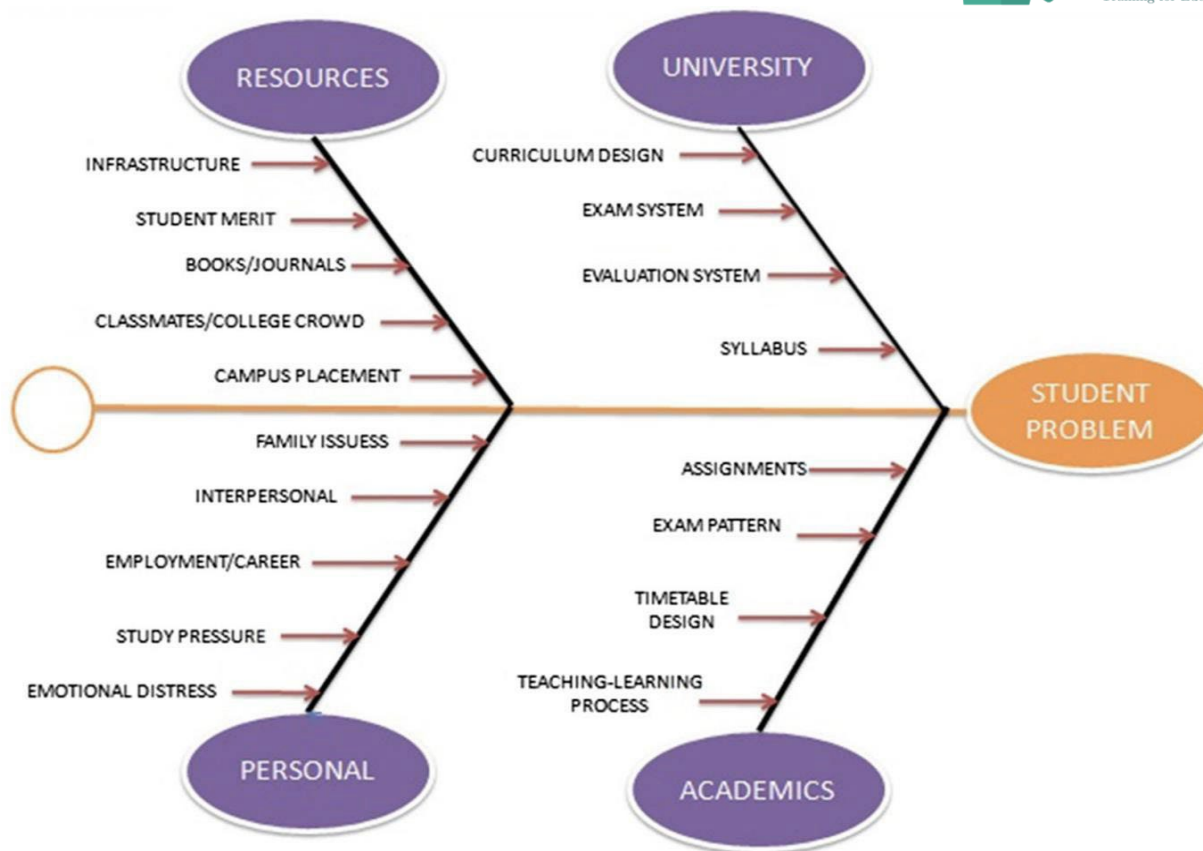
Root Cause Category	Why 1 ➡	Why 2 ➡	Why 3 ➡	Why 4 ➡	Why 5

II. Fishbone Template (Click [here](#) to download an editable copy)



Appendix B: Examples of Root Cause Analysis Approaches

1. Fishbone Diagram: An application to Identify the Root Causes of Student-Staff Problems in Technical Education³.



³ Shinde, D. D., Ahirra, S., & Prasad, R. (2018). [An application to Identify the Root Causes of Student-Staff Problems in Technical Education](#).

2. The Five Whys: Application to a Social Environmental Root Causes

Identified Need: Racial Disparities in Reading Performance

Why?

What factors might be contributing to reading disparities?

Why?

What might explain the disparities in exclusionary discipline?

Why?

What might explain teachers' different reactions to Black and White students' behavior?

Why?

What might explain the role of implicit biases?

Why?

What else might contribute to an office referral decision?

Black students have fewer learning opportunities because they get more office disciplinary referrals (ODRS) and suspensions than other students.

Teachers react differently to behavior of Black and White students.

Implicit biases in response to behaviors that are subject to teacher interpretations (non-compliance, "defiance")

Teachers may lack self-awareness of implicit biases and/or strategies to reduce their impact on discipline decisions.

Norms and policies at the school that allow teachers to refer students for behaviors subject to biased interpretation.

Adopted from EBITE 2023 Summer Training Lesson

EBITE RESOURCE GUIDE SMART GOALS

Purpose

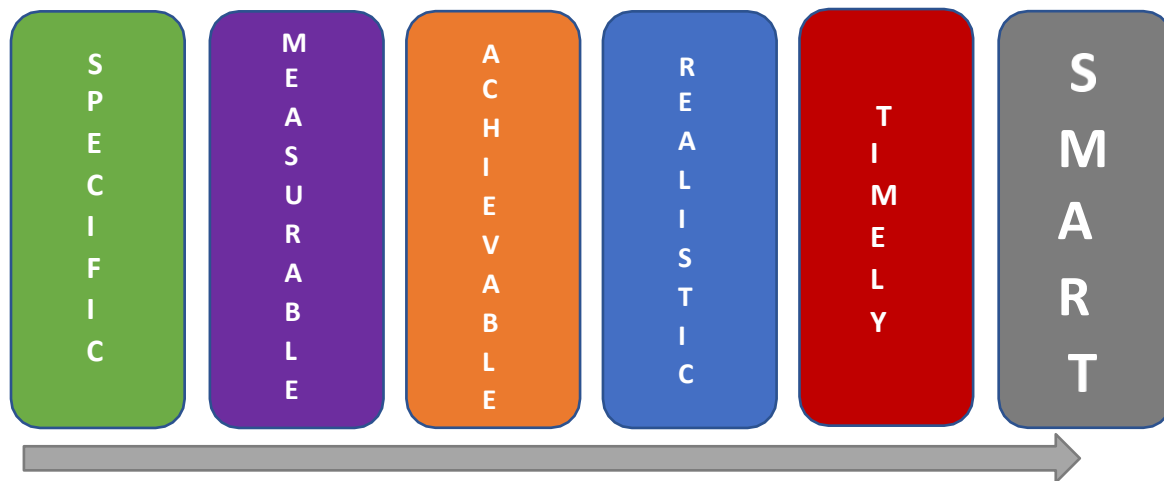
This guide will help you understand what an intervention SMART goal is and how to write one. Working through the SMART goal steps helps you create intervention goals that are Specific, Measurable, Achievable, Realistic, and Timely. SMART goals are a tool that helps keep you focused on your intervention progress and desired outcomes throughout the implementation of an intervention. SMART goals can also guide the generation of a plan to carry out the steps of the intervention with the SMART goal. The Action Plan keeps you on track with implementation of the intervention and progress toward your desired outcome. Action Plans are discussed in a separate EBITE Resource Guide.

How to Use this Guide

The guide includes a [template](#) that can be used by your school team. The SMART goal template (shown in [Appendix A](#)) walks you through the process of transforming an initial goal into a SMART goal. This template can be copied into other documents and used for your own intervention planning. We've provided an example using this template in [Appendix B](#).

What is a SMART Goal?

A SMART goal is a single sentence that clearly articulates the desired outcome of an intervention, including *what* academic, behavioral, disciplinary, or social-emotional outcome you want to change and *how much* change you want the intervention to achieve. SMART Goals should correspond to the outcomes and impact statements of your logic model.



Elements of a SMART Goal

The SMART Goal template in Appendix A can be used to create your own SMART goal. Answering the questions in the template ensures that your final goal statement has all the qualities necessary to effectively guide your intervention. You start with an initial goal statement at the top of the template, then work your way down through the boxes with guidance for making that goal Specific, Measurable, Achievable, Realistic, and Timely. In the box of the template, you state your improved goal, which is now SMART! Examples of SMART Goals are presented in Appendix B.

Appendix A: EBITE SMART GOAL TEMPLATE ([click here to download](#))

INITIAL GOAL	Write your initial goal here. It should be based on your review of data.
S Specific	Is your goal specific? Who is targeted and what outcome do you want to change?
M Measurable	Is your goal measurable? What data or information will you use to measure change? How much change do you want to achieve?
A Achievable	Can you reach the goal? What personnel time, skills, finances, or other resources do you have available? Are there other resources you need?
R Realistic	Is your goal realistic? Based on past experience, how much change may be possible given the nature of the issue to be addressed and the resources available?
T Timely	What is your timeline for the intervention and your change goals?
	Start Date: _____ Finish Date: _____
SMART GOAL	Transform your initial goal into a SMART Goal based on your answers to the questions above.

APPENDIX B: EXAMPLE OF A SMART GOAL

EXAMPLE SMART GOAL 1

Scenario: The principal of Liberty Heights Middle School used data from students about school safety and bullying behavior that was happening in certain parts of the building. She set a goal of improving school safety. She used the SMART Goal template to operationalize the school safety goal.

INITIAL GOAL	Write your initial goal here. It should be based on your review of data.
	Because of low scores on the SSP 2020 school safety measure and student reports of being bullied in certain parts of the building, our goal is to reduce the incidents of bullying behavior in the school.
S Specific	Is your goal specific? Who is targeted and what outcome do you want to change?
	We will target spaces in the school where bullying and threatening behavior is most likely to happen.
M Measurable	Is your goal measurable? What data or information will you use to measure change? How much change do you want to achieve?
	We will measure change with SSP post-test scores on school safety measure and student reports of being bullied. We seek a change of 35 percentage points on the SSP 2020 measure and a 50% reduction of reports of bullying.
A Achievable	Can you reach the goal? What personnel time, skills, finances, or other resources do you have available? Are there other resources you need?
	We have school staff who can be assigned to monitor unsafe spaces. The intervention we will use is described in a \$40 book, which is affordable.
R Realistic	Is your goal realistic? Based on past experience, how much change may be possible given the nature of the issue to be addressed and the resources available?
	By targeting just the most unsafe spaces, we can reduce the personnel hours needed to increase school safety. We know from past experience that bullying is much less likely to happen when adults are monitoring students, so we think the goal is realistic.
T Timely	What is your timeline for the intervention and your change goals?
	Start Date: <u>February 10, 2023</u> Finish Date: <u>May 15, 2023</u>
SMART GOAL	Transform your initial goal into a SMART Goal based on your answers to the questions above.
	Our goal is to decrease incidents of bullying behavior at the school between February 10 and June 10, 2023, as measured by a 35-percentage point increase in SSP 2020 school safety scores and a 50% decrease in student reports of being bullied.

Additional Resources

SMART Goal Guides with Examples

- [Writing SMART goals in Education, EDGEucating.com \(2021\)](#)
- [Setting Useful Goals, Minnesota Department of Education \(2018\)](#)
- [SMART Goals, A How to Guide: University of California \(2017\)](#)
- [SMART Goals, Mind Tools.com \(n.d.\)](#)
- [SMART GOALS Template \(also available in Appendix A\)](#)

SMART Goal Resources for Teachers

- [Setting SMART Teaching Goals for Next School Year, Waterford.org \(2020\)](#)
- [17 SMART Goal Examples for Teachers, Develop Good Habits \(2023\)](#)
- [50 Excellent Teacher Smart Goal Examples, Elementary Assessments \(n.d.\)](#)
- [Set SMART Goals, Creative Educator \(2016\)](#)

Short Videos on SMART Goals

- [Starting A Plan, SMART Goals, Ohio Department of Education and Workforce \(4:26min\)](#)
- [Video Explaining SMART Goals, DecisionSkills.com \(3:57min\)](#)
- [What Does SMART Goals stand for in Health and Education, Study.com \(5:15min\)](#)

EBITE RESOURCE GUIDE

Evaluating Readiness and Capacity for the Cycle of Continuous Improvement

Purpose

The purpose of this guide is to increase educators' awareness of the conditions necessary for successful engagement in the cycle of continuous improvement. The guide includes a checklist that equips educators to evaluate their readiness and capacity, helping them to identify assets as well as factors that need to be strengthened before they invest time and resources in change efforts. A separate resource guide (*Assessing Resource Needs for an Evidence-Based Intervention*) focuses on determining if adequate resources are available for the adoption of a specific intervention.

How to Use this Guide

Use the guide to get an overview of the conditions and structures that a district, school, or implementation team will need to evaluate as they consider engaging in the cycle of continuous improvement. The template provided below can be used to guide a collaborative discussion about current readiness for a successful improvement process. When a readiness evaluation reveals that some components of readiness are lacking, teams may need to build capacity in those areas before embarking on their evidence-based process.

Evaluating Readiness

Readiness and capacity refer to the conditions and structures in place at the district, school, and community levels to support all stages of the cycle of continuous improvement. The consensus, commitment, and coordination of stakeholders is critical to readiness. Readiness and capacity also encompass educators' experience, expertise, knowledge of the community, strong leadership, accessible data systems, and supports for the individuals overseeing and delivering the intervention (e.g., time, consultation, material supports). Evaluation of readiness should occur early in the Identifying Needs and Goals phase of the continuous cycle of improvement. However, it may be necessary to revisit readiness and capacity throughout the improvement cycle as challenges or new resources emerge.

A "continuous improvement leader" should be designated to lead an Improvement Team. This Improvement Team is expected to take responsibility for assessing readiness before proceeding through the continuous improvement cycle. However, the readiness evaluation necessarily involves other stakeholders beyond just the Improvement Team. For example, members of the community, district data personnel, teachers, support staff, and school leaders all have specific knowledge of readiness assets and needs. Attention to culture and context throughout continuous improvement efforts is also a vital ingredient of success.

Are You Ready? Evaluating Readiness and Capacity to Engage in the Cycle of Continuous Improvement

Discuss within the improvement team or a larger group of stakeholders whether the following conditions and structures are in place to support a cycle of continuous improvement. This

checklist assumes you are planning a school-level improvement effort that requires some level of support from the district, but it includes indicators that are also relevant for other situations. After your assessment, discuss whether you are adequately prepared. You may not have checked every box, but have you checked more items than you have not? And have you checked items that YOU believe are the most important? Or do you need to build capacity in one or more critical areas before beginning?

Checklist: Selected/Adopted from [REL Toolkit Readiness](#) & [Hexagon Tool Fit and Capacity](#).

	YES
Consensus	
School personnel agree on the need for change.	<input type="checkbox"/>
Relevant district personnel agree on the need for change.	<input type="checkbox"/>
Community members and other stakeholders agree on the need for change.	<input type="checkbox"/>
Commitment	
School leaders are committed to supporting change efforts with concrete supports for the improvement team and staff implementing interventions.	<input type="checkbox"/>
Relevant district personnel are committed to supporting change with concrete supports.	<input type="checkbox"/>
Enough school staff are committed to the change effort to make it successful.	<input type="checkbox"/>
Staff are willing to serve on an improvement team, or an existing team is willing to supervise the improvement effort.	<input type="checkbox"/>
The individuals who will be delivering an intervention are committed to the improvement effort.	<input type="checkbox"/>
Collaboration	
There is a culture of collaboration, problem-solving, and openness to learning at the school.	<input type="checkbox"/>
Teams of educators at the school consistently work together effectively to support student success.	<input type="checkbox"/>
There is a culture of open communication among district and school leaders and among school leaders and school staff.	<input type="checkbox"/>
There is a culture of open communication among educators and community members.	<input type="checkbox"/>
School and District Capacity	
Academic, attendance, and behavioral outcome data are available.	<input type="checkbox"/>
Data on root causes of outcomes are available, including data on students' perspectives.	<input type="checkbox"/>
The school and/or district has individuals with expertise in analyzing and using data to identify needs and guide the selection of interventions.	<input type="checkbox"/>
School and district staff represent the diversity of students and community members.	<input type="checkbox"/>
School and district staff understand the cultures and histories of community members.	<input type="checkbox"/>
The school and district are aware of current improvement efforts and how a new effort fits in.	<input type="checkbox"/>

Resources

Education Development Center (2019). [Building a Culture of Continuous Improvement: Guidebook and Toolkit](#). Acknowledgement: Shared with the permission of Education Development Center.

Metz, A. & Louison, L. (2018) The Hexagon Tool: Exploring Context. Chapel Hill, NC: National Implementation Research Network, Frank Porter Graham Child Development Institute, University of North Carolina at Chapel Hill. Based on Kiser, Zabel, Zachik, & Smith (2007) and Blase, Kiser & Van Dyke (2013). [Hexagon Tool Fit and Capacity](#)

Shakman, K., Wogan, D., Rodriguez, S., Boyce, J., & Shaver, D. (2020). *Continuous improvement in education: A toolkit for schools and districts* (REL 2021–014). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Northeast & Islands. <http://ies.ed.gov/ncee/edlabs>. [REL Toolkit Readiness](#)

Wisconsin Department of Public Instruction. (2020). [Continuous Improvement Process: Criteria and Rubric](#). Version 1.2 Adopted from the Ohio Department of Education and Workforce.

EBITE RESOURCE GUIDE

Searching for Evidence-based Interventions (EBIs): Focus on ESSA Levels 1 & 2

Purpose

The information in this guide aligns with the second step in the Cycle of Continuous Improvement—Select an Intervention. The four [ESSA Levels \(or Tiers\) of Evidence for Evidence-based Interventions](#) provide a framework to help users evaluate EBIs for use in their continuous improvement work. This guide will provide an overview of searching EBI clearinghouses and a suggested search strategy with a focus on finding academic EBIs at [ESSA Levels 1 and 2](#) using the [Ohio Evidence-Based Clearinghouse, What Works Clearinghouse](#), and two other clearinghouses.

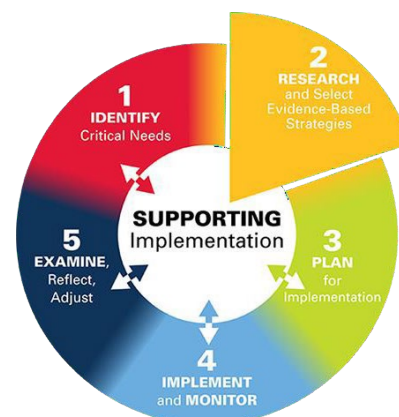


Figure 1. Continuous Improvement Cycle

How to Use this Guide

This guide presents a suggested strategy for using three EBI clearinghouses to find ESSA Levels 1 & 2 interventions that align with your team's school improvement goals. Here are some suggestions for using this guide.

1. Consult this guide after you have already completed the first step in the Cycle of Continuous Improvement. You should have already identified needs which includes determining root causes and creating at least one SMART goal (**S**pecific, **M**easurable, **A**chievable, **R**ealistic, **T**imely; see the EBITE Resource Guide #06 for more on SMART goals). You should have collected key information about your local context and be ready to select an intervention that aligns with your SMART goal and local context.
2. Read this guide all the way through before starting your search and use the links provided in the text to learn (or remember) key concepts.
3. When you're ready to start searching for ESSA Level 1 & 2 EBIs, have this guide open in another screen or print out to have with you as you search so you can follow along with the screen captures of the search process.
4. Keep in mind that there are many EBI clearinghouses and that each may operate differently than the ones discussed in this guide. The search strategy suggested here should be used as a model for creating your own search strategy to use with other EBI clearinghouses (see Resource list at the end).

What are ESSA Levels 1 and 2 Interventions?

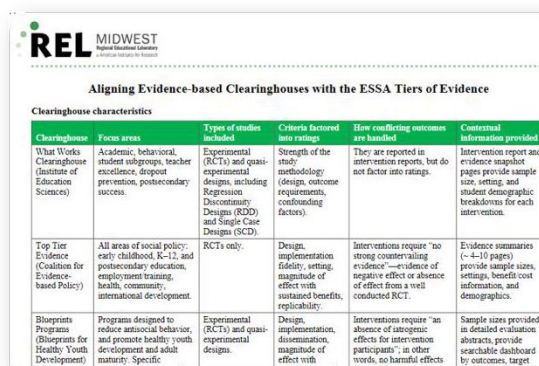
The ESSA (Every Student Succeeds Act) is a U.S. federal law that governs K-12 education policy and emphasizes evidence-based practices to improve educational outcomes for all students. Under ESSA, evidence-based interventions are categorized into four tiers (or levels) based on their level of evidence determined via research studies conducted on the interventions. These

tiers are known as “ESSA Levels” and EBIs categorized as Levels 1 and 2 are deemed to have the strongest evidence for effectiveness based on a review of findings from experimental research (Level 1) or quasi-experimental research (Level 2).

It’s important to note that ESSA Levels 1 and 2 are desirable for evidence-based interventions when making decisions about education policies, funding allocations, and program implementations. These levels prioritize interventions that have a solid research base and have demonstrated positive effects on student learning and achievement. By relying on evidence-based interventions, schools and policymakers can make informed decisions about the programs and strategies that are likely to yield the best results for their students.

What is an EBI Clearinghouse?

Evidence-Based Intervention Clearinghouses are searchable databases of intervention programs that have been designed and researched for their ability to solve specific educational problems. These databases are usually web-based and include detailed program information and summaries of research evidence on EBIs. There is some common information across clearinghouses, but there is still great variation in the depth of information provided on each EBI, the specific areas of focus (academic, non-academic), information provided on the research studies that are included and even how they classify the strength of the EBI. Arguably the most popular clearinghouse is the [What Works Clearinghouse \(WWC\)](#) managed by the Institute for Educational Sciences. Many other clearinghouses link back to the WWC, but may or may not use the same evidence “rating” classifications to categorize the EBIs in their database. The sample search strategy below will demonstrate this.



Clearinghouse characteristics	Focus areas	Types of studies included	Criteria factored into ratings	How conflicting outcomes are handled	Contextual information provided
What Works Clearinghouse (Institute of Education Sciences)	Academic, behavioral, student subgroups, teacher excellence, dropout prevention, postsecondary success.	Experimental (RCTs) and quasi-experimental designs, including Regression Discontinuity Designs (RDD) and Single Case Design (SCD).	Strength of the study; methodology (design, outcome requirements, confounding factors).	They are reported in intervention reports, but do not factor into ratings.	Intervention report and evidence snapshot pages provide sample size, setting, and student demographic breakdowns for each intervention.
Top Tier Evidence (Coalition for Evidence-based Policy)	All areas of social policy; early childhood, K-12, and postsecondary education, employment training, health, community, international development.	RCT's only.	Design, implementation fidelity, setting, magnitude of effect with sustained benefits, replicability.	Interventions require “no strong countervailing evidence”—evidence of negative effect or absence of effect from a well conducted RCT.	Evidence summaries (~4-10 pages) provide sample sizes, settings, benefit/cost information, and demographics.
Blueprints Programs (Blueprints for Healthy Youth Development)	Programs designed to reduce antisocial behavior, and promote healthy youth development and adult maturity. Specific	Experimental (RCTs) and quasi-experimental designs.	Design, implementation, dissemination, magnitude of effect with	Interventions require “an absence of iatrogenic effects for intervention participants”, in other words, no harmful effects	Sample sizes provided in detailed evaluation abstracts, provide searchable dashboard by outcomes, target

Figure 2: Screenshot of REL Midwest Crosswalk (Source: <https://ies.ed.gov/ncee/rel/regions/midwest/pdf/eventhandout/ESSA-Clearinghouse-Crosswalk-Jan2018-508.pdf>)

Searching for ESSA Levels 1 & 2 Interventions: A Suggested Strategy

The variation of information provided necessitates using a search strategy that involves several databases for effective selection of EBIs to consider. The search strategy we suggest involves the use of four clearinghouses to find ESSA Levels 1 and 2 academic interventions: The [Ohio Evidence-Based Clearinghouse](#), [Evidence for ESSA](#), the [Pennsylvania Evidence Resource Center](#), and the [IES What Works Clearinghouse](#) (WWC) along with tips for searching for non-academic interventions. In the sample strategy provided, assume that your team has a SMART goal that is focused on literacy for students in grades 6-8. Below are the steps to explore literacy interventions for middle school students and choose one to examine in depth. *NOTE: We recommend that you begin with the OEBC and use the WWC toward the end of your search strategy, but any other clearinghouses may be used in place of the others and in any order that makes sense for your needs.*

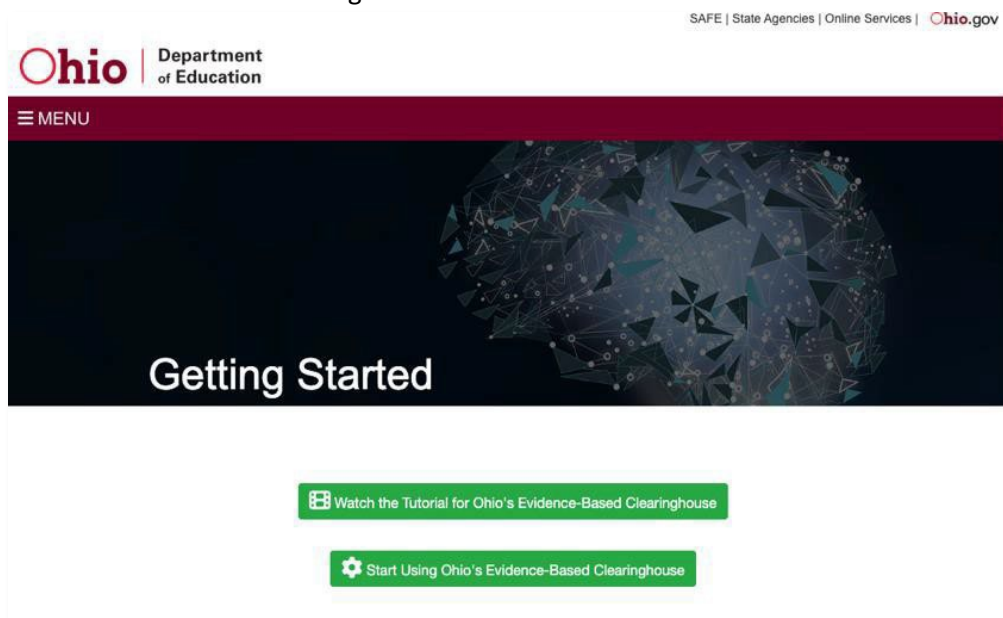
Sample Search Strategy Steps

Follow the steps below to walk through a sample search strategy for finding an EBI. This exercise can be used as an exercise to familiarize yourself with using EBI Clearinghouses. You may also substitute an EBI of your choice in place of the one we examine below. Before you begin, be sure to have this guide open on another screen as you walk through the steps below. REMINDER: Assume that your team has a SMART goal that is focused on literacy for students in grades 6-8.

1. Go to OEBC: [Ohio's Evidence-Based Clearinghouse](#) and click "Getting Started" to move to the "Getting Started" page.



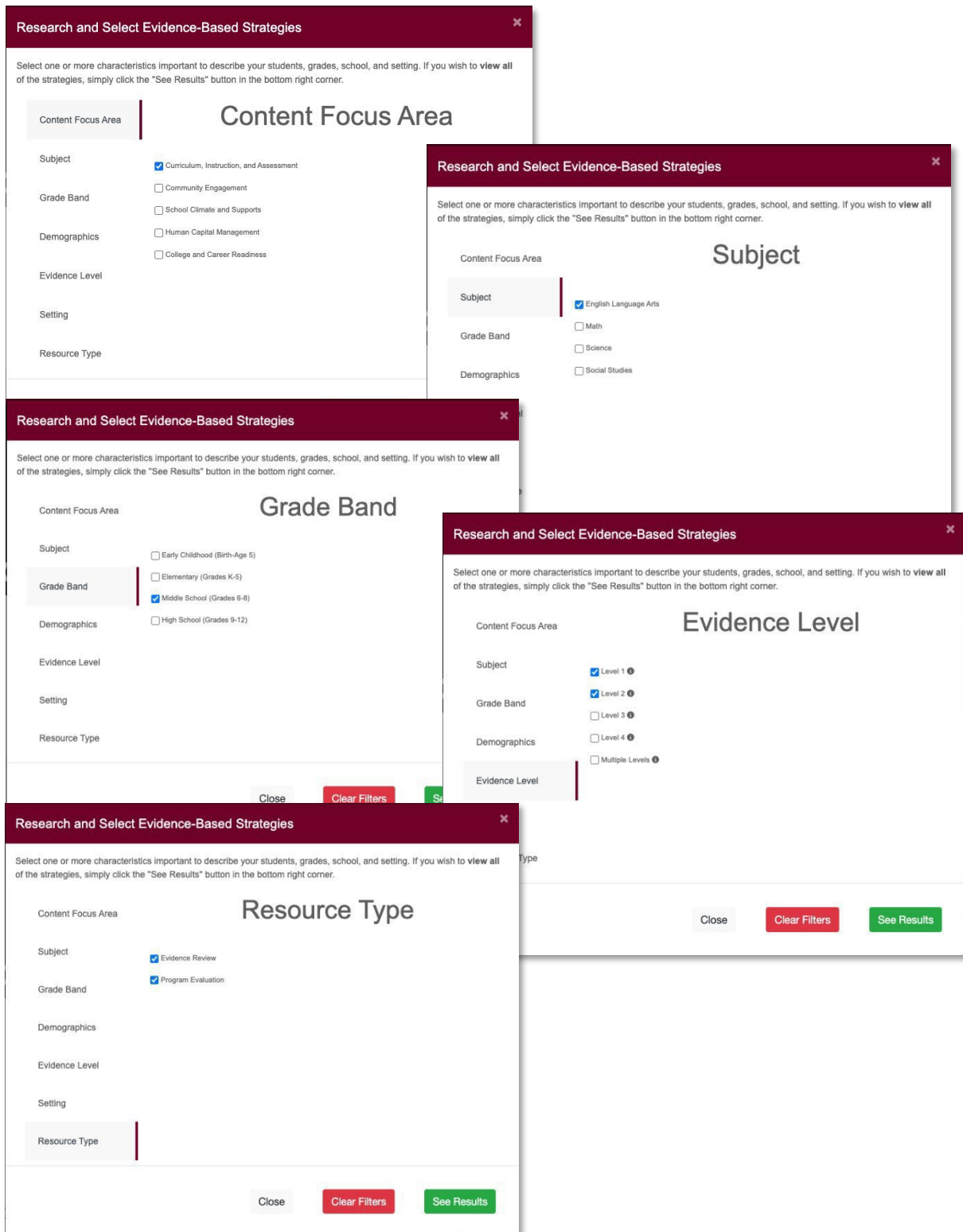
2. Click on "Start Using Ohio's Evidence-Based Clearinghouse and a box will pop up, "Research and Select Evidence-Based Strategies".



3. In the box, "Research and Select Evidence-Based Strategies" you will be able to set filters for

your search. For this search, we are looking for ESSA Levels 1 & 2, curriculum interventions with

evidence for effectiveness for middle school English Language Arts. Opt for both Resource Types. Click “See Results.” NOTE: Additional filters allow you to limit by Setting and Demographics. More on this later.



Research and Select Evidence-Based Strategies

Select one or more characteristics important to describe your students, grades, school, and setting. If you wish to **view all** of the strategies, simply click the “See Results” button in the bottom right corner.

Content Focus Area

Subject: ☒ Curriculum, Instruction, and Assessment
☐ Community Engagement
☐ School Climate and Supports
☐ Human Capital Management
☐ College and Career Readiness

Grade Band

Demographics

Evidence Level

Setting

Resource Type

Research and Select Evidence-Based Strategies

Select one or more characteristics important to describe your students, grades, school, and setting. If you wish to **view all** of the strategies, simply click the “See Results” button in the bottom right corner.

Subject

Content Focus Area

Subject: ☒ English Language Arts
☐ Math
☐ Science
☐ Social Studies

Grade Band

Demographics

Research and Select Evidence-Based Strategies

Select one or more characteristics important to describe your students, grades, school, and setting. If you wish to **view all** of the strategies, simply click the “See Results” button in the bottom right corner.

Grade Band

Content Focus Area

Subject: ☐ Early Childhood (Birth-Age 5)
☐ Elementary (Grades K-5)
☒ Middle School (Grades 6-8)
☐ High School (Grades 9-12)

Grade Band

Demographics

Evidence Level

Setting

Resource Type

Research and Select Evidence-Based Strategies

Select one or more characteristics important to describe your students, grades, school, and setting. If you wish to **view all** of the strategies, simply click the “See Results” button in the bottom right corner.

Evidence Level

Content Focus Area

Subject: ☒ Level 1 ⓘ
☒ Level 2 ⓘ
☐ Level 3 ⓘ
☐ Level 4 ⓘ
☐ Multiple Levels ⓘ

Grade Band

Demographics

Evidence Level

Setting

Resource Type

Research and Select Evidence-Based Strategies

Select one or more characteristics important to describe your students, grades, school, and setting. If you wish to **view all** of the strategies, simply click the “See Results” button in the bottom right corner.

Resource Type

Content Focus Area

Subject: ☒ Evidence Review
☒ Program Evaluation

Grade Band

Demographics

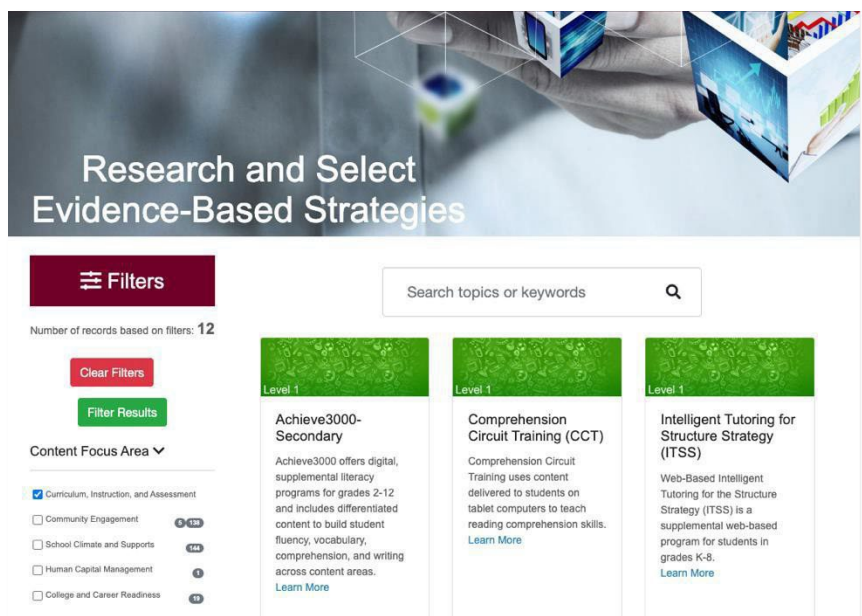
Evidence Level

Setting

Resource Type

Close Clear Filters See Results

4. The results page will show only the records that meet your filters. Scroll down and notice that there are 12 EBI records—several Level 1 EBIs, a Level 2 EBI and an EBI that is denoted as “Multiple Levels.” *NOTE: Use fewer filters to get more results.*
5. Click on the name of the “Level 1” intervention “Achieve3000” to learn more about it.



6. You will navigate to a very brief overview of the major focus and components of the EBI. Notice in the table, it tells you which database this entry will link to. In this case, the entry links to [Evidence for ESSA](#). Click on the EBI name (highlighted in blue) to navigate to that database and learn more about Achieve3000.

Level 1 Strategy

Achieve3000-Secondary

Achieve3000 offers digital, supplemental literacy programs for grades 2-12 and includes differentiated content to build student vocabulary, comprehension, and writing across content areas. The student instructional routine is designed to build key literacy college and career level critical thinking skills.

Clearinghouse	Subject Area	Grade Band	Evidence Level	Content Focus Area	Setting	Demographic
Evidence for ESSA	English Language Arts	Middle School; High School	Level 1	Curriculum, Instruction, and Assessment	---	---

[← Back To Results](#)

Level 1 Strategy

Achieve3000-Secondary

Achieve3000 offers digital, supplemental literacy programs for grades 2-12 and includes differentiated content to build student vocabulary, comprehension, and writing across content areas. The student instructional routine is designed to build key literacy college and career level critical thinking skills.

Clearinghouse	Subject Area	Grade Band	Evidence Level	Content Focus Area	Setting	Demographic	Resource Type
Evidence for ESSA	English Language Arts	Middle School; High School	Level 1	Curriculum, Instruction, and Assessment	---	---	Program Evaluation

Are you sure you want to leave the ESSA Clearinghouse?

You will be redirected to a new tab.

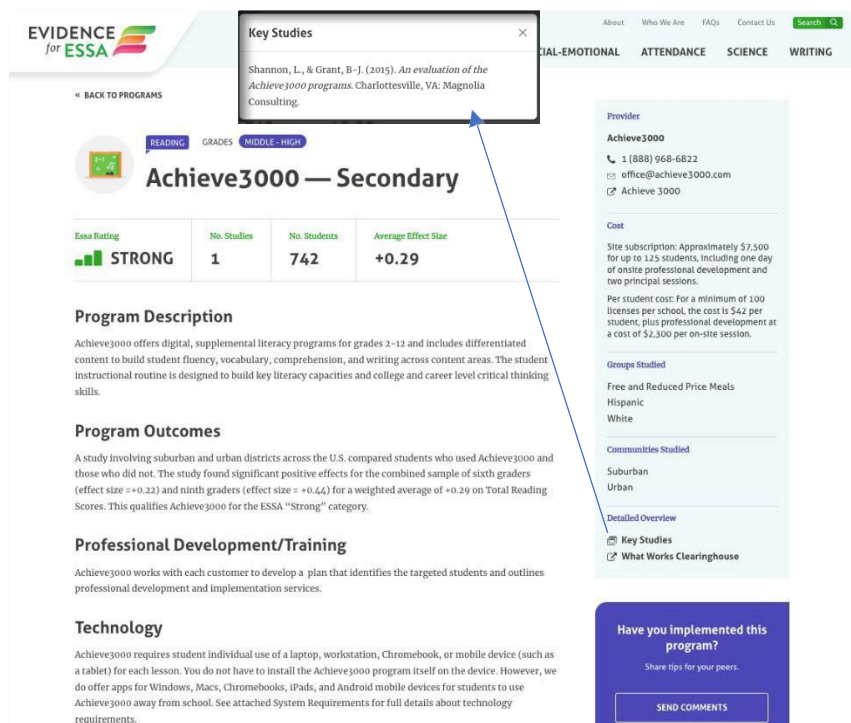
[Cancel](#) [Yes, let's go!](#)

7. Click “Let’s Go!” to be taken to the Achieve3000 entry in [Evidence for ESSA](#).

8. Once you reach that page, take a moment to read through the information provided on Achieve3000. Notice that the “ESSA rating” is listed as “Strong” and also, make note of other details provided in this clearinghouse.

9. Notice, in the bottom right corner of the light blue box under “Detailed Overview”, there is a link to Key Studies. Click that link to open a small pop-up box containing the citation(s) of the research studies that provide the evidence.

10. Click the link “What Works Clearinghouse” to navigate to the [WWC](#) to find the entry in that clearinghouse.



EVIDENCE for ESSA

BACK TO PROGRAMS

READING GRADES MIDDLE - HIGH

Achieve3000 — Secondary

Essa Rating	No. Studies	No. Students	Average Effect Size
STRONG	1	742	+0.29

Program Description

Achieve3000 offers digital, supplemental literacy programs for grades 2–12 and includes differentiated content to build student fluency, vocabulary, comprehension, and writing across content areas. The student instructional routine is designed to build key literacy capacities and college and career level critical thinking skills.

Program Outcomes

A study involving suburban and urban districts across the U.S. compared students who used Achieve3000 and those who did not. The study found significant positive effects for the combined sample of sixth graders (effect size = +0.22) and ninth graders (effect size = +0.44) for a weighted average of +0.29 on Total Reading Scores. This qualifies Achieve3000 for the ESSA “Strong” category.

Professional Development/Training

Achieve3000 works with each customer to develop a plan that identifies the targeted students and outlines professional development and implementation services.

Technology

Achieve3000 requires student individual use of a laptop, workstation, Chromebook, or mobile device (such as a tablet) for each lesson. You do not have to install the Achieve3000 program itself on the device. However, we do offer apps for Windows, Macs, Chromebooks, iPads, and Android mobile devices for students to use Achieve3000 away from school. See attached System Requirements for full details about technology requirements.

Provider

Achieve3000
1 (888) 968-6822
office@achieve3000.com
Achieve 3000

Cost

Site subscription: Approximately \$7,500 for up to 125 students, including one day of onsite professional development and two principal sessions.
Per student cost: For a minimum of 100 licenses per school, the cost is \$42 per student, plus professional development at a cost of \$2,500 per on-site session.

Groups Studied

Free and Reduced Price Meals
Hispanic
White

Communities Studied

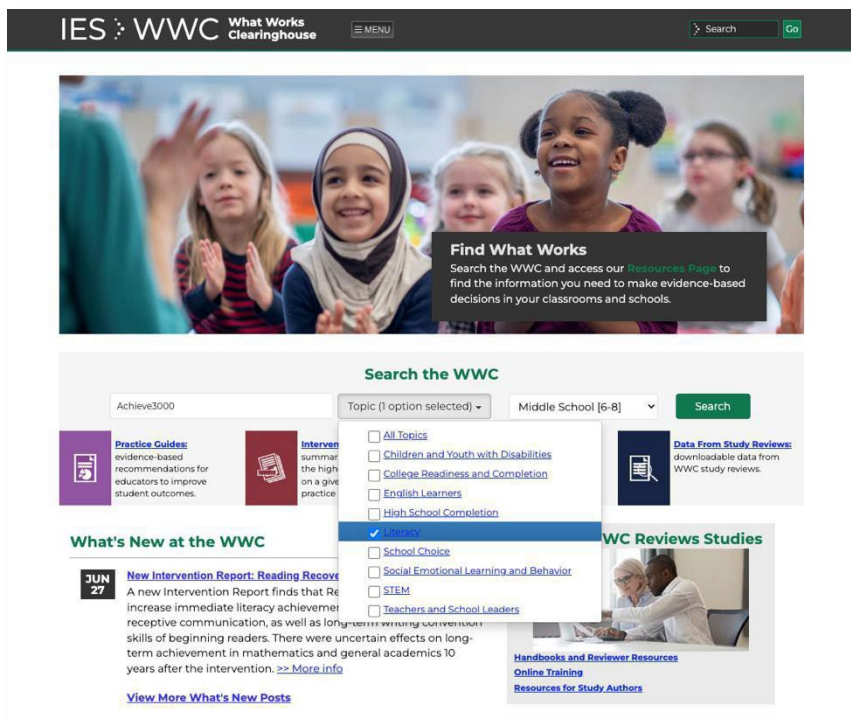
Suburban
Urban

Detailed Overview

Key Studies
What Works Clearinghouse

Have you implemented this program?
Share tips for your peers.
SEND COMMENTS

11. Once at the WWC, you will need to search for the Achieve3000 EBI in the WWC. Type it into the search box. Use the dropdown selections to filter to “Literacy” and select the “Middle School [6-8] grade band.
12. Click “Search” to navigate to the Achieve3000 entry in the WWC.
13. Your search result will be a page of different documents about Achieve300.



IES WWC What Works Clearinghouse

Search Go

Find What Works
Search the WWC and access our [Resources Page](#) to find the information you need to make evidence-based decisions in your classrooms and schools.

Search the WWC

Achieve3000

Topic (1 option selected) Middle School [6-8] Search

Practice Guides: evidence-based recommendations for educators to improve student outcomes.

Interventions: summarize the high on a given practice.

What's New at the WWC

JUN 27 **New Intervention Report: Reading Recovery**
A new Intervention Report finds that Reading Recovery increases immediate literacy achievement, as well as long-term achievement in mathematics and general academics 10 years after the intervention. [View More Info](#)

[View More What's New Posts](#)

WWC Reviews Studies

[Handbooks and Reviewer Resources](#)
[Online Training](#)
[Resources for Study Authors](#)

14. Notice that the WWC provides more details on the research evidence and that the “Highest Evidence Tier” for Achieve3000 is “Tier 2-Moderate” which is different from the prior two clearinghouses we used!

15. Find the first two bold green headings names in the right-hand column and click the first one (in bold, green font) to view the “Evidence Snapshot” for Achieve3000 for improving Adolescent Literacy.

NOTE: Also, the last two segments are links to WWC’s “Review of Study” which is a review and evaluation of the actual research study conducted on the Achieve3000 Intervention.

16. On this page you will see a detailed overview of the intervention, a link to download the Intervention Report, effectiveness ratings, population information, and scroll down to see additional resources. Explore these resources in detail.

INTERVENTION > EVIDENCE SNAPSHOT

Achieve3000®
Adolescent Literacy

Achieve3000® had potentially positive effects on comprehension and general literacy achievement for adolescent readers.

Achieve3000® is a supplemental online literacy program that provides nonfiction reading content to students in grades preK-12 and focuses on building phonemic awareness, phonics, fluency, reading comprehension, vocabulary, and writing skills. Achieve3000® is designed to help students advance their nonfiction reading skills by providing differentiated online instruction. Teachers use the program with an entire class but the assignments are tailored to each student's reading ability level. For example, teachers assign an article and related activities to an entire class; the program then tailors the version of the article to each student by automatically increasing the difficulty of text when a student is ready for more challenging text. Achieve3000® provides lessons that follow a five-step routine: (1) respond to a Before Reading Poll, (2) read an article, (3) answer activity questions, (4) respond to an After Reading Poll, and (5) answer a Thought Question. Progress reports and student usage data, provided by the online tool, enable teachers to track both whole-class and individual student progress. The program is designed for diverse student groups, including general education students, struggling readers in need of intensive tutoring, and English learners.

Findings 3 STUDIES THAT MET STANDARDS OUT OF 5 ELIGIBLE STUDIES REVIEWED

Outcome domain	Effectiveness Rating	Grades	Evidence Tier
Comprehension	++ (3) ++ (3)	2-5	TIER 2 MODERATE
Literacy Achievement	++ (3) ++ (3)	2-8	TIER 2 MODERATE

Last Updated: February 2018

Download Intervention Report 767 KB

Summary of all Research Settings and Samples that Met Standards

Race

Race	Percentage
Asian	14%
Black	16%
White	35%
Other or unknown	70%

Ethnicity

Ethnicity	Percentage
Hispanic	40%
Not Hispanic or Latino	60%

Gender

Gender	Percentage
Male	50%
Female	50%

Free & Reduced-Price Lunch

Free & Reduced-Price Lunch	Percentage
Free & Reduced-Price Lunch	42%

English Learners

English Learners	Percentage
English Learners	77%

Note: This summary only includes data from studies that reported sample information. The Intervention Report may include evidence from other studies that met

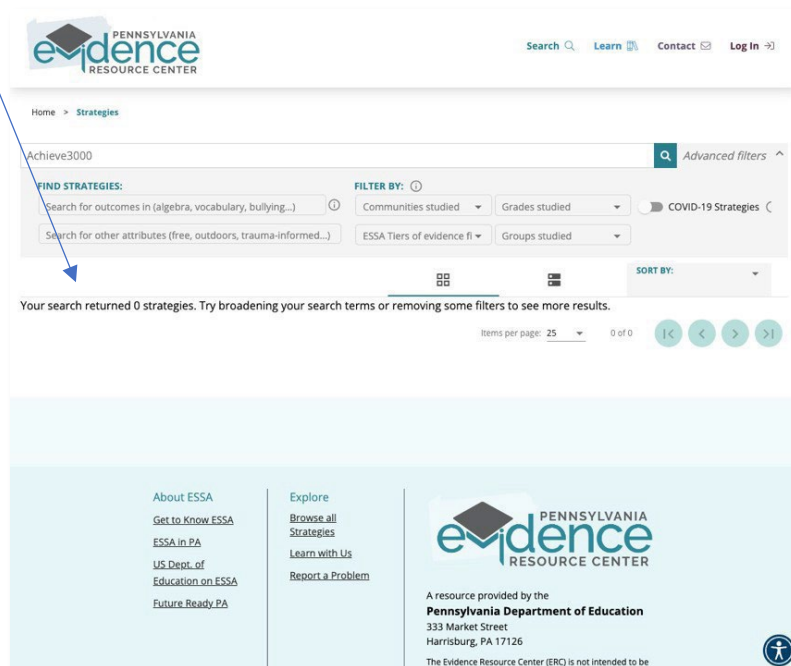
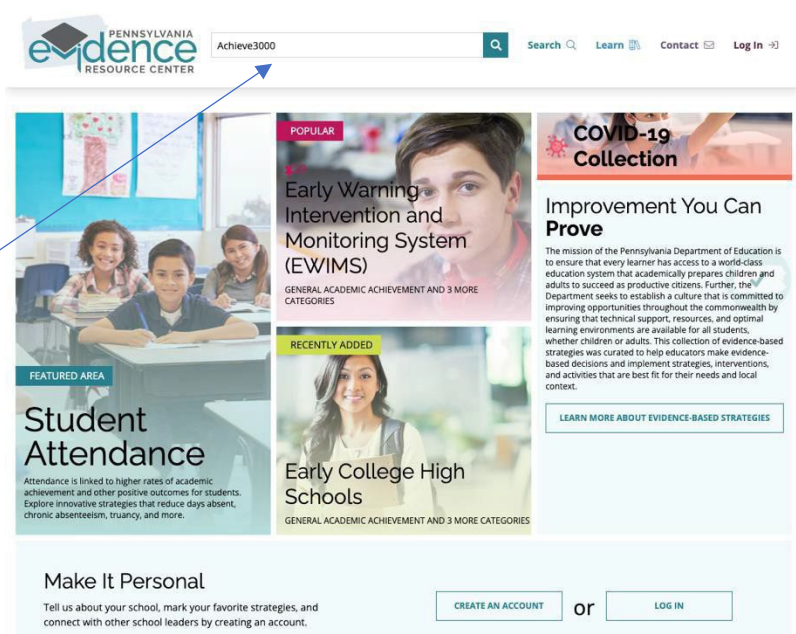
17. After exploring the WWC entry, let's try to search for this EBI in one more clearinghouse—the [Pennsylvania Evidence Resource Center](https://evidencecenter.pa.gov/)

18. In the search box at the top, type in Achieve3000. You'll notice that your search revealed no results. It isn't uncommon to find certain EBIs to be missing from one or more clearinghouses.

To Remember

These databases are being updated by different organizations that do not all use the exact same criteria and protocols for inclusion of EBIs. This is yet another reason why it's important to search several clearinghouses in your process of finding potential EBIs.

In an actual situation, you would use several databases to search for and explore several interventions to discuss with your team about how well the EBIs fit your population's needs and context for implementation.



Resources

- [Clearinghouse Crosswalk](#) from REL Midwest – Shows a list of clearinghouses that provide similar types of information on EBIs.
- [Evidence Tiers and WWC Rating](#) – Contains information resources on the study ratings used in the What Works Clearinghouse.
- [EBITE Clearinghouse List](#) – From the EBITE website—a list of EBI clearinghouses.

Video Resources

Watch this short (8:35 minute) tutorial on how to use the *Ohio Evidence-based Clearinghouse* (OEBC).

- [How to use the OEBC](#)

This longer video (49:24 minutes) from the Institute of Education Sciences reviews how schools can use the *What Works Clearinghouse* to search for interventions that match ESSA Tiers/Levels of Evidence.

- [Using WWC Resources to Identify Interventions that meet ESSA Tiers of Evidence](#)

This next brief video (4:36 minutes) from the Institute of Education Sciences reviews how to use additional resources from the *What Works Clearinghouse* to find what works in literacy instruction.

- [How to use the What Works Clearinghouse](#)

EBITE RESOURCE GUIDE

Two Examples of Searching for ESSA Level 3 and 4 Interventions

Purpose

This Guide provides two examples of the Continuous Improvement steps of *identifying needs and goals* and *selecting an intervention* that matches your resources, capacity, and specific intervention needs. Specifically, the guide illustrates the process of using student survey data to identify an intervention need, setting a SMART goal for change in a corresponding outcome score, and searching online repositories for an appropriate ESSA Level 3 or 4 intervention.

How to Use this Guide

Use this Guide to learn how the first two steps in the Cycle of Continuous Improvement play out in practice. This example focuses on a non-academic need. Non-academic needs include school climate, student attitudes and engagement, school safety, and teacher-student relationships, among many others. Such non-academic needs are often *root causes* of academic and behavioral problems and should be taken into account in efforts to improve those outcomes. See also the Root Cause Analysis Resource Guide.

What are ESSA Level 3 and 4 Interventions?

According to the *Every Child Succeeds Act* (PUBLIC LAW 114–95, DEC. 10, 2015), Level 3 interventions are those that have “promising evidence from at least 1 well-designed and well-implemented correlational study with statistical controls for selection bias.” Level 4 interventions are those that “demonstrate 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.” We discuss Levels 3 and 4 together because in databases that do not refer to ESSA Levels of Evidence, it is often not clear which level applies to an intervention being considered for implementation in a new school, classroom or setting. What they have in common is the lack of experimental or non-experimental evidence. (For a useful crosswalk of how ESSA levels/tiers of evidence relate to evidence criteria of a number of clearinghouses, see [Aligning Evidence-based Clearinghouses with the ESSA Tiers of Evidence](#) from REL Midwest.)

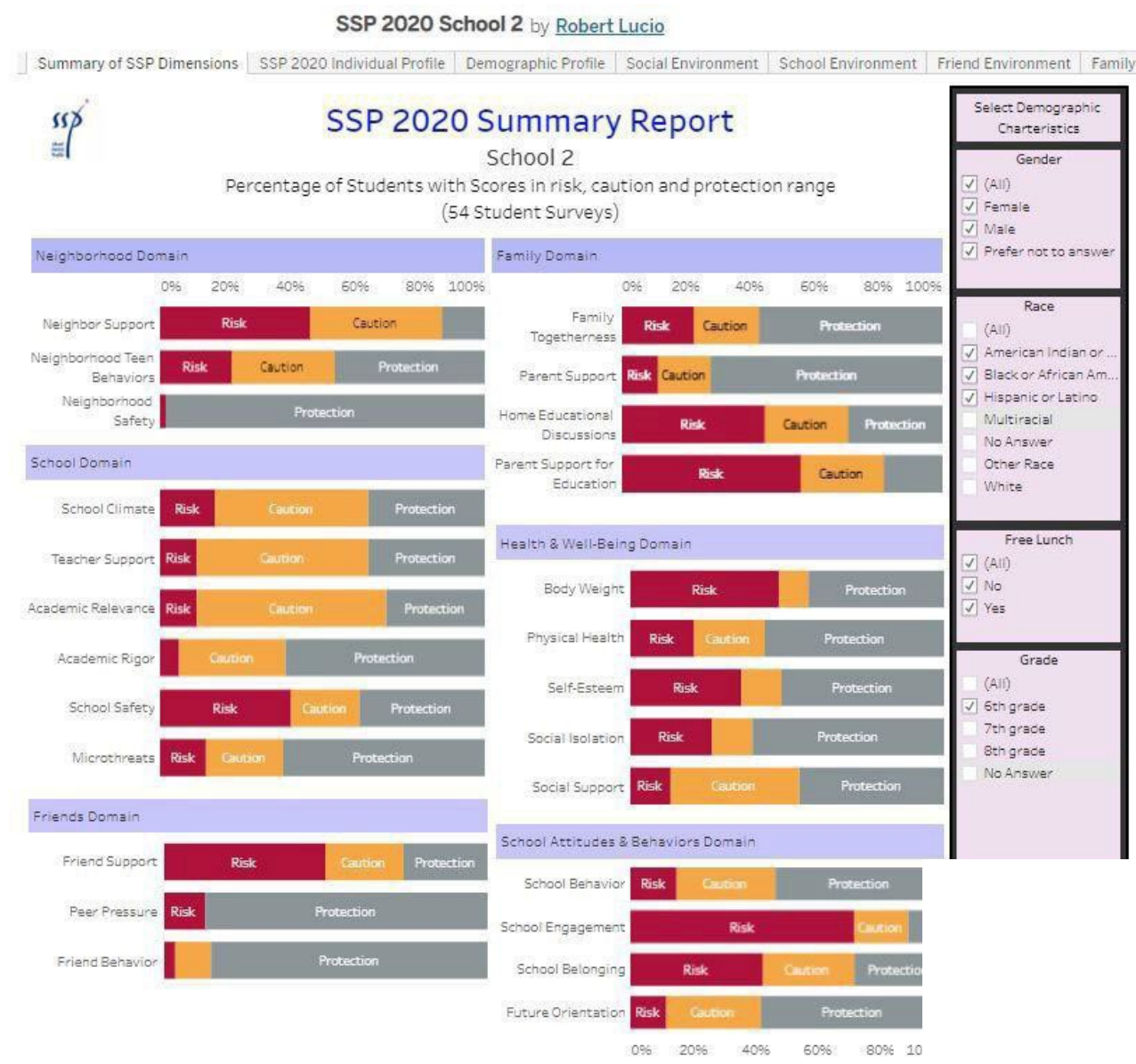
Level 3 and 4 interventions are good choices in many practice situations if they address the intervention need. They allow for educator creativity in meeting the needs of their own students while relying on existing research and program theory and logic. Match and fit are critical characteristics of any intervention chosen for use in a school or district.

Using Student Data and a SMART Goal to Begin a Search for a Level 3 or 4 Intervention

The report below is an example of a report from the School Success Profile 2020 (SSP, see note below). In the column on the right, we see the data have been disaggregated by race/ethnicity and grade; the data are from 54 6th grade Black, Latino, and American Indian students. Instead of average scores, the SSP report indicates the percentage of students whose scores in different

areas were in the risk range, caution range, or protective range. Percentages provide useful information about the magnitude of a problem and the appropriate MTSS tier of intervention.

Dashboard from the SSP 2020 Social Environment and Student Well-being Scores



A school team reviewing the report above will evaluate the data in the context of its knowledge of the school, students, and community. They have already identified a sub-group of students they want to support—6th grade students of color. That decision may have been based on prior concerns about the academic or behavioral performance of 6th grade students of color, a root cause analysis, and/or their comparison of SSP scores across different sub-groups of students. Through discussion, a team may

decide to focus on areas with high percentages of students with risk-range scores, or areas with high percentages of students with risk- or caution-range scores (i.e., low levels of protection). When combining the data with their practice knowledge, school teams might not necessarily choose the area with highest percentage of risk scores (or risk plus caution scores), but their choice must be justifiable based on the data.

The report above reveals many areas of concern. We will choose student engagement as our intervention target. The percentage of students with risk-range scores is the highest in that area (75%, which we can see when hovering over the engagement risk bar). SSP 2020 engagement scores are based on questions about looking forward to learning, finding school fun and exciting, and being bored at school). SSP 2020 percentages can be used directly to specify quantitative change goals. It is also possible to identify individual students with low SSP scores if the school team decides to use a MTSS tier 2 intervention.

Note: The SSP 2020 and its reports are free to schools. The SSP 2020 is a Qualtrics survey for middle and high school students. There is also a colorful ESSP 2020 for 3rd, 4th, and 5th graders. Contact Natasha K. Bowen at bowen.355@osu.edu for more information on how to get started—guidance on the administration of the surveys, interpretation of reports, and consultation on finding interventions are all provided for free.

Scenario: A student support team and the principal of Liberty Heights Middle School used disaggregated data about school engagement from 6th grade students of color to choose engagement as an intervention target. They set a goal of improving engagement.

The next page demonstrates the development of a SMART Goal based on the team's choice of school engagement as an intervention target. Developing a SMART Goal operationalizes an outcome goal by specifying the amount of change desired, a targeted population, a timeline for change, and who will be responsible for the intervention process.

The SMART Goal is followed by two examples of searches for strategies to improve engagement.

SMART GOAL EXAMPLE

INITIAL GOAL	Write your initial goal here. It should be based on your review of data.
	Because of a high percentage of risk scores on the SSP 2020 school engagement measure, our goal is to find ways to better students.
S Specific	Is your goal specific? Who is targeted and what outcome do you want to change?
	We will target classroom interactions that make students more motivated to engage. Students of color in 6 th grade will be targeted.
M Measurable	Is your goal measurable? What data or information will you use to measure change? How much change do you want to achieve?
	We will measure change with SSP pre-and post-test scores on school engagement. We seek a change from 75% of the students with risk-level scores to 10%.
A Achievable	Can you reach the goal? What personnel time, skills, finances, or other resources do you have available? Are there other resources you need?
	We have school social workers who can do classroom observations and provide teachers with strategies for engaging students.
R Realistic	Is your goal realistic? Based on past experience, how much change may be possible given the nature of the issue to be addressed and the resources available?
	Actually, reducing the percentage with risk-level scores from 75% to 10% in our time frame may not be realistic. We'll aim instead to reduce the percentage to 30%. We need free strategies.
T Timely	What is your timeline for the intervention and your change goals?
	Start Date: <u>April 1, 2023</u> Finish Date: <u>June 1, 2023</u>
SMART GOAL	Transform your initial goal into a SMART Goal based on your answers to the questions above.
	Our goal is to decrease the percentage of 6 th grade students of color who report low engagement from 75% to 30% between April 1 and June 10, 2023, by conducting observations and giving teachers classroom strategies to increase student engagement—making learning more enjoyable, reducing boredom.

Two Examples of Searching for Level 3 and 4 Interventions Based on Data and a SMART Goal

Two search examples are presented below, each using a different online repository of evidence-based interventions. Take some time to explore the sites! Look for an intervention for student engagement. The sites have *many* intervention-related resources in addition to interventions. See what you can find that is useful to you. The Pennsylvania Evidence Resource Center also has a link to many other clearinghouses.

EXAMPLE 1

Description of the Pennsylvania Evidence Resource Center [Evidence for PA](#)

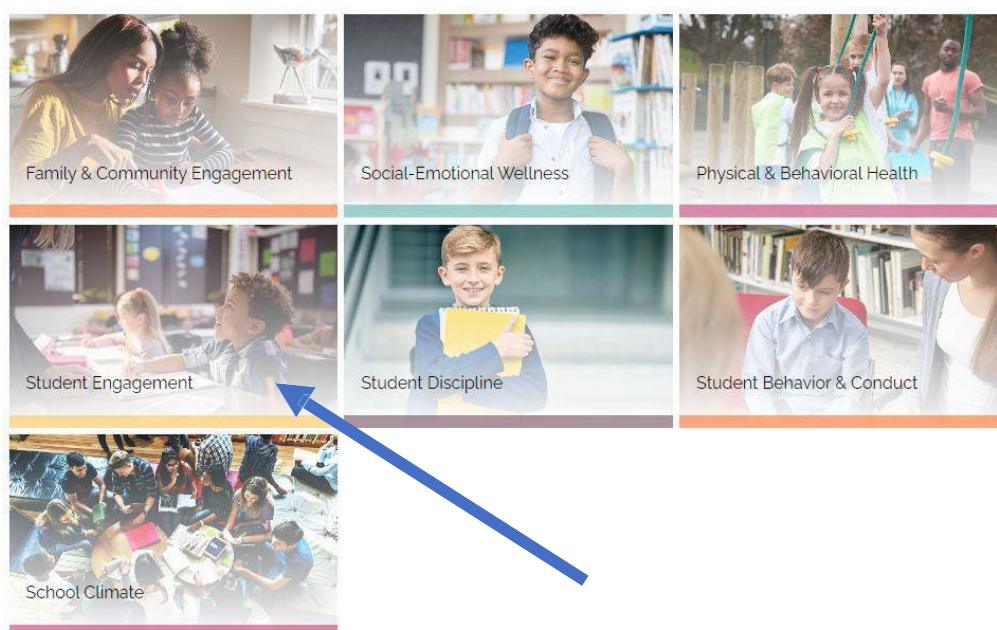
- Find interventions for a wide variety of issues within the categories of academics and learning environment (includes health, family and community engagement, SEL, behavior), and strategies for Educators and Staff.
- Within topics, search by ESSA levels of evidence, student groups (i.e., SWD or ELLs), communities served (i.e., urban, rural), and grade level.
- See if an intervention was designed to address Covid-19 issues.
- The site has a link to a long list of other clearinghouses
[Evidence for PA Clearinghouses](#)

Search for an Engagement Strategy at *Evidence for PA*

Go to: [Evidence for PA](#)

Scroll down and click on the Student Engagement box.

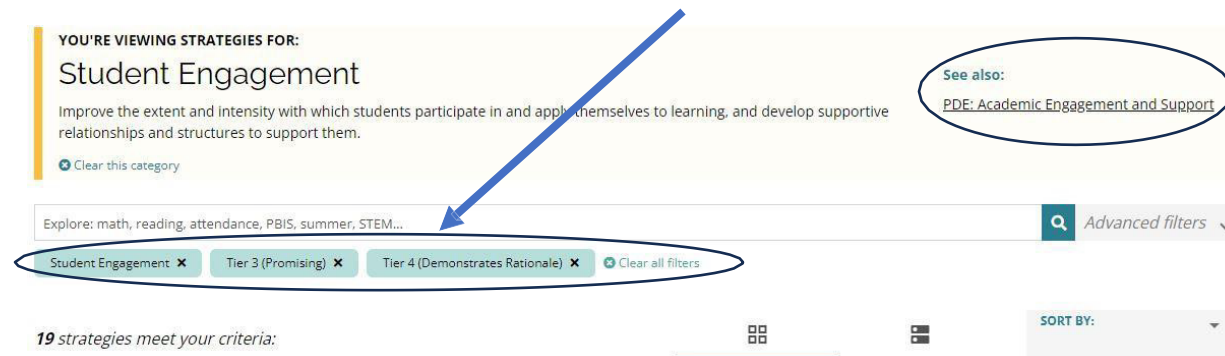
Strategies for **Learning Environment**:



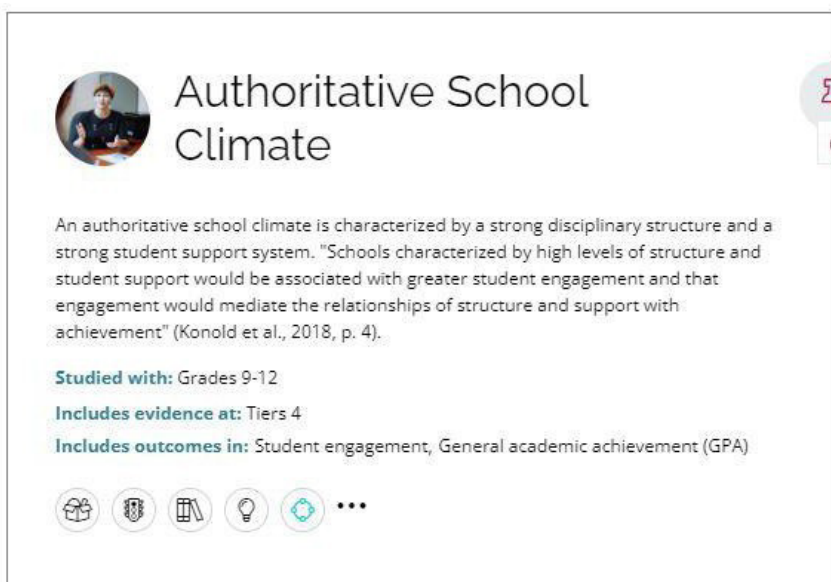
Evidence-based Intervention Training for Education (EBITE)



Select filters to match your target subgroup. We would start with 6th grade students of color, ESSA Levels 3 and 4. As often happens, multiple filters can lead to 0 eligible strategies. We had to broaden the search by removing the grade 6th and race/ethnicity filters, ending up with just engagement and ESSA levels (called tiers at this site).



Nineteen strategies came up with the filters above. The Authoritative School Climate entry was the most consistent with our intention to focus on teacher actions in the classroom. We could look more closely at it, but it might not be exactly what we are looking for.



BUT, look back at the circled text in the top right corner of the search filter image. At the *PDE Academic Engagement and Support* link, we find three additional resource links. One looks perfect! [Research suggests that student engagement can be improved through effective teaching](#). The link takes you to a 31-page document by the American Psychological Association with 5 pages on how to motivate students based on theory and research from Psychology.

If you like this type of resource, also see the What Works Clearinghouse collection of Practice Guides ([What Works Clearinghouse Practice Guides](#)). The *Preventing Dropout in Secondary Schools* includes engagement strategies.

EXAMPLE 2

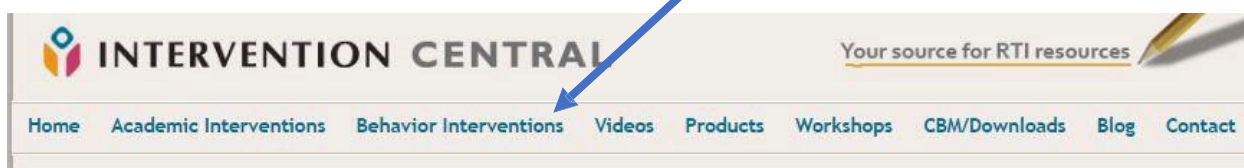
Description of Intervention Central [Intervention Central](#)

- Find descriptions and downloadable materials for interventions for academics, and behavior (including, SEL, mental health, motivation, and other domains).
- Find interventions that are low-cost or free, feasible, and adaptable to different grade levels. ESSA levels are not referred to, but many interventions are levels 3 and 4.
- Find everything you need to immediately start using the interventions.
- Also find videos on academic and behavior interventions (e.g., self-control), and forms for monitoring progress toward goals.

Search for an Engagement Strategy at *Intervention Central*

Go to [Intervention Central](#)

Click on Behavior Interventions.



Scroll down to the Motivation heading.



Sixteen free and feasible strategies for increasing engagement and motivation in the classroom are listed at the Motivation link. They are based on theory, research, and the experience of educators—consistent with ESSA evidence Levels 3 and 4. Search through them for one or more engagement strategies that are relevant for your students, appropriate for your school, and acceptable to your teachers. The strategies are specific and detailed, with examples of what teachers can say and do to motivate students whose lack of motivation has a variety of possible causes. Social workers could develop an observation checklist, observe teachers, then provide feedback on how they can increase their motivating behaviors.

Selected Online Databases with Level 3 and 4 Interventions

Below are links to examples of intervention databases that include interventions and resources with Level 4 evidence. Take some time to explore the sites! Look for an intervention for student engagement or other factors affecting student performance. The sites have *many* intervention-related resources in addition to interventions. See what you can find that is useful to you.

[Ohio Evidence-based Clearinghouse](#) – Searchable by grade-band, evidence-level of ESSA, subject area, student demographics (including special populations).

- Subject areas include: Curriculum, Instruction, Assessment; Community Engagement; School Climate and Supports; Human Capital Management; College and Career Readiness.
- The site also has descriptions of and links to other websites with EBIs.

[National Center on Intensive Interventions](#) (NCII) Navigation starts with Tool Charts listing interventions and their levels of evidence.

- Interventions are categorized as academic or behavioral; assessments are also described.
- Filter by grade and intervention details, including cost and training needs.
- Has its own evidence rating system; includes effect sizes when available.
- Choose multiple possible interventions and compare their qualities.

[Pennsylvania Evidence Resource Center](#)

- Find interventions for a wide variety of issues within the categories of academics and learning environment (includes health, family and community engagement, SEL, behavior), and strategies for Educators and Staff.
- Within topics, search by ESSA levels of evidence, student groups (i.e., SWD or ELLs), communities served (i.e., urban, rural), and grade level.
- See if an intervention was designed to address Covid-19 issues.
- View other [Clearinghouses](#)

[University of Missouri Evidence Based Intervention Network](#)

- Search for three categories of resources: evidence-based interventions, evidence-based assessments, and Response to Intervention.
- ESSA levels are not referred to, but many interventions are level 4.
- Find strategies for Math, Reading, and Behavior.
- Read intervention overviews, then select more detailed intervention briefs.
- Review briefs on the research and theoretical support for interventions.
- Find supporting resources such as, guidance for selecting interventions, meeting forms, and forms for graphing progress.

[Intervention Central, Resources for Response to Intervention](#)

- Find descriptions and downloadable materials for interventions for academics, and behavior (including, SEL, mental health, motivation, and other domains).

Evidence-based Intervention Training for Education (EBITE)



- Find interventions that are low-cost or free, feasible, and adaptable to different grade levels. ESSA levels are not referred to, but many interventions are level 4.
- Find everything you need to immediately start using the interventions.
- Also find videos on academic and behavior interventions (e.g., self-control), and forms for monitoring progress toward goals.

[Birmingham City Schools](#) Multi-tiered Systems of Support: Guidelines and Toolkit

- Section I defines the tiers of MTSS and provides intervention suggestions and tools, components of interventions.
- Section II provides information on MTSS Tier II and III interventions.
- Section III provides best practices and sample forms for use in implementation.

[PBIS World](#)

- Includes behavior interventions at all three MTSS tiers of intervention.
- Behavior interventions are organized under 36 specific types of problem behavior, including Lying/cheating, Lack of social skills, Negative attitude.
- Many are free or low-cost strategies based on ESSA level 4 evidence.
- Step by step instructions for implementation at MTSS tier 1; when to move to tiers 2 and 3.
- Includes general intervention planning and intervention resources.

[Panorama Ed](#)

- This link lists 42 interventions recommended by Panorama. While the interventions are not necessarily free, they do offer ideas for a range of students in the different tiers. There are many strategies related to the COVID.
- Interventions are discussed in terms of MTSS intervention levels.
- Includes all grades, but not directly searchable by grade.
- Interventions are all four of ESSA's levels of evidence.
- Document has links to other resources.

[RTI Action Network](#)

- Click on a grade level and see a long list of topic areas for interventions. Some topic areas are unique to this site, for example, family involvement, LD identification, social development, diversity and disproportionality.
- RTI is a multi-tiered approach to interventions.
- Includes many resources for an EBI process and implementation of interventions, including guides and templates for using data in a team decision-making process.

[Center on Multi-Tiered Systems of Supports](#)

- Resources and information on multi-tiered systems of support, from readiness for MTSS, needs assessment, decision-making, and implementation.
- Rubrics for implementation and core components of EBIs.

Evidence-based Intervention Training for Education (EBITE)



- Examples of links to assessments, screening tools, and resources within the site: [AIR Center on MTSS: School Climate Resources](#), [AIR Center for MTSS: Behavior Intervention Tools Chart](#), [University of Maryland, National Center for School Mental Health](#): Grid for identifying roles for all different school staff in mental health interventions; Rubrics for implementation and essential components of interventions
- Navigation of this site is less intuitive than others. Take your time to find and explore links within links.
- Has links to the intervention, screening, and assessment Tools Charts at the Intensive Intervention site listed above.

EBITE RESOURCE GUIDE

Integrating MTSS and ESSA Frameworks: Introduction to MTSS Interventions Resources

Purpose

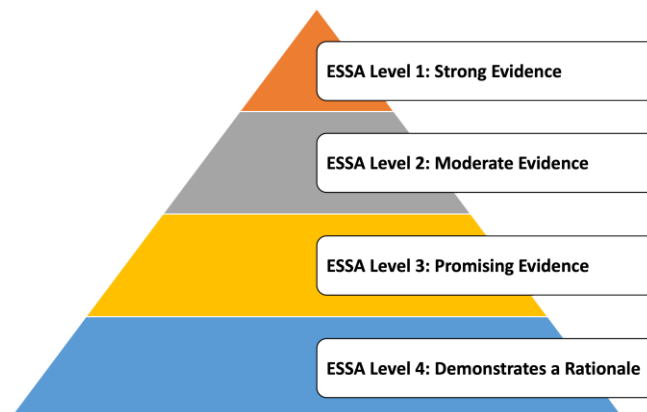
This guide seeks to provide readers with an understanding of Every Student Succeeds Act (ESSA) Levels of Evidence and how they should be viewed within a Multi-Tiered System of Supports (MTSS). Additionally, this guide presents resources where users can access low or no-cost student and classroom-wide interventions targeting commonly encountered student academic and behavioral needs. While ESSA expects educators to implement evidence-based interventions, educators may be challenged to identify interventions that meet their needs. Please note this guide is NOT meant to be a comprehensive list of all possible interventions to address a specific need, nor will it include interventions for all needs. This resource guide WILL provide a starting point for schools, educators, and leaders making intervention choices and decisions around MTSS.

Intervention Framework of MTSS and ESSA Levels of Evidence

When utilizing the resources listed in this guide, one should always consider both the intervention's ESSA Level of Evidence, as well as the targeted MTSS tier.

ESSA Levels of Evidence

Under ESSA, interventions are categorized into four levels of evidence quality. These levels may also be referred to as “tiers” by other resources. The top level (Level 1) represents the rating given to the strongest research evidence available, supporting an intervention or practice that is effective at producing results when well-implemented (see [California Department of Education Evidence-Based Intervention Page](#) for more details on ESSA Levels of Evidence).

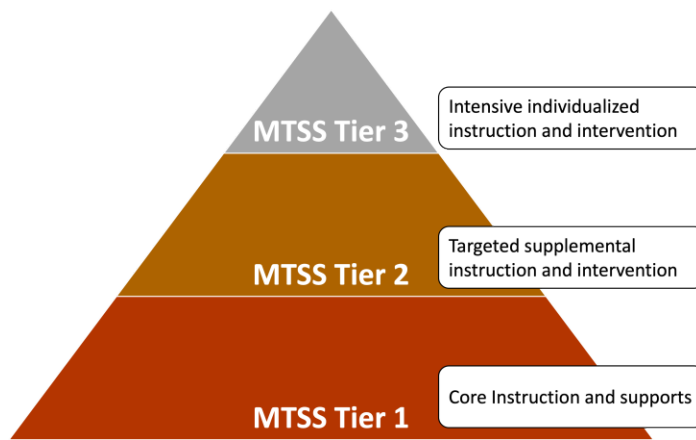


MTSS Tiers

ESSA also promotes a Multi-Tiered System of Supports (MTSS) framework for effectively integrating and simultaneously addressing students' academic, behavior, and social-emotional well-being.¹ This system, which can include Response to Intervention (RTI) and Positive Behavioral Interventions and Supports (PBIS), denotes interventions and practices by three tiers of support. The tiers are categorized by the breadth of an intervention's reach (e.g., schoolwide vs. individual), as well as the intensity of student need:

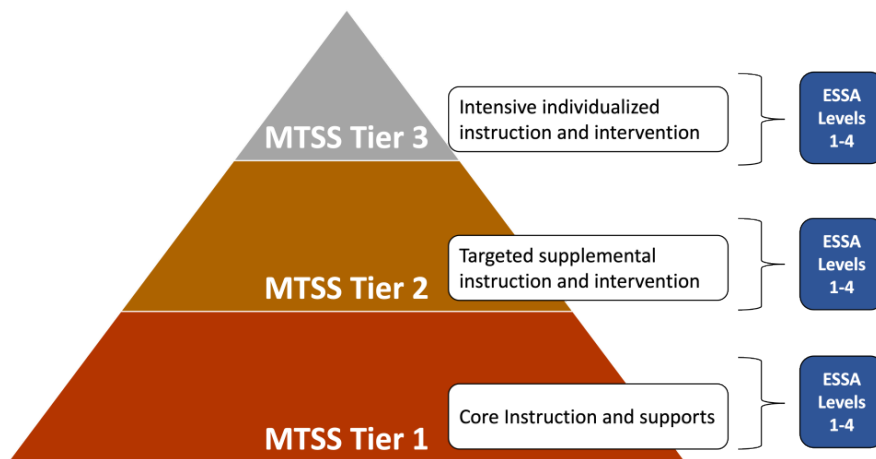
¹Multi-tiered System of Supports (MTSS), Ohio Leadership Advisory Council, [Ohio Leadership](#)

- **Tier 1 (T1):** universal tier, intervention is provided to ALL students (e.g., adopted curricula, universal screening tools).
- **Tier 2 (T2):** targeted small group instruction, particularly to students at risk, to reduce/eliminate identified student difficulties (e.g., Check-In/Check-Out for selected students).
- **Tier 3 (T3):** intensive individualized instruction/intervention for students needing significant support (e.g., individual counseling, behavioral skills training using video modeling).
 - (Note: This level is not synonymous with special education! For example, English language learners may need intensive support without requiring special education services, and students with disabilities may receive intervention supports from other tiers depending on their specific needs.)



Viewed Together

The important piece to recognize is that interventions in the MTSS Tiers can have ESSA Quality Level ratings from 1-4. For example, an intervention can be categorized as a Tier 3 MTSS intervention (intensive instruction) with a Level 4 ESSA quality rating. The graph below illustrates this integration:



Using Resources in this Guide

Interventions suggested in this guide will mostly target MTSS Tier 2 (small group instruction) and Tier 3 (individualized tutoring). For MTSS Tier 1 supports (school-wide, universal interventions/programs), we recommend users consult additional major databases such as [Ohio's Evidence-Based Clearinghouse](#), the Institute of Education Science's [What Works Clearinghouse](#), and Johns Hopkins' [Evidence for ESSA](#).

Ultimately, it is the educator's responsibility to examine the low- or no-cost interventions found in the suggested resources to help guide decisions on feasibility and use. We suggest exploring the degree of evidence regarding the selected intervention's ESSA level of evidence; reflecting and discussing with colleagues about the intervention's fit specific to the context of your school and goals; and planning for implementation in a way that meets both student-specific needs and existing legal regulations.

General Resources for Interventions

[Integrated Multi-Tiered System of Support \(I-MTSS\)](#)

I-MTSS, funded by the Institute of Education Services, U.S. Department of Education, is a collaborative research network of projects to examine MTSS that integrates both academic and behavioral support systems within elementary schools. I-MTSS has rich resources including materials on [PBIS](#) and building [three-tiered system of school supports](#). The research network includes the following projects:

- [I-MTSS Uconn, Neag School of Education](#)
- [The Meadows Center for Preventing Educational Risk](#)
- [Ci3T +ENHANCE](#)
- [Integrated MTSS Fidelity Rubric](#)

[The Meadows Center for Preventing Educational Risk \(MCPER\)](#)

MCPER is a collaborative research initiative developed in 2008 by The University of Texas and is a part of the larger research network [Integrated Multi-Tiered System of Support \(I-MTSS\)](#). MCPER, specifically, is a free Resources database of various education guides and booklets. Users can search for specific evidence-based interventions by:

- Topic (e.g., Mathematics Instruction, Behavior)
- Audience (e.g., Special Education Teacher, Administrator)
- Grade Levels (i.e., K-12, Higher Education)

[Evidence Based Intervention \(EBI\) Network](#)

The EBI Network, created by the University of Missouri, provides user-friendly information about EBIs (e.g., what they are, how to select them), evidence-based assessments, and the response to intervention (RTI) framework. Interventions are categorized by:

- Reading
- Math
- Behavior

Each section is divided by student skill level (e.g., acquisition, proficiency, generalization, motivation). Listed intervention briefs (e.g., Phrase Drill for Reading Acquisition) are practitioner guides with information about intervention setting, function, brief step-by-step implementation instruction, research references, etc.

IRIS Center

Vanderbilt University's IRIS Center is a rich compendium of various free, online resources about evidence-based instructional and behavioral practices to support all students. Designed to bridge research to practice, the IRIS Center Resources include modules, case studies, professional development activities, etc. A specific tool to note is the [IRIS Resource Locator](#) where interventions and related information can be found by:

- Topic (e.g., Accommodations, Evidence-Based Practices, Transition)
- Age Groups/Grades (age 0-21, Elementary, Middle, High)
- Resource Types (e.g., Modules, Case Studies, Information Briefs)
- Module Elements (e.g., Video, Activity)
- Available Spanish Translations

Filtering by "Resource Type" and "Information Briefs" will list various websites with free intervention descriptions and instructions targeting specific content (e.g., Phonics Blending: An Evidence-Based Literacy Strategy).

Florida Center for Reading Research (FCRR)

FCRR, based at Florida State University, investigates all aspects of reading and reading skills across the life span, including practices that can be integrated in MTSS frameworks. Various reading-related interventions can be found in the FCRR's Resource Database. Users can search by:

- Keywords (e.g., reading comprehension)
- Resource Type (e.g., Research study, infographic)
- Project Source (e.g., FCRR, National Center for Improving Literacy)
- Audience (e.g., families, practitioners)
- Age Level (i.e., pre-K to doctoral education levels)
- Date of posting

Intervention Central

Intervention Central, created by school psychologist and school administrator Jim Wright, is a practitioner-friendly source of evidence-based Academic and Behavior Interventions. Specific interventions are listed according to target skill/behavior. From the website, topic areas include:

- Academic Interventions
- Behavioral Interventions
- Curriculum-Based Measurement (CBM) resources
- Videos and other resources

Information for specific interventions typically includes detailed instructions (e.g., materials, preparation, directions), downloadable attachments (e.g., material forms, progress monitoring sheets), and references. Most interventions target Pre-K to Middle School audiences or are general instructions for all age groups (e.g., classroom management, group response techniques).

National Center on Intensive Interventions (NCII)

Housed at the American Institutes of Research, NCII seeks to support implementation of intensive interventions for students with severe and persistent learning, social, emotional, and/or behavior needs using data-based individualization. This research-focused site contains several intervention tools charts where users can find additional information about intervention-specific studies, quality of studies/interventions, and other intervention related information. Please note the databases list both cost and cost-free interventions. The range of interventions is broad and includes:

- Behavioral
 - Target Behaviors: Internalizing, Externalizing
 - Grade: Pre-K-12
- Academic
 - Subject: Reading, Mathematics
 - Grade: Pre-K-12

Additional Resources

Handout with accompanying video explaining ESSA Levels of Evidence:

- [REL Midwest, ESSA Tiers of Evidence: What You Need to Know \(2019\)](#)

In-depth website on MTSS, from essential components, to implementation, to relevant tools/materials:

- [American Institutes for Research \(AIR\), Center on Multi-Tiered System of Supports](#)

Reader-friendly overview of the MTSS process for school professionals, parents, and caregivers:

- [Rosen, Peg, What is MTSS?, Understood for All](#)

Brief to help schools implement MTSS with an academic focus; covers MTSS structure and challenges and solutions for early MTSS implementation:

- [Durrance \(2023\), Comprehensive Center Network, Implementing MTSS in Secondary Schools: Challenges and Strategies](#)

EBITE RESOURCE GUIDE

Effect Size

Purpose

The purpose of this EBITE Guide is to help educators understand and interpret the basics of effect sizes when reading reports or studies on the outcomes of educational interventions, programs, and practices. Knowing how to interpret and compare effect sizes is important when making a choice about a particular intervention or practice to adopt. Beyond this brief introduction, we provide some additional recommendations on resources and readings for those interested in more details or further information.

What are Effect Sizes?

Effect sizes are standardized measures that simply summarize the impact of an intervention on a specific learning outcome. Larger effect sizes indicate larger effects for the intervention. While simplistic in scope, they can be very complex to determine, and are typically provided in reports or articles that share the results of evaluation studies. To add to the complexity, there are many possible kinds of effect sizes. The general idea is to compare an average score on an educational outcome (such as an end-of-term math assessment score, or reading assessment) between a group of students that receives an intervention and a comparable group of students that does not. Through this comparison, an effect size can tell you how large or small the difference is between the two groups, relative to the natural variability among all the scores. The “standardization” refers to this amount of variability in the outcome scores, which is called the standard deviation. Our discussion below and resource section links will help make these ideas clear.

Effect Sizes and Level 4 Interventions

According to ESSA, level 4 interventions are defined as “*demonstrating 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.*” Effect sizes are important ways of showing amount of improvement or change in an educational outcome. When making decisions about whether to use a particular intervention, the size of the effect must be large enough to justify the decision to adopt the intervention or program. But “large enough” is a value judgement, and depends on your needs and capacity for the intervention ultimately selected for implementation.

Note!

Effect sizes can be used to help build a rationale for a level 4 intervention – but other features such as cost, the school context and demographics of students in the original study, and ease of implementation are also important.

When a school chooses to put a particular intervention or program into practice, educators are anticipating that the effect for their own students, classrooms or schools will likely be the same or similar to what was reported in an evaluation study. However, school contexts or settings that differ from those of the original evaluation study and even slight variations in how an intervention is implemented can affect the size of the reported change. The quality of the evaluation study design can also affect the reported effect size. Weakly designed evaluation studies can yield unreliable estimates of an intervention’s effect size. Thus, the effect size is only *one piece of information* that educators should consider before adopting a new educational intervention or practice.

Why are Effect Sizes Important?

Effect sizes are often compared between two different interventions designed to change the same achievement outcome. However, interventions vary in terms of time, cost, training, and materials. Comparing effect sizes from evaluation reports or publications on several different interventions for the

same intended outcomes can help schools make good decisions while balancing issues such as cost and other factors. Educational improvement and the size of potential change is important, but a school may opt for a simpler, low-cost intervention with modest expected effects over an intervention that is expensive and challenging to implement and monitor, even if the anticipated effect size may be larger.

One Size Fits All? A Cautionary Tale

Effect sizes don't just come in one...size. There are many different types of effect sizes that could be found through varying kinds of evaluations. It is not essential that educators know how to determine an effect size value, but it is important to feel comfortable with interpretation when reading the literature about potential effects of an intervention or practice, particularly when making a decision among two or more interventions.

One of the most common forms of effect size is called "*Cohen's D*," where D stands for "difference." For Cohen's D, interpretation of an effect size is fairly straightforward; distance is in standard deviation units. For example, if $D = .50$, this implies that the distance between means of the intervention and comparison groups is .50 standard deviations. Half of a standard deviation difference is considered a moderate or medium effect. We could also interpret this .50 effect size as indicating that the average score in the intervention group was 50 percent of a standard deviation larger than the average score in the comparison group. Another familiar effect size measure is the correlation coefficient between two variables, "*Pearson's r*" or just simply "*r*." Correlation assesses the strength of a linear relationship between two variables. A correlation of +1.0 is a perfect positive correlation; a correlation of .30 is considered moderate or medium effect.

Over many years of study on educational interventions, there are effect size values that have come to be considered as small, medium, and large effects (Table 1). However, we urge educators to pay close attention to all aspects of a study – such as its evaluation design quality, reliability of measures, cost, complexity, and student sample – when interpreting the value of an effect size and deciding to implement an intervention. It is also important to pay attention to the nature of the "business as usual" or practice being used in the comparison group. If the comparison program is different in evaluations of a targeted intervention, the effect size is likely to be different too! That is, the **meaningfulness** of a particular effect size value is a judgement that educators must make in balance with a constellation of many study features.

Table 1. Effect Size Conventions for Cohen's *D* and Pearson's *r*

Type	Effect Size		
	Small	Medium	Large
Cohen's D	.20	.50	.80
Pearson's r	.10	.30	.50

Summarizing Collections of Effect Sizes

Evaluations of the same practice/intervention in different schools or classrooms could be conducted in many different ways (for example, through a randomized trial or a correlational study, or they could rely on different outcome measures or analysis designs) and thus result in different effect sizes. Given school/classroom and evaluation design differences, it's challenging to summarize effect sizes into a single overall estimate of an intervention's effectiveness. Essentially, this is the work of research compendiums and evidence repositories such as the [What Works Clearinghouse](#)

, [Evidence for ESSA](#), or the [Ohio Evidence-based Clearinghouse](#).

These Clearinghouses provide the most up-to-date and summary information on tested interventions. Many of these compendiums, the WWC in particular, use sophisticated meta-analysis methods to summarize effects across multiple evaluation studies of the same intervention. The resulting effect size summaries are viewed as the most trustworthy in representing the expected change for students that can be attributed to an intervention. However, it's important for educators to be mindful of the many factors that can affect the size of an effect – such as cost, implementation complexity, or quality of evaluation design.

Visible Learning

You may be familiar with John Hattie's work on [Visible Learning](#). Hattie¹ (2009) reviewed many different meta-analyses on hundreds of educational practices and interventions.

A primary goal of Hattie's work is to place achievement-related effect sizes along a single continuum in order to identify those educational activities/interventions associated with greatest change. Based on this work, Hattie identified effect sizes $\geq .40$ as those in the “zone of desired effects” (the blue zone in the picture at right) – thus identifying those activities/interventions that were found to have large impacts on students' achievement outcomes (Hattie, 2009, p. 19). The infographic shown in Figure 1 visualizes the effects on student achievement from a variety of educational practices/activities/interventions.

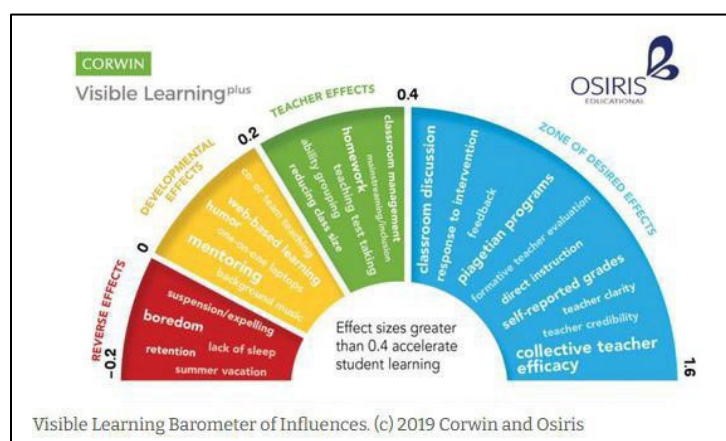


Figure 1. Hattie's Barometer² of Achievement Influences

Unlike the WWC, which defines and follows rigorous rules for identification and inclusion of studies in its meta-analyses, *Visible Learning* synthesizes results from existing meta-analyses, which may vary in quality, outcomes, comparison group programs/activities, and study inclusion criteria for each of the interventions reviewed. Thus, educators must be mindful of study features when interpreting the meaningfulness of these summary effect sizes. One recommendation is to follow-up information from *Visible Learning* with additional details from the WWC or other clearinghouses.

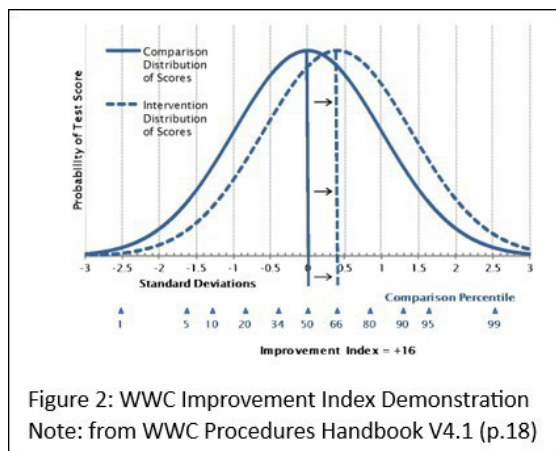
What Works Clearinghouse Improvement Index

To aid in summarizing effect sizes and comparing across different interventions – particularly for level 1 and 2 interventions that have been rigorously studied – the WWC uses an Improvement Index to convey an intervention's impact. The WWC Improvement Index translates effect sizes into a convenient and standard format. It summarizes the difference in percentile ranks between the average score of the intervention group and the average (50th percentile) score of the comparison group, according to the comparison group distribution. In this way, the Improvement Index estimates the amount of change in terms of percentile rank (on the noted outcome) that the average comparison group student would have experienced *if that student had received the intervention*.

¹ Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

² Infographic from: [Visible Learning- Hatties Barometer of Influence](#)

For example, in Figure 2 below, a student in the comparison group who received the average score within the comparison group would be at the 50th percentile relative to students from this same group.



Where does the average student from the intervention group fall based on the comparison group distribution? In this example, imagine the average score for the intervention group is .40 standard deviations above the average score for the comparison group, which also corresponds to the 66th percentile on the comparison group distribution. The Improvement Index is 16 points (66th percentile – 50th percentile). The value of 16 represents the expected change in percentile rank for an average comparison group student *if* that student had received the intervention. Using the expected change in percentile rank allows for a more concrete interpretation and comparable value of effect size.

In Figure 3, we provide two examples of how the Improvement Index is reported in WWC Intervention Guides for two different adolescent literacy interventions: *Achieve3000*³ and *Peer-Assisted Learning Strategies*⁴ (PALS). We see that *Achieve3000* had an average improvement index of +6 points for the domain of Comprehension, and +3 points for the domain of General Literacy Achievement. For PALS, the Comprehension domain has an average of +19 points. While these interventions targeted a different set of student outcomes, both targeted Comprehension, with PALS having a much higher average index. But note the number of studies and the number of students included in the respective intervention reviews. Since there was only one study of PALS deemed rigorous enough to be included in the WWC review, there is less information from multiple studies, which may affect educator confidence in these statistics. Overall, educators need to reflect on the entire corpus of information available in order to make a responsible intervention adoption decision.

<i>Achieve3000</i>						
Outcome domain	Rating of effectiveness	Improvement index (percentile points)		Number of studies	Number of students	Extent of evidence
		Average	Range			
Comprehension	Potentially positive effects	+6	0 to +11	2	12,698	Medium to large
General literacy achievement	Potentially positive effects	+3	+2 to +3	2	32,110	Medium to large

<i>Peer-Assisted Learning Strategies</i>						
Outcome domain	Rating of effectiveness	Improvement index (percentile points)		Number of studies	Number of students	Extent of evidence
		Average	Range			
Comprehension	Potentially positive effects	+19	na	1	120	Small

na = not applicable

Figure 3. Comparison of Adolescent Literacy Improvement Indices for *Achieve3000* and PALS.

Notes: Top: *Achieve3000* Intervention Guide (2018); Bottom: *Peer-Assisted Learning Strategies* (2012); refs. in footnotes

³ [Intervention Guide for Achieve3000 \(2018\)](#)

⁴ [Intervention Guide for Peer-Assisted Learning Strategies \(2012\)](#).

Summary

Effect sizes provide one piece of information regarding the promise of an intervention to influence achievement outcomes. There are also many different kinds of effect sizes, only a few of which were discussed here. Educators are urged to seek out as much information as possible for a given intervention – as well as the comparison it was tested against – in order to make the most effective choices for their students, classrooms and schools. To learn more about specific effect sizes or other issues related to their use, see our resources and references below.

Resources

[REL-WEST quick-reference guide](#)

(2021) This quick-reference guide from the Institute of Education Sciences Regional Education Lab (REL-West) at Wested, provides a glossary of terms, dives a bit deeper into connections between effect size and statistical significance, and reviews additional literature on study and design features that can affect the size of an effect size statistic.

[Scribbr](#)

Scribbr provides a simple description to effect sizes, similar to this guide, with additional links and examples.

[Psychometrika](#)

Psychometrika provides a web-based tool for calculation of many different kinds of effect sizes. It's designed for researchers who are conducting studies to compare outcomes across an intervention and comparison group.

Dr. Jerry Bean's effect size guide

[A Guide to Common Effect Sizes and Forest Plots](#) (2021) – Dr. Jerry Bean has created a handout describing the links between meta-analyses and effect sizes (used by permission).

[WWC Procedures Handbook V4.1](#)

WWC Procedures Handbook V4.1 (p.18). This reference is used by trained specialists at the WWC who are tasked with conducting meta-analyses and determining effect sizes and improvement indices for catalogued interventions.

[WWC Intervention Reports](#)

Searchable catalog of interventions reviewed by WWC and for which sufficient and reliable information is available to create an Intervention Report.

EBITE RESOURCE GUIDE

Identifying EBI Core Components: Your Context and Stakeholders

Purpose

The purpose of this guide is to help you consider how the core components of an EBI might (or might not) align with your context and the critical needs of your stakeholders. Also, there are some tips for searching and finding out about the core components of an EBI and tools to help conduct the fit assessment.

How to Use the Guide

The best time to use this guide is when your team has narrowed down your list of EBIs and settled on one (or maybe two) for serious consideration and are ready to determine what is needed for implementation. Read through this guide and the example presented to help you familiarize yourself with EBI core components and ways to learn about them.

It's essential that whichever EBI you choose is as aligned as possible with target needs of your stakeholders (identified during Step 1 of the Cycle of Continuous Improvement and operationalized as your SMART goal) and the parameters in your local context. Use this guide to help you remember specific issues to examine and consider as you determine the level of alignment and what would be needed for implementation of the EBI(s) you are considering.



What are Core Components of an EBI?

The core components of an EBI can be thought of as the “active ingredients” of the intervention that form the basis of how implementation of the EBI would affect the desired change. These “active ingredients” could consist of activities to be completed by target learners or others, specific directives for changing the local context, or other elements that have been determined to create change. The core components of an EBI are, in fact, how the theory of change is operationalized in practical terms.

Overall, ESSA Levels 1 and 2 EBIs might have more well-specified core components, while Levels 3 and 4 may be less specified or detailed. This distinction is important to consider because if your team has to do additional work to clarify or flesh out the EBI’s core components, you will need to consider if you have the time and other resources needed to do this work.

Examples of EBI Core Components

As an example, let's examine the core components of two EBIs: [Check & Connect](#) and [Early Warning Intervention and Monitoring System \(EWIMS\)](#).

Check & Connect. For many EBIs catalogued in the [What Works Clearinghouse](#), such as Check & Connect, we find that the simplest way to learn about the core components is to find the EBIs Evidence Snapshot (see Figure 1). Upon searching the WWC, the Evidence Snapshot shows us that the EBI is rated in the WWC as ESSA Level 3 and gives us a little more detail about if this EBI is worth consideration. Let's say we determine it is and we want to learn more. To delve deeper, we download the [Intervention Report](#).

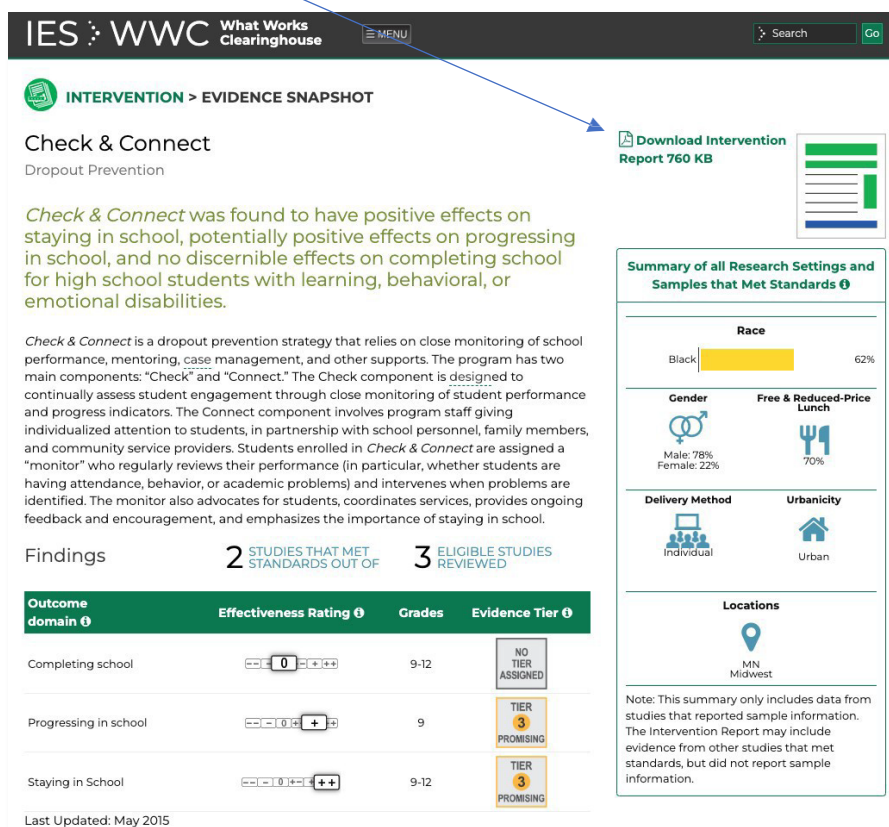


Figure 1. Screenshot of Check & Connect entry in the WWC

Upon reading the Intervention Report, we find a description, summary of research evidence, and effectiveness information right on pages 1-2 (see Figure 2). On page 3, under Program Details, is a description of the program components. This EBI has two major components: The Check component, continuous monitoring of students, and the Connect component, providing individual attention to students. We can read further to determine the specific details of how these two components should be implemented. There is also cost information and contact information. All members of your team should read through the Intervention Report in its entirety. The first issue to examine is if the EBI would help meet the SMART goal your team has decided on. If so, then keep moving forward with determining alignment and fit.

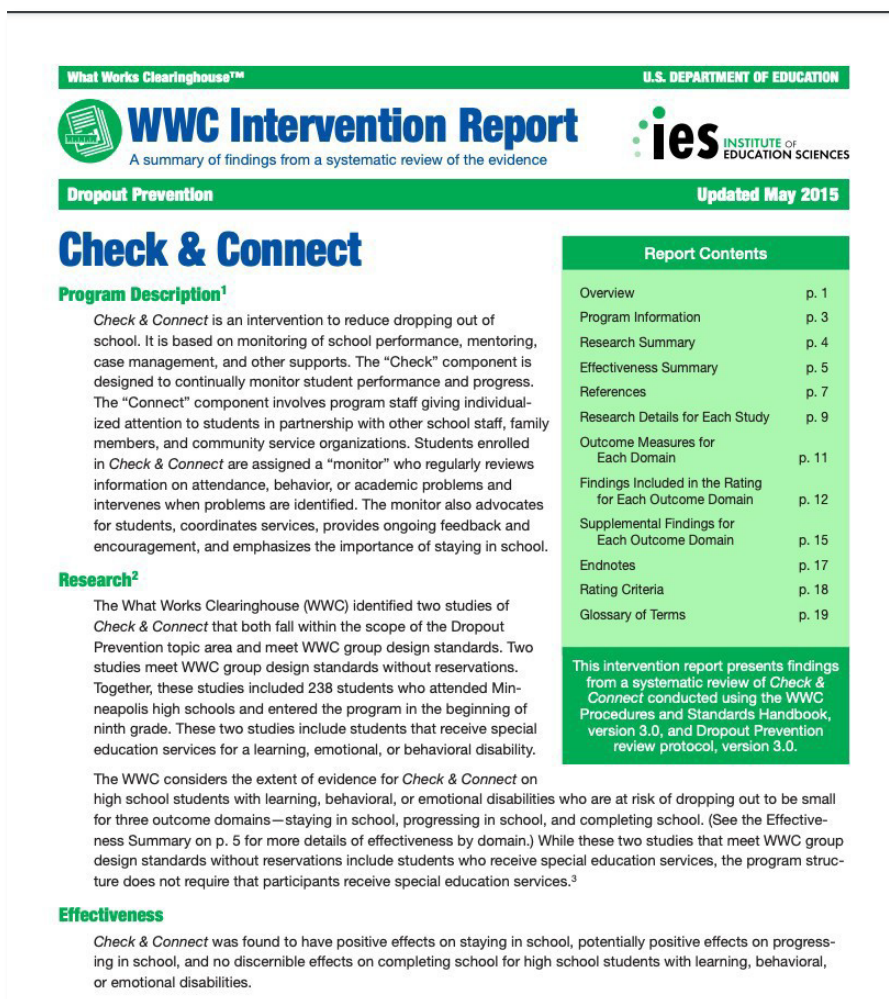
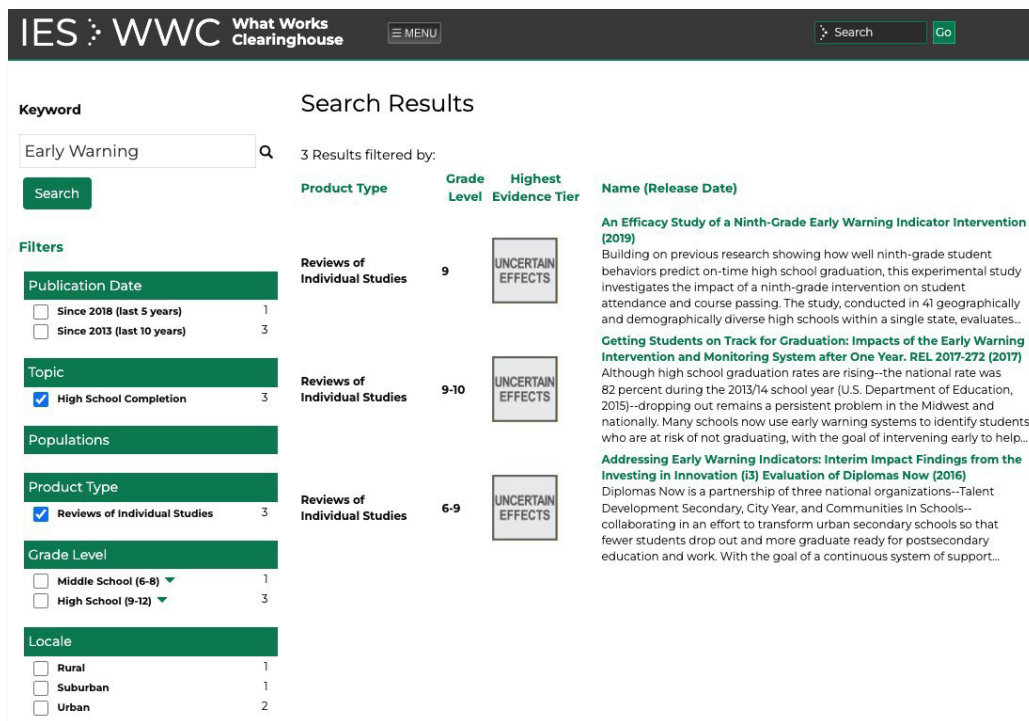


Figure 2. Screenshot of *Check & Connect* Intervention Report

Early Warning Intervention and Monitoring System (EWIMS). This example was chosen to show that not every EBI we may want to learn about will have an easily accessible WWC intervention report that makes it easy for us. Upon searching the WWC, we find that the EWIMS does not seem to have an Evidence Snapshot page or any Intervention Report (see Figure 3). It only has Reviews of Individual Studies, from which you can examine the research evidence summaries and learn more about the EBI via that information. It may be a little more difficult to get to its core components using this approach, so we move to a different database, [Evidence for ESSA](#). Upon searching, we found this information from the Program Description (see Figure 4):

The Early Warning Intervention and Monitoring System (EWIMS) is a systematic approach used by dedicated teams of school staff to identify students at risk of not graduating on time, assign students to interventions, and monitor their progress. The indicators used to identify students at risk are engagement (attendance), behavior (suspension), and course performance (grades and credits). The EWIMS model is intended to help schools efficiently use data to both identify the at-risk population and provide targeted support, strengthening student persistence and progress in school and ultimately improving on-time graduation rates.



Keyword: Early Warning

Search Results: 3 Results filtered by:

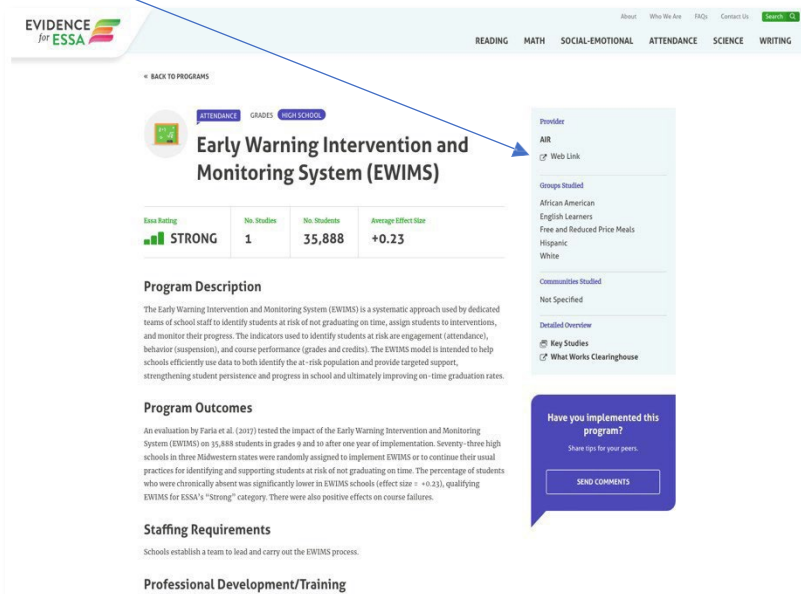
Product Type	Grade Level	Highest Evidence Tier	Name (Release Date)
Reviews of Individual Studies	9	UNCERTAIN EFFECTS	An Efficacy Study of a Ninth-Grade Early Warning Indicator Intervention (2019) Building on previous research showing how well ninth-grade student behaviors predict on-time high school graduation, this experimental study investigates the impact of a ninth-grade intervention on student attendance and course passing. The study, conducted in 41 geographically and demographically diverse high schools within a single state, evaluates...
Reviews of Individual Studies	9-10	UNCERTAIN EFFECTS	Getting Students on Track for Graduation: Impacts of the Early Warning Intervention and Monitoring System after One Year. REL 2017-272 (2017) Although high school graduation rates are rising--the national rate was 82 percent during the 2013/14 school year (U.S. Department of Education, 2015)--dropping out remains a persistent problem in the Midwest and nationally. Many schools now use early warning systems to identify students who are at risk of not graduating, with the goal of intervening early to help...
Reviews of Individual Studies	6-9	UNCERTAIN EFFECTS	Addressing Early Warning Indicators: Interim Impact Findings from the Investing in Innovation (i3) Evaluation of Diplomas Now (2016) Diplomas Now is a partnership of three national organizations--Talent Development Secondary, City Year, and Communities In Schools--collaborating in an effort to transform urban secondary schools so that fewer students drop out and more graduate ready for postsecondary education and work. With the goal of a continuous system of support...

Filters:

- Publication Date:**
 - Since 2018 (last 5 years): 1
 - Since 2013 (last 10 years): 3
- Topic:**
 - High School Completion: 3
- Populations:**
- Product Type:**
 - Reviews of Individual Studies: 3
- Grade Level:**
 - Middle School (6-8): 1
 - High School (9-12): 3
- Locale:**
 - Rural: 1
 - Suburban: 1
 - Urban: 2

Figure 3. Screenshot of WWC search results for Early Warning Systems

We then click on the weblink under “Provider” in the shaded box (upper right corner) to investigate further. There we find contact information for the researchers at the American Institutes for Research as well as links to additional resources about how the providers help with implementation. This is helpful, but we still need more information on the core components for Early Warning Systems, so we will go back to the WWC’s general search mechanism (see Figure 5) to see what is available. In the search box, we type “EWIMS core components” and click “Go” to search. *NOTE: When using a general search box, it can help to try using different queries to search, such as “Early Warning System core components” to see if you get different results.*



EVIDENCE for ESSA

READING MATH SOCIAL-EMOTIONAL ATTENDANCE SCIENCE WRITING

BACK TO PROGRAMS

Early Warning Intervention and Monitoring System (EWIMS)

Essay Rating: STRONG

No. Studies	No. Students	Average Effect Size
1	35,888	+0.23

Program Description

The Early Warning Intervention and Monitoring System (EWIMS) is a systematic approach used by dedicated teams of school staff to identify students at risk of not graduating on time, assign students to interventions, and monitor their progress. The indicators used to identify students at risk are engagement (attendance), behavior (suspension), and course performance (grades and credits). The EWIMS model is intended to help schools efficiently use data to both identify the at-risk population and provide targeted support, strengthening student persistence and progress in school and ultimately improving on-time graduation rates.

Program Outcomes

An evaluation by Faria et al. (2017) tested the impact of the Early Warning Intervention and Monitoring System (EWIMS) on 35,888 students in grades 9 and 10 after one year of implementation. Seventy-three high schools in three Midwestern states were randomly assigned to implement EWIMS or to continue their usual practices for identifying and supporting students at risk of not graduating on time. The percentage of students who were chronically absent was significantly lower in EWIMS schools (effect size = +0.23), qualifying EWIMS for ESSA’s “Strong” category. There were also positive effects on course failures.

Staffing Requirements

Schools establish a team to lead and carry out the EWIMS process.

Professional Development/Training

Provider: AIR

Groups Studied: African American, English Learners, Free and Reduced Price Meals, Hispanic, White

Communities Studied: Not Specified

Detailed Overview: Key Studies, What Works Clearinghouse

Have you implemented this program?

Share tips for your peers.

SEND COMMENTS

Figure 4. Screenshot of EWIS entry in Evidence for ESSA database



WWC's general search mechanism

Figure 5. Screenshot of WWC webpage to show general search mechanism

Results from these searches (see Figure 6) are mixed, but there are relevant hits in the lists. There is one that has “core components” in the title—a great place to start! The link takes us to a summary guide, [A Practitioner's Guide to Implementing Early Warning Systems](#)—which lists five components and links to additional info. If this EBI aligns to our SMART goal, then our team can read further, discuss, and start to determine alignment and fit to our local context.

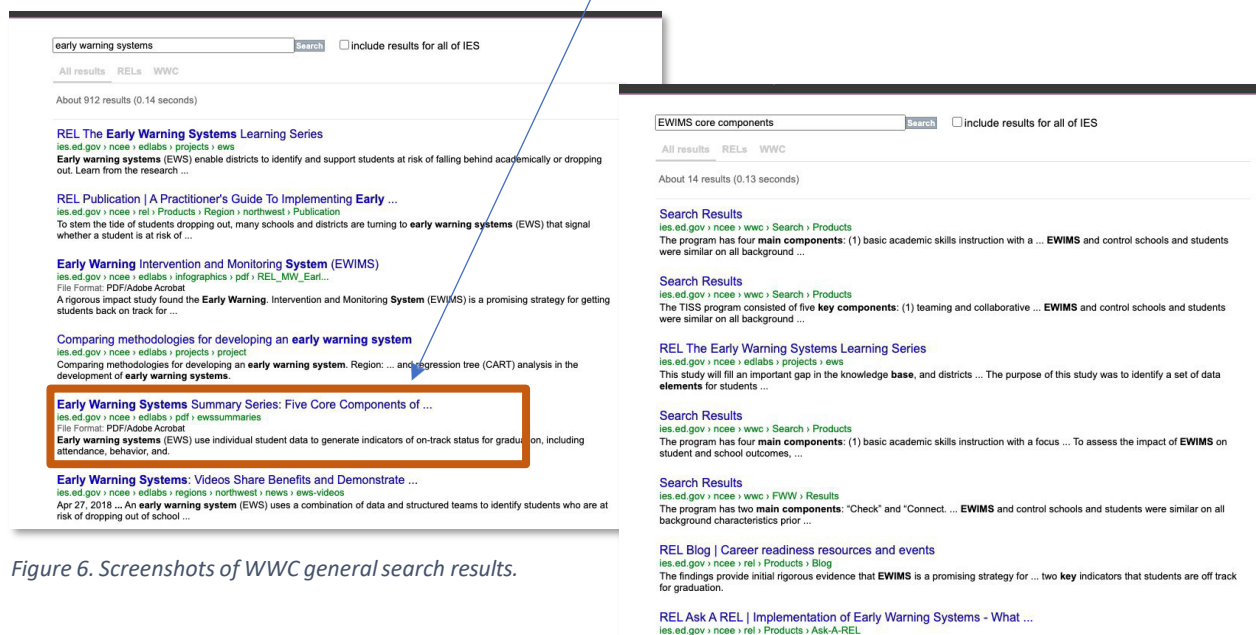


Figure 6. Screenshots of WWC general search results.

Considering Stakeholder Needs and Local Context

To fully consider an EBI's core components and determine its fit, your team must have in-depth understanding of what is required by each EBI under consideration (expected elements of the context, stakeholder traits, time, funding, etc.). You will also need a deep understanding of the elements of your local context and traits of stakeholders involved.

It is quite a bit to consider when comparing two or more EBIs, so it can help to have a tool to guide you through the process. Fortunately, WestEd has an excellent [collection of tools](#) to help teams with EBI selection and implementation. For this part of the process, Tool 6, [Comparing Evidence-Based Interventions](#) (opens in a fillable MS Word document), is especially helpful. This tool has step-by-step instructions that are simply explained and presented, so just download the tool, have all members of your team read through it, and then start following the steps.

Once you have decided on the EBI you want to implement, it can help to use a deep analysis tool to comprehensively assess fit and alignment to context. This is such an important step; we suggest that teams should conduct this deep assessment of fit once a single EBI has been selected and before implementation of it begins.

A helpful tool for the team to use for this process is the [NIRN Hexagon Discussion Analysis Tool](#) (see Figure 8). Notice the level of detail provided in the Hexagon Analysis model—it covers all the bases necessary for a comprehensive assessment of fit and alignment to local context. The NIRN Hexagon tool has guiding questions for each category to help your team assess all the key issues to examine fit to local context.

Summary

Convening a dedicated and diverse team and using a strategy and tools such as those presented in this guide should set you on an effective path to identifying EBI components and assessing the appropriateness of the EBI to your local context and stakeholder needs. Please peruse the resources below for additional guidance.

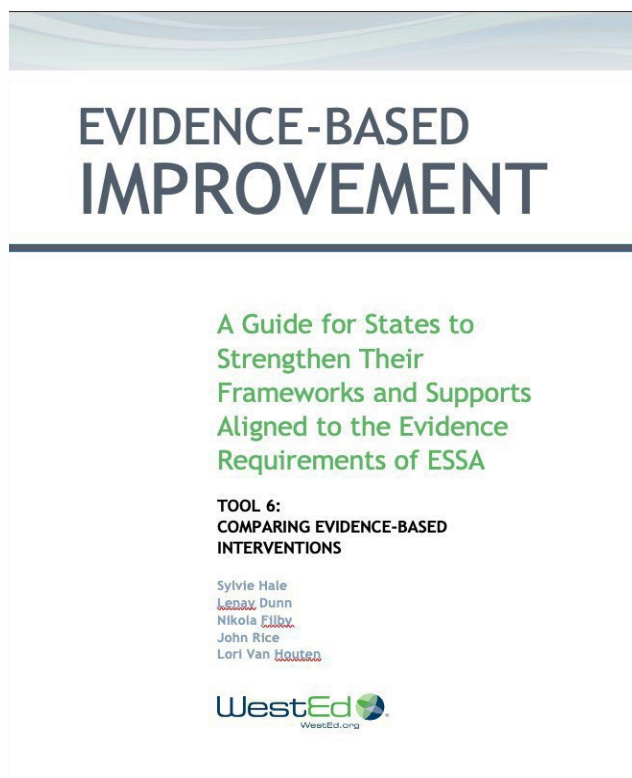


Figure 7. Screenshot of WestEd Tool 6.

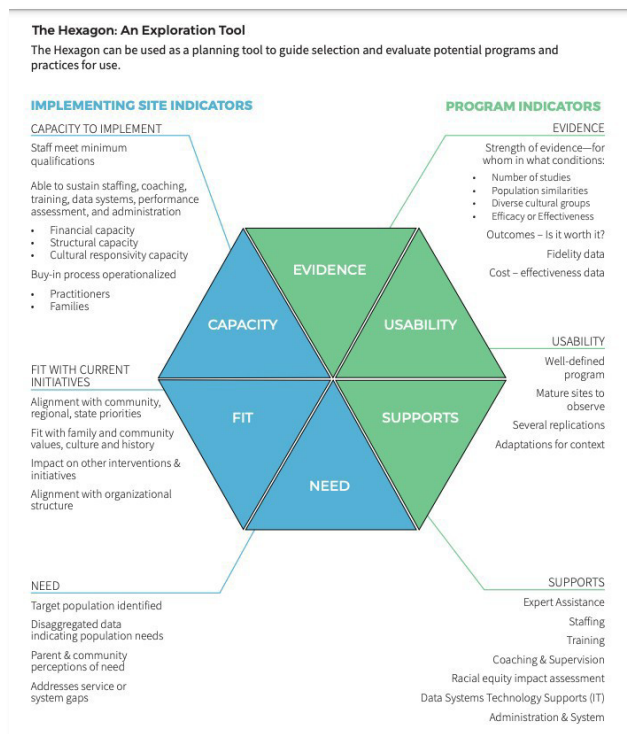


Figure 8. Screenshot of p. 2 of the NIRN Hexagon Discussion Analysis Tool.

Resources

In addition to the link referenced in this guide, feel free to peruse these additional resources that may help you understand more about exploring EBIs and assessing fit to local context.

Frazelle, S. & Nagel, A (2015). *A practitioner's guide to implementing early warning systems*. REL Northwest. Accessible: https://ies.ed.gov/ncee/edlabs/regions/northwest/pdf/REL_2015056.pdf - *Sample resource based on an example EBI referenced in this guide.*

REL Network (2016). *EWS 101: Introduction to the five core components of early warning systems*. REL Network Learning Series on Early Warning Systems. Accessible: <https://ies.ed.gov/ncee/edlabs/pdf/EWSWebinar101.pdf> - *Sample resource based on an example EBI referenced in this guide.*

WestEd (2020). *Spotlight: Evidence and Research Use in Education Policy and Practice*. Accessible: <https://www.wested.org/wested-bulletin/news/evidence-research-education-policy-practice/> - *A WestEd brief that contains a discussion of the role of evidence in education practice and links to additional resources (i.e., a video on implementing ESSA standards, a REL tool with consideration for assessing EBI fit to local contexts, and a link to the full set of WestEd tools for evidence-based improvement.*

Ganimian, A.J., Vegas, E. & Hess, F.M. (2020). *Realizing the promise: How can technology improve learning for all?* Brookings Report. Accessible: <https://www.brookings.edu/articles/realizing-the-promise-how-can-education-technology-improve-learning-for-all/> - *A web-based report created by Brookings for the Center for Universal Education that focuses on the use of technology to help improve learning. Pay particular attention to the pages, "Framework" and "Diagnosis" for tips on how to assess the fit of technology tools and digital interventions for a local context.*

EBITE RESOURCE GUIDE

Assessing Resource Needs for an Evidence-Based Intervention

Purpose

The purpose of this guide is to help educators evaluate whether their school or district has the resources necessary to implement a specific evidence-based intervention. The guide includes a checklist that can be used to consider intervention requirements and available resources. Ideally, the checklist is used in the process of comparing and selecting interventions after the improvement team has used data to identify needs and specify SMART goals. A separate resource guide (*Evaluating Readiness and Capacity for the Cycle of Continuous Improvement*) focuses on determining if a school or district has the capacity to carry out the cycle of continuous improvement. Although there is some overlap in readiness/capacity and resource issues, the former focuses on existing conditions and structures for the *general* continuous improvement process, while the latter pertains to resources needed for a *specific* evidence-based intervention.

How to Use this Guide

Use the guide to get an overview of the different types of resources evidence-based interventions may require. Complete the checklist to see where there are resource gaps in your school or district. When the resource evaluation reveals major shortfalls in resources, improvement teams may need to seek additional resources from relevant sources or choose a different intervention.

The checklist presented below is based on items from page 86 of an educator resource from WestEd, [WestEd Resource and Capacity](#) (Hale et al., 2017) and from pages 15-17 of the [Hexagon Tool](#) (Metz & Louison, 2018). Questions on the checklist can be used by an improvement team to evaluate resource needs for one evidence-based intervention or to compare interventions before selecting one to implement.

Resource Need Checklist

Name of Intervention:

EXPECTED RESOURCE REQUIREMENTS AND COSTS	Cost or Requirement	Yes, we have this resource
Finances		
How much will it cost to purchase intervention materials for your school or district?		
Is there required staff training and how much does it cost? Is the training on-site or off-site? Include travel costs if appropriate.		
How much would additional equipment (e.g., technology, hardware, software) or staff cost?		
What are the ongoing annual costs for the intervention (for example, per student fees, coaching costs, new materials)?		
Staff		
Who will serve on the improvement team? Will the intervention be supervised by a new team or will an existing team take on the new intervention tasks?		
Who will deliver the intervention? Will their current responsibilities be reduced to allow time for the additional tasks? Will they receive another type of compensation?		
Are individuals outside of the school involved in the intervention (e.g., parents, community members)? How will they be recruited and supported?		
Space		
Does the intervention require space outside the classroom? Is there existing space that can be made available?		
Time		
How much time for staff training does the intervention require?		
How much daily and/or weekly time is required for the intervention and its related tasks?		
What current activities or instructional time will be affected by the new intervention? How will adjustments related to time be accommodated?		
Data Collection		
What data will be required before, during, and after the intervention? Are the necessary data available?		
Who will collect data? Who will manage, analyze, and present data?		
Other		
What other resources will be required to fully implement the new intervention?		

Resources

- Metz, A. & Louison, L. (2018) The Hexagon Tool: Exploring Context. Chapel Hill, NC: National Implementation Research Network, Frank Porter Graham Child Development Institute, University of North Carolina at Chapel Hill. Based on Kiser, Zabel, Zachik, & Smith (2007) and Blase, Kiser & Van Dyke (2013). [Hexagon Tool](#)
- Hale, S., Dunn, L., Filby, N, Rice, J., & Van Houten, L. (2017). Evidence-based improvement: A guide for states to strengthen their frameworks and supports aligned to the evidence requirements of ESSA. San Francisco: WestEd. [WestEd Alignment and Capacity Tools](#) (especially pp. 82-86).

EBITE RESOURCE GUIDE

Introduction to Logic Models

Purpose

In this guide, you will learn what Logic Models are and how important they are to designing and implementing school or classroom practices or programs. You will also learn how to design your own Logic Model, guided by examples. Under ESSA, Logic Models are a requirement for Level 4 interventions.

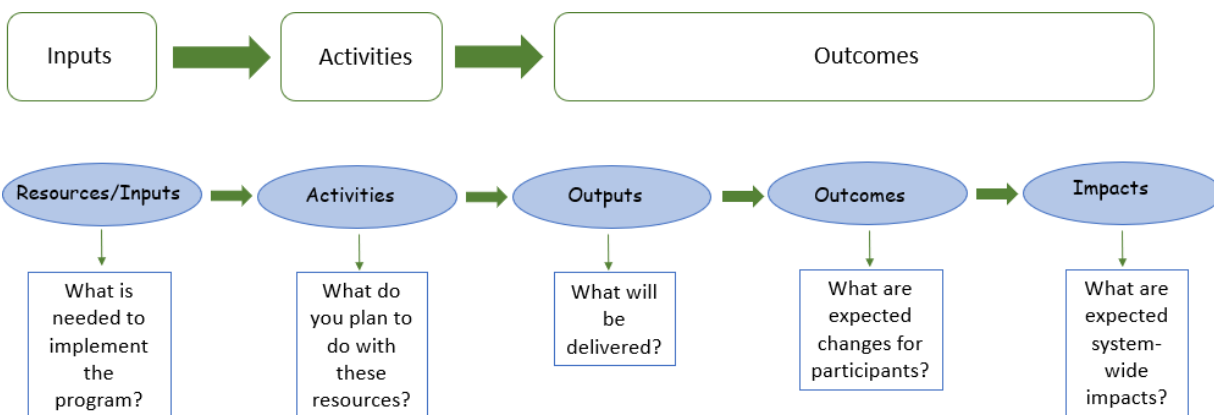
What are Logic Models?

After identifying a gap or problem area to be addressed (e.g., “we want to increase HS graduation rates”) and your understanding of its underlying or “root” cause (e.g., “individual students experience lack of belonging at our school”), a Logic Model is used to outline your approach to addressing the problem. The Logic Model is a visual and systematic way to describe your approach in terms of the relationships between available resources, program activities, and anticipated changes or results. Logic Models show how a program is intended to “work” and how a series of activities is intended to achieve expected outcomes.¹ Developing a Logic Model for a problem statement or a program:

- enables you to think through all necessary resources/activities needed for the selected program
- assists in identifying clear outcomes and impacts of the selected program
- serves as a tool to help guide and measure your progress

When “read” from left to right, a Logic Model describes program basics over time from planning to expected results. The Logic Model corresponds to a chain of reasoning or “*If...then...*” statements which connect the program’s parts.² The figure below shows how the basic Logic Model is constructed.

Basic Logic (top) and Logic Model Components (bottom):



Activities and outcomes of a clearly defined Logic Model should be **SMART**: **S**pecific, **M**easurable, **A**ction-oriented, **R**ealistic and **T**imed. The **SMART** Goal approach assures reachable outcomes and helps with methodical planning to meet long-term goals.

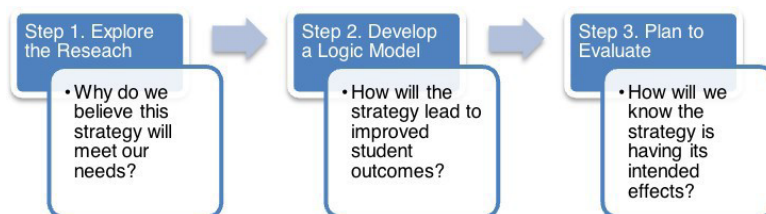
¹ W.K. Kellogg Foundation. (2004). [W.K. Kellogg Foundation logic model development guide](#).

² [W.K. Kellogg Foundation/Mosaica](#)

Why are Logic Models Important?

After identifying the problem, exploring the research for support on underlying causes and potential remediations, and choosing a practice or intervention, developing a Logic Model is the next step an educator should take to help design and implement a program or intervention. The Logic Model provides support for the “evidence” on how a program is expected to work, particularly as a requirement for Level 4 interventions.

The Three Steps to Using Level 4 Evidence-based Strategies³



After exploring existing research, the Logic Model provides a visual and a systematic framework for an educator to map out all important components of a targeted issue and its solution. It is a wonderful tool to guide lesson planning, selection of high-quality instructional materials for teaching, as well as program implementation, monitoring, and evaluation.

How are Logic Models Used?

Program & Evidence Implementation

The Logic Model is the foundation of one’s program and evaluation. It should be continually used to check progress throughout the program. The Logic Model:

- Helps anticipate and discover problems within aspects of the selected program
- Allows necessary corrections and improvements to be made while the program is in operation

The most basic Logic Model is a picture of how you believe your program will work. It:

- Uses words/graphics to describe the sequence of activities likely to bring about change
- Illustrates how activities are linked to the results the program is expected to achieve

Program Evaluation

The process of creating a Logic Model provides a roadmap to developing a robust program evaluation. The outputs, outcomes, and impact sections of the Logic Model provide benchmarks to measure performance and program success.

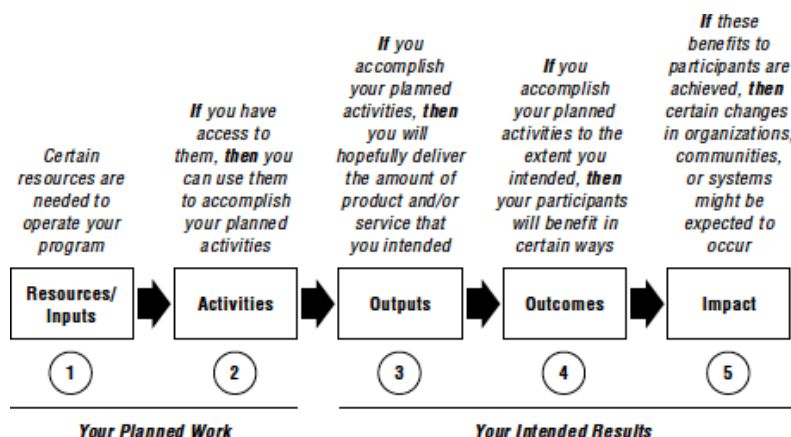
Parts of a Logic Model

While variations in Logic Models exist, the shared goal is to identify the inputs and activities that will lead to desired learning gains, behaviors, and other effects. Based on W.K. Kellogg Foundation’s well-

³ [Empowered by Evidence: Using Level 4 Evidence Strategies, Ohio Department of Education and Workforce](#)

known Logic Model guide⁴, the following graphic illustrates the “if... then...” logic that guides program implementation decisions. We provide an example using the Kellogg template (Appendix A) below.

“If-Then” Logic to Guiding Logic Model Development⁴



Getting Started

Here is an example situation: In your Ohio school district, you discovered that last year approximately 12% of the high school students in your area dropped out of school. How can you increase student engagement and high school graduation rates?

Planning	Examples/Considerations
1. Resources/Inputs: People as well as financial, organizational, and community resources available to address an issue	<i>coordinators, mentors, teachers, data input team, funding supports</i>
2. Activities: actions to be completed using the resources available	<i>Activities could be based on those from a collaborative home-school-community intervention, such as mentor check-ins, designed to increase likelihood of students staying in schools (See other activities in example Logic Models below)</i>
Intended Results	Examples/Considerations
3. Outputs: types, levels, and targets of services resulting from activities; evidence of activities occurring	<i>1386 students at risk of disengagement or dropout served through classroom-wide or individual activities; 8 training sessions for mentors delivered throughout the year</i>
4. Outcomes: immediate specific changes in target group	<i>Outcomes could be short- or long-term. For example, after 3 months, improved mentor-student relationships are expected; after 1 year, student motivation and school engagement will increase</i>
5. Impact: fundamental long-term changes occurring in the classroom, school, or organization resulting from program activities	<i>school drop-out rate decreases to 9% or less within 3-5 years</i>

⁴ W.K. Kellogg Foundation Logic Model Development Guide, 2004

Overall Context	Examples/Considerations
Assumptions: underlying beliefs about how your program will work that impact program success; based on theory, research, evaluation knowledge, etc.	<i>Research shows that student engagement impacts retention and motivation. Engaging students through mentoring will decrease drop-out rates.</i>
External Factors: environmental conditions at school, community, and home that you have little control over but can affect attainment of outcomes	<i>Degree of teacher-family connections. For example, schools with stronger existing teacher-family connections may experience stronger program benefits</i>

Note that assumptions and external factors are important contextual or theoretical factors that help understand how well a program, practice, or intervention may be implemented in your own setting.

⇒ **Your Turn:** Use the Logic Model Development template in [Appendix A](#) (Click [here](#) to download an editable copy) to sketch out your specific need(s). Examples of completed Logic Models can be viewed in [Appendix B](#).

Resources

Guides on Logic Model development

- [Logic Model Development Guide, W.K. Kellogg Foundation \(2004\)](#)
- [Definitions of Logic Model Components, Institute of Education Sciences \(n.d.\)](#)
- [Empowered by Evidence: Using Level 4 Evidence-Based Strategies, Ohio Department of Education and Workforce \(2018\)](#)
- [Developing Logic Models for Teacher Leadership Initiatives, Ohio Department of Education and Workforce \(2019\)](#)

Videos

- [Video Explaining Logic Models, Pennsylvania Coalition Against Rape \(2:48min\)](#)
- [Video Introducing the Education Logic Model, Institute of Education Sciences \(7:01 min\)](#)

Logic Model Examples

- [Literacy Rate Improvement, New York Public Library Logic Model \(2016\)](#)
- [Emozi Social Emotional Learning Program Logic Model, PATHS program \(2021\)](#)
- [Example Logic Model for Schoolwide SEL Intervention, RAND Corporation \(2017\)](#)
- [Curriculum Evaluation Example Logic Model, Learning by Making, Sonoma State University \(2017\)](#)
- [4-H Developing Youth Leaders Logic Model, University of Wisconsin-Madison \(2009\)](#)
- [College Ready Sample Logic Model, REL Northeast & Islands \(2014\)](#)
- [Check & Connect: A Comprehensive Student Engagement Intervention, University of Minnesota \(2014\)](#)

[Appendix A: Kellogg Logic Model Template](#) (Click [here](#) to download an editable copy)

Resources	Activities	Outputs	Short- & Long-Term Outcomes	Impact
<i>Resources needed to achieve our program:</i>	<i>To address our issue, we will use our resources to accomplish the following activities:</i>	<i>In accomplishing our planned activities, we will deliver the following number of services to participants:</i>	<i>If planned activities are accomplished, we expect these immediate and long-term changes:</i>	<i>If benefits to participants are achieved, we expect these changes in our organizations, communities, or systems:</i>

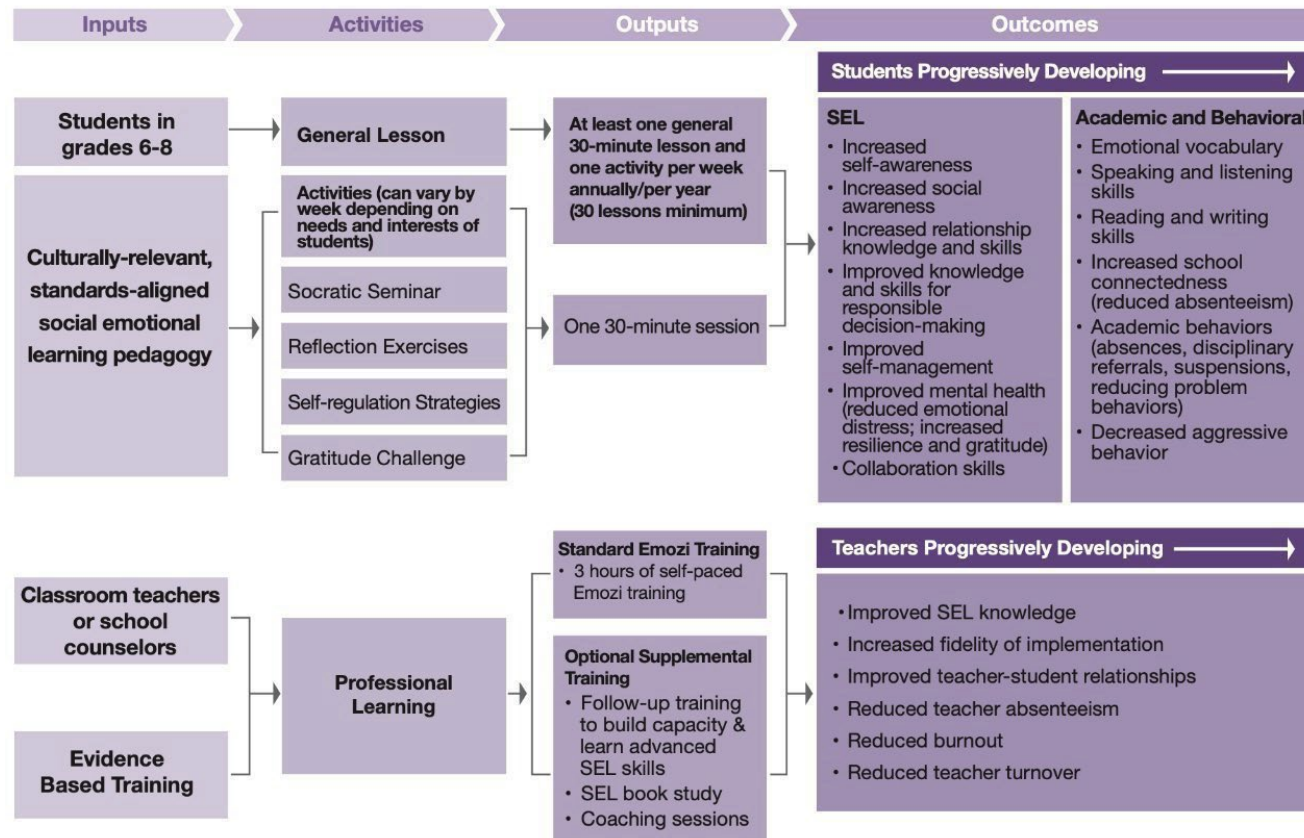
Assumptions:

External Factors:

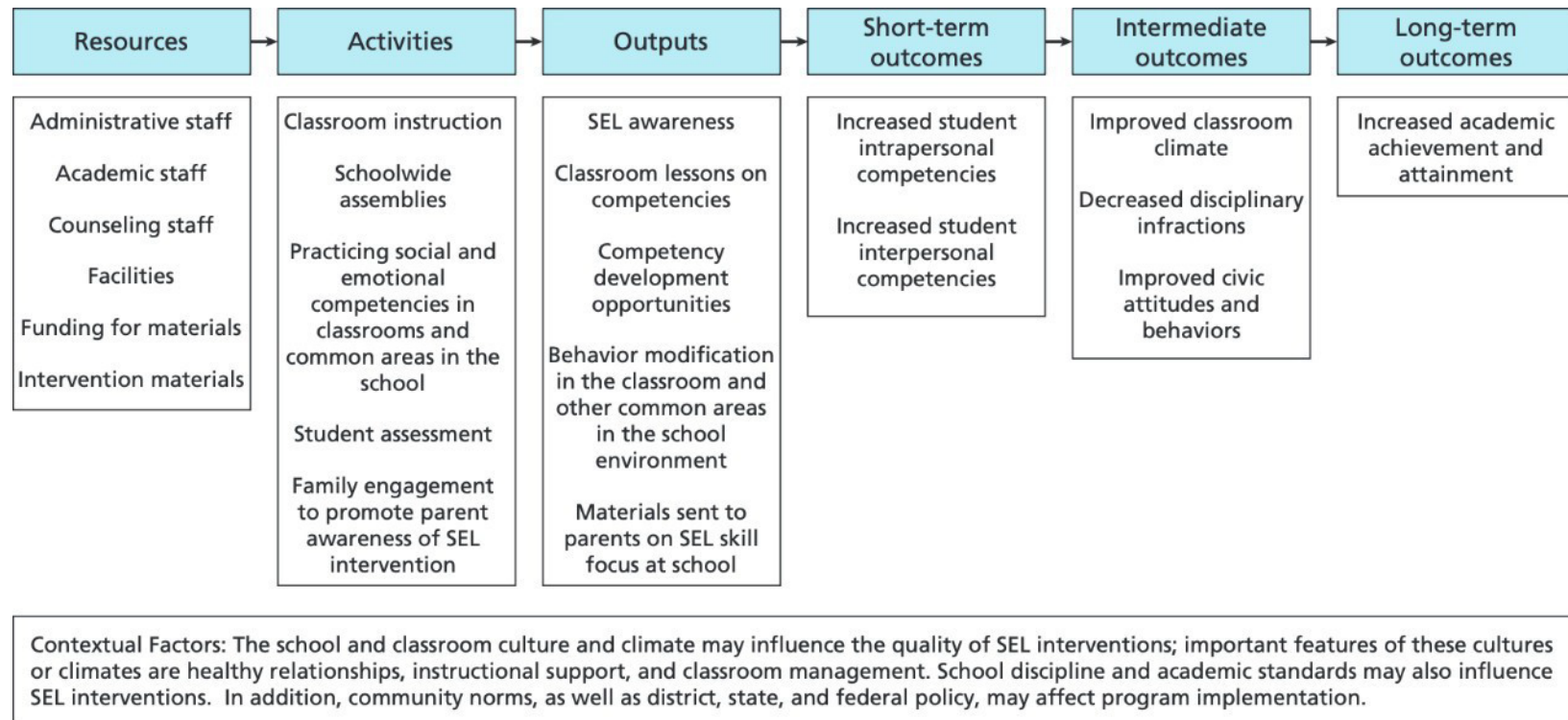
APPENDIX B: Examples of Completed Logic Models

Here are examples of completed logic models. There may be deviations from the W.K. Kellogg Foundation logic model described above. Nonetheless, logic models share foundational elements to show how a program is intended to “work” and how a series of activities is intended to achieve expected outcomes.

1. [Emozi Social Emotional Learning Program Logic Model, PATHS program](#) (2021)



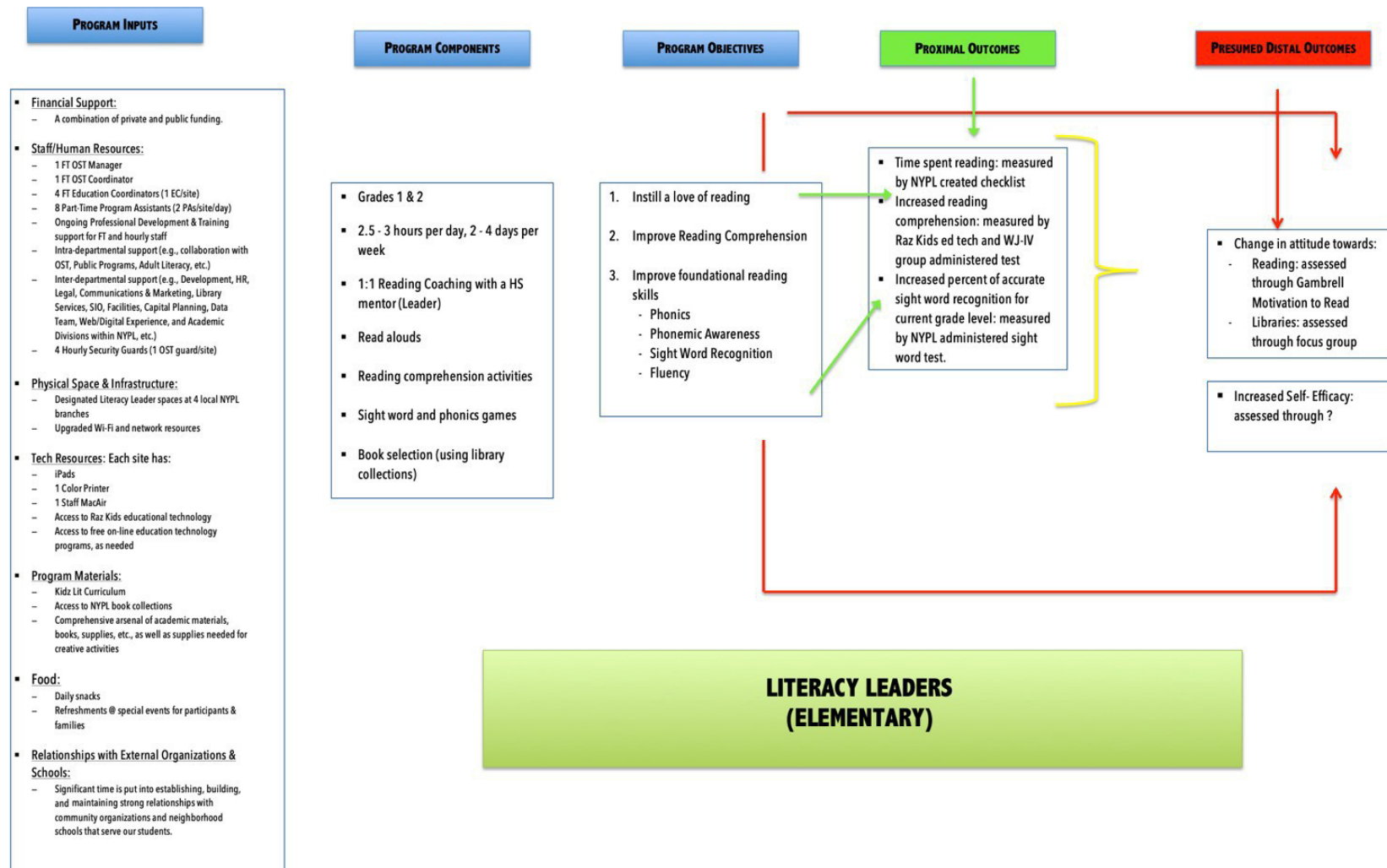
2. [Example Logic Model for Schoolwide SEL Intervention, RAND corporation](#) (2017, p.63)



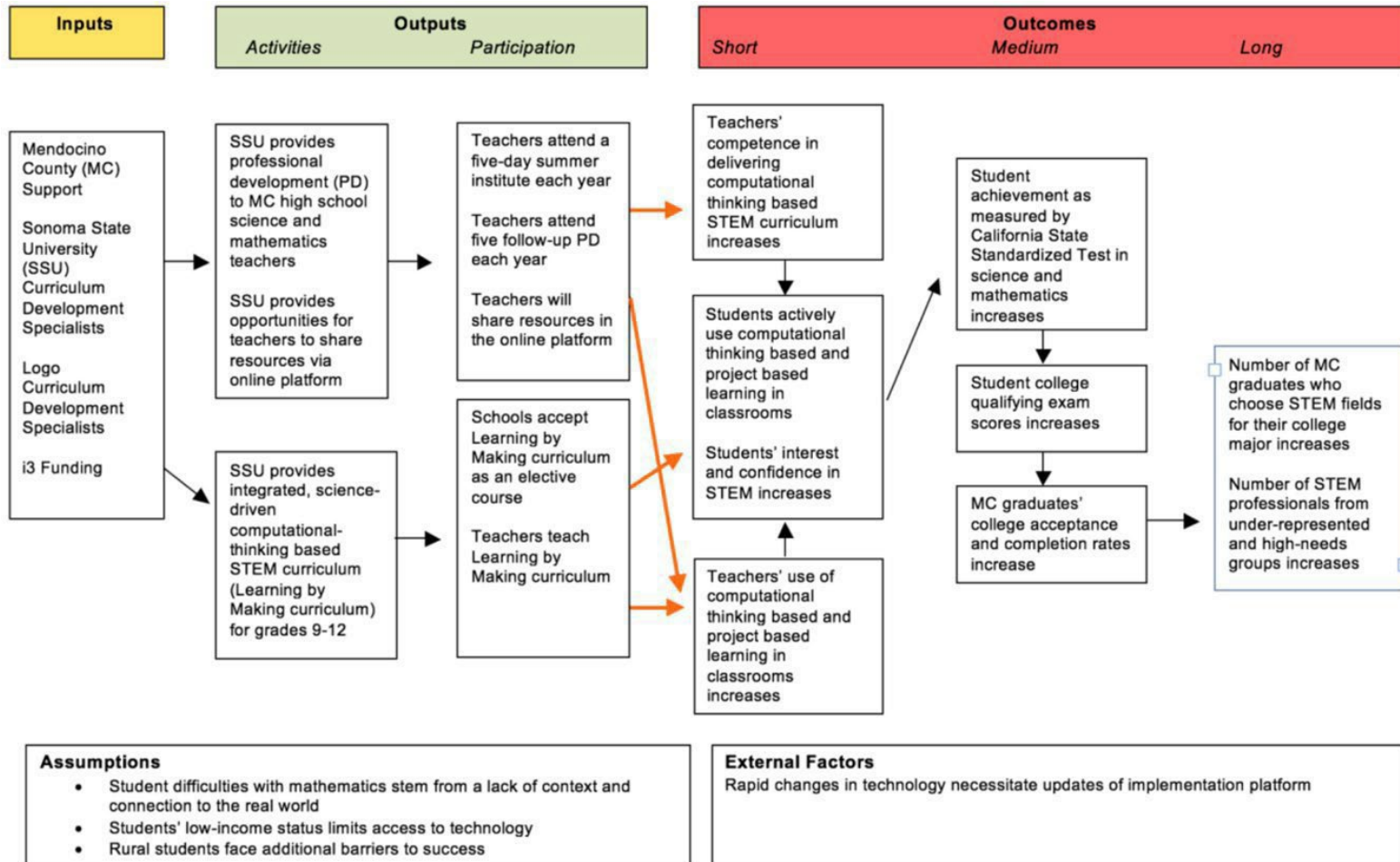
Evidence-based Intervention Training for Education (EBITE)



3. [Literacy Rate Improvement, New York Public Library Logic Model](#) (2016)



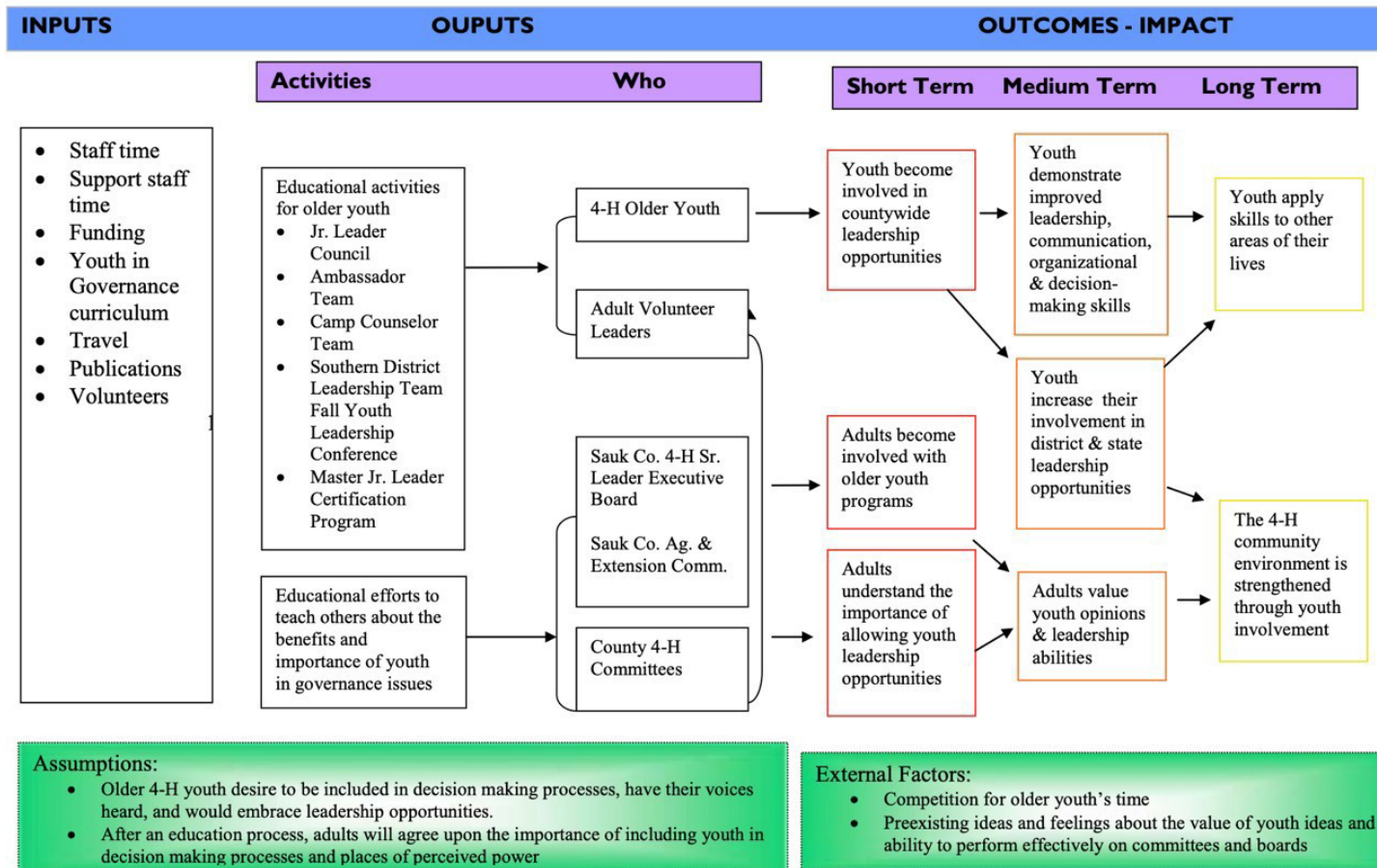
4. Curriculum Evaluation Example Logic Model, Learning by Making, Sonoma State University (2017, p.2)



5. [4-H Developing Youth Leaders Logic Model, University of Wisconsin-Madison](#) (2009)

Developing Youth Leaders: LOGIC MODEL

Situation: Older youth lack opportunities to learn and practice leadership skills that build strong citizens of the future. Research shows the importance of educating adults and building their commitment to help create the opportunities for youth to develop their leadership skills.



6. [College Ready Sample Logic Model, REL Northeast & Islands](#) (2014, p.29)

Appendix B: College Ready Sample Logic Model

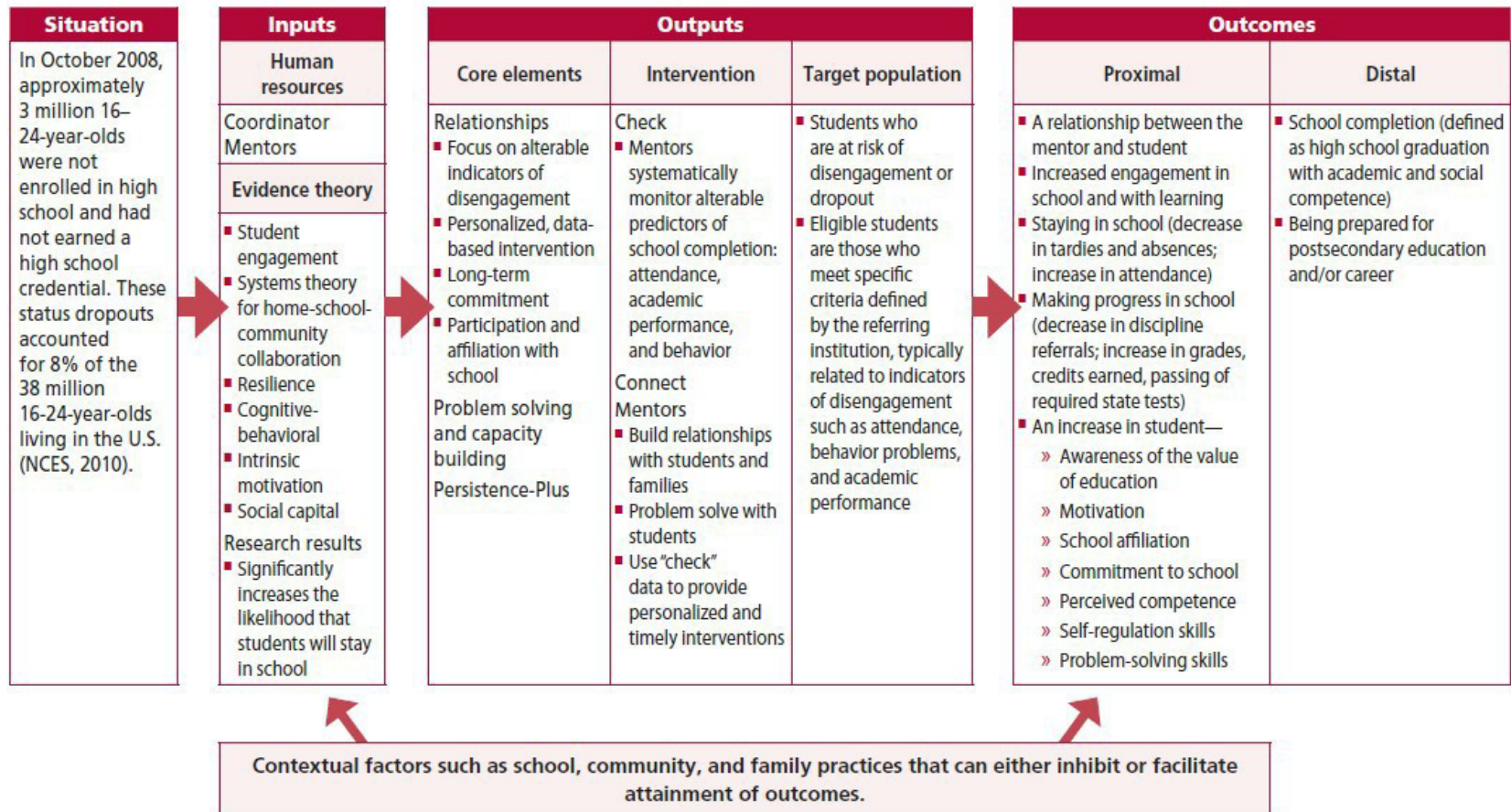
Problem Statement: Low-income high students in selected communities attend college at a lower rate than their middle class peers, leading to more limited opportunities, higher rates of unemployment, and lower earnings.

Resources	Strategies and Activities	Outputs	Short-term Outcome	Long-term Outcomes	Impacts
<i>What resources are or could reasonably be available?</i>	<i>What will the activities, events, etc. be?</i>	<i>What are the initial products of these activities?</i>	<i>What changes are expected in short-term?</i>	<i>What changes wanted after initial outcomes?</i>	<i>What are hoped for changes over long haul?</i>
<ul style="list-style-type: none"> -Partnership with 3 public high schools -Community mentors -Local university space for parent meetings -Volunteer college admissions directors for application workshop -Student volunteers for childcare at parent meetings 	<ul style="list-style-type: none"> -Local college mentorship program -Peer mentors -Student readiness program (workshops) -Parent education (workshops) 	<ul style="list-style-type: none"> -Recruit adequate # of mentors for student cohort -Develop and deliver 12 workshops on college application process; SAT/ACT; FAFSA; college life -Develop and deliver 6 workshops for parents -High interest and attendance at all workshops for parents and students. 	<ul style="list-style-type: none"> -Participating students apply to at least one college on time -Parents report increased understanding of the college application process -Students report increased readiness for college -Participating students complete FAFSA forms on time 	<ul style="list-style-type: none"> -Participating students are accepted to and attend college, remaining enrolled into the 3rd semester of college -Participating students GPAs above 3.0 at college, into the 3rd semester -Increased parental engagement in participating high schools' students education 	<ul style="list-style-type: none"> -Low-income students in participating communities attend college at same rate as middle class peers -Low-income students in participating communities graduate from college at some rate as middle class peers -Participating high schools see increase in parent and student engagement -Participating high schools state test scores increase by x%

Assumptions: College attendance is desired goal for participating communities; high school leaders will remain consistent and support program; parents will show interest and participate in program.

7. [Check & Connect Logic Model: Promoting Student Engagement at School, University of Minnesota](#) (2014, p.9)

Check & Connect logic model



EBITE RESOURCE GUIDE

Developing an Action Plan

Purpose

This guide will help you develop and maintain Action Plans that are essential to the accomplishment of your SMART goals. Action Plans keep you on track with selection, planning, and implementation of the intervention and progress toward your desired outcomes.

How to Use this Guide

The guide includes an example action planning template and links to resources on developing and implementing Action Plans.

What is an Action Plan?

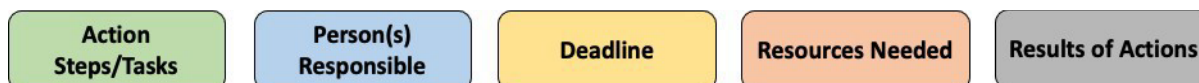
Action Plans break implementation of an intervention into specific, actionable components that can be monitored through completion. It clearly delineates specific activities, responsibility and timelines. Successful implementation of evidence-based interventions at all levels of evidence requires action planning. Action planning is particularly important for level 4 interventions that do not have specific implementation tools available.

Components of Action Plans

There are many types of templates for developing Action Plans, and most include similar components. There is no “best one.” Find one that best fits your team’s needs or modify one to make it fit better. All action plans for implementing an intervention should include:

- ✓ Discrete tasks required to implement the intervention
- ✓ Clearly outlined roles and responsibilities for all people involved in implementing the intervention
- ✓ Timelines for task completion
- ✓ Identification of resources required
- ✓ Results/check-ins that facilitate continuous improvement¹

ACTION PLAN ELEMENTS



¹ U.S. Department of Education (2016) [Non-Regulatory Guidance: Using Evidence to Strengthen Education Investments](#).

Additional Resources

Hale, S., Dunn, L., Filby, N., Rice J., & Van Houten, L. (2017). [*Evidence-based improvement: A guide for states to strengthen their frameworks and supports aligned to the evidence requirements of ESSA*](#). San Francisco: WestEd

This source provides tools and processes that can be modified to fit your action planning needs. District/school-level tools start on page 31.

National Implementation Research Network (2020). [*Implementation Stages Planning Tool*](#). Chapel Hill, NC: National Implementation Research Network, FPG Child Development Institute, University of North Carolina at Chapel Hill.

This toolkit provides checklists to monitor all stages of implementing an intervention.

WestEd. [*Constructing an Effective Action Plan*](#).

This source provides information on how to construct an effective action plan and gives examples of several templates that can be used or modified by your team.



EXAMPLE ACTION PLAN TEMPLATE (click [here](#) for downloadable template)

Smart Goal: Because of low scores on the SSP 2020 school safety measure and student reports of being bullied in certain parts of the middle school building, our goal is to reduce the incidents of bullying behavior in the middle school.					
Selected Intervention(s): <i>Mapping and Monitoring Bullying and Violence: Building a Safe School Climate (Level 4)</i>					
Team Members: Building Leadership Team					
Action Step/Task (What Needs to Be Done)	Person(s) Responsible	Deadline (Est. Date of Completion)	Resources Need (People, Materials, Equipment, Etc.)	Potential Barriers / Challenges	Updates/Results of Actions Successes, Completion, New Actions That Need to be Taken
Develop logic model for implementing the components of the intervention					
Train all relevant staff to implement the intervention components					
Develop fidelity monitoring processes to ensure the intervention is being implemented according to the logic model					

EBITE RESOURCE GUIDE

IMPLEMENTATION WITH FIDELITY

Purpose

This guide will help you understand what implementation fidelity is and how to monitor it. Included are step-by-step questions that can be used by school or district teams to guide you as you develop fidelity monitoring processes and tools. Several examples are linked, and you can use these as models if you need to develop your own fidelity monitoring processes.

What is Implementation Fidelity and Why do we need it?

The degree to which an intervention is carried out as intended is known as implementation fidelity. Implementation fidelity is important for interventions within any ESSA evidence level. We choose evidence-based interventions because there is *evidence* that the program has positive effects. If the core components of any evidence-based program are not delivered as they were designed and tested, we cannot expect to get similar positive effects. We often start implementing an intervention with high fidelity, but without monitoring and regular feedback, fidelity can drift over time. Ongoing monitoring of all core components is essential to successful implementation of evidence-based interventions.

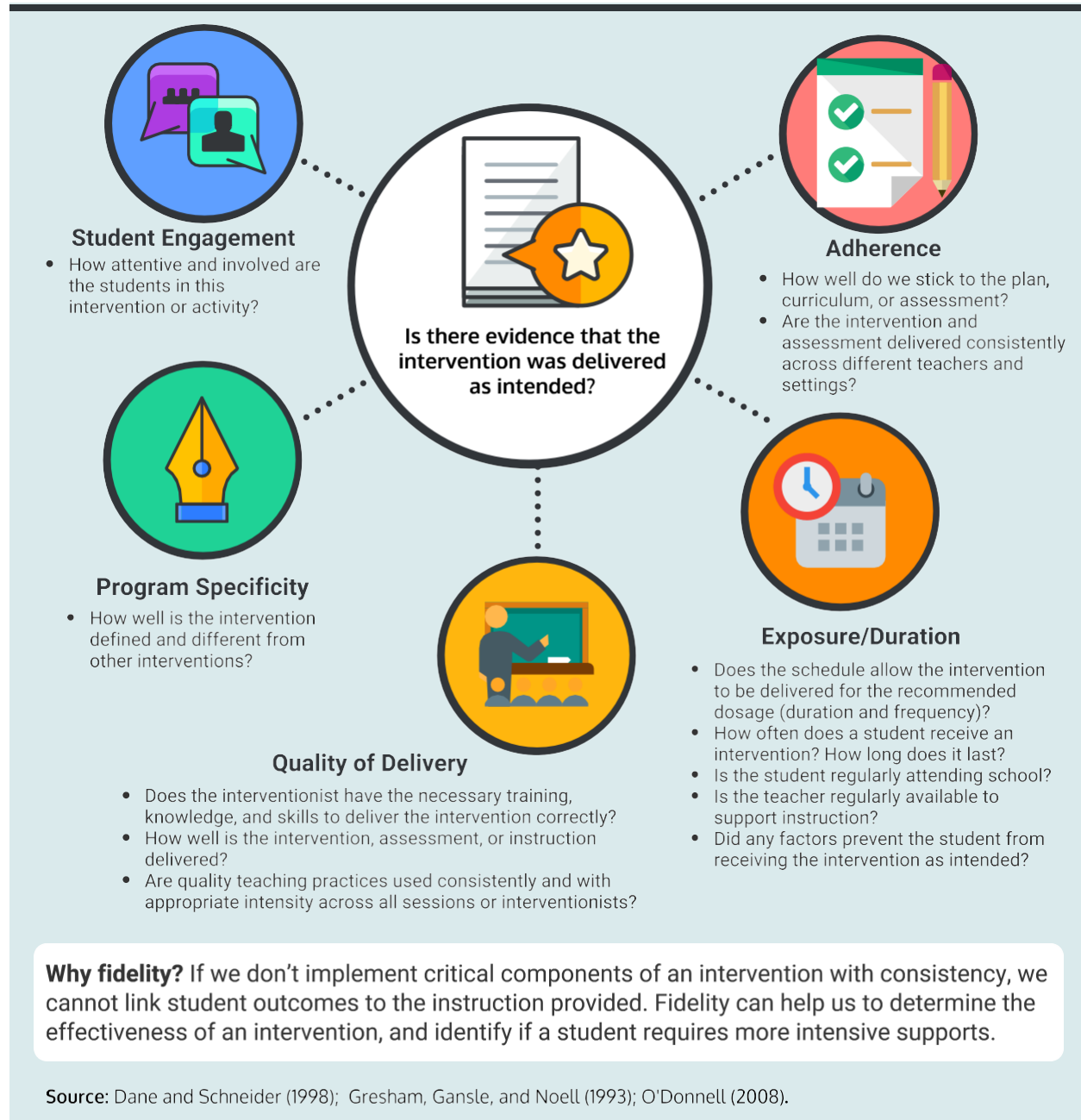
Many evidence-based interventions come complete with fidelity monitoring guidelines and tools, while others do not. If you choose an intervention that does not include fidelity monitoring guidelines and tools, it is essential that you develop them. Identifying the elements of the intervention that need to be monitored for fidelity and developing ways to monitor those components is a great activity for grade-level, subject-level, or intervention teams.

Elements of Implementation Fidelity

Components or elements of implementation fidelity include: *Adherence, Exposure/Duration, Quality of delivery, Student Engagement, and Program Specificity*. [The National Center on Intensive Intervention developed this research-based model describing fidelity components](#). Identifying ways to monitor each of these dimensions is important when planning to implement any intervention.

Considerations for Effective Implementation

5 Elements of Fidelity



Element	Description	Examples
1. Adherence	Extent to which key intervention components are present and delivered. May be measured through checklists, observations, review of intervention records.	Using a yes/no checklist to confirm if all personnel, materials, and steps to carry out the Check-In/Check-Out ¹ behavioral intervention are present.
2. Exposure	Amount of intervention is delivered as intended. This can include frequency and duration of sessions.	Keeping a recording log to track if the Early Learning in Mathematics ² program's 15-minute calendar activities are being implemented daily and for the intended duration.
3. Quality of delivery	How well a provider delivers the intervention as suggested by guidelines and instructions. Can include interventionist's preparedness, use of modeling, enthusiasm, interaction style, ability to communicate with participants.	Using a direct observation rating scale or checklist to determine if a teacher is providing clear instructions and modeling of Peer-Assisted Literary Strategies. ³
4. Student Engagement	How students/participants react to or engage in an intervention (e.g., perception of intervention relevance, engagement level, willingness to participate)	Asking students to complete a brief exit slip to determine engagement; classroom or one-on-one observation of student responsiveness.
5. Program Specificity	How well is the intervention defined, and how clearly it can be differentiated from other interventions.	Using a direct observation rating scale or checklist to determine if a teacher is providing clear instructions and modeling of Peer-Assisted Literary Strategies. ⁴

¹ Campbell & Anderson (2011). [Behavior Education Program \(BEP\) or Check-in/Check-out \(CICIO\)](#).

² Ohio's Evidence-Based Clearinghouse (n.d.). [Early Learning in Mathematics](#).

³ Ohio's Evidence-Based Clearinghouse (n.d.). [Peer-Assisted Learning Strategies \(PALS\)](#).

⁴ Ohio's Evidence-Based Clearinghouse (n.d.). [Peer-Assisted Learning Strategies \(PALS\)](#).

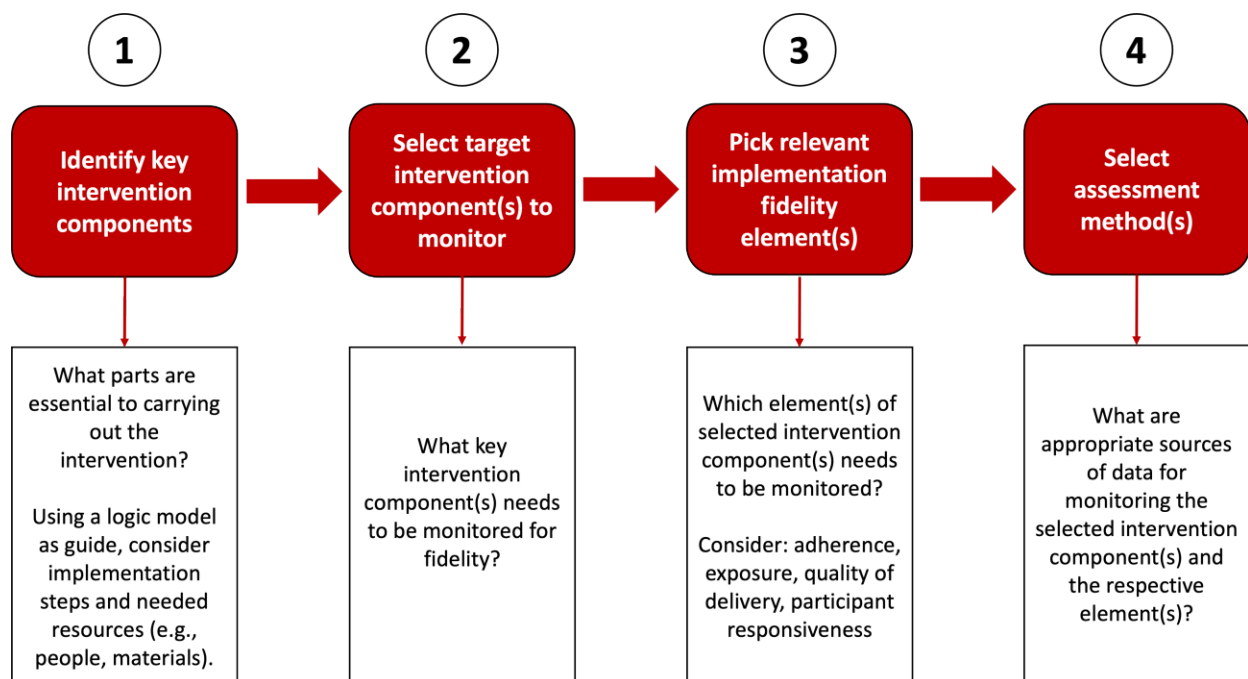
Common Risks to Fidelity

Some common reasons⁵ for lack of fidelity when implementing evidence-based interventions include:

- Eliminating components of the intervention or shortening the implementation time because of time constraints or underestimation of how long it will take.
- Implementing the components that are easier or more appealing and eliminating those that are not.
- Implementing an evidence-based intervention incorrectly or poorly because of ambiguous or unclear instructions or guidelines.
- Attempting to implement an intervention without adequate training or support.

Planning for Implementation Fidelity

How to monitor and evaluate implementation fidelity should be planned as part of the implementation planning process for an evidence-based intervention.⁶ Use the outlined steps and guiding questions in the figure below to create your own fidelity monitoring process for your evidence-based intervention:



Implementation fidelity is essential to guiding accurate decision-making throughout several stages of the Ohio Department of Education and Workforce's (DEW) [Continuous Improvement Process](#). This five-part process guides schools and districts in grounding decisions in a cycle of sustained efforts for improving student

⁵ The IRIS Center. (2014). [Evidence-based practices \(part 2\): Implementing a practice or program with fidelity](#).

⁶ Collier-Meek, M., (2021). [Brief: Fidelity Monitoring & Review. Sustain Collaborative](#).

achievement. Specifically, integrating implementation fidelity into steps 3 ([Plan for Implementation](#)), 4 ([Implement and Monitor](#)), and 5 ([Examine, reflect, and adjust](#)) can enhance an intervention's efficacy.

Additional resources and examples of implementation fidelity tools that can be used or modified for other interventions

The Iris Center at Vanderbilt University has developed a comprehensive [module on Fidelity of Implementation](#) for evidence-based practices in K-12 education, complete with step-by-step guidelines, numerous short videos (including classroom examples of fidelity monitoring), examples of fidelity monitoring instruments, etc.

The National Center on Intensive Intervention provides [sample fidelity monitoring tools](#) to support implementation of Data-Based Individualization.

The [School-Wide Positive Behavior Interventions and Supports \(SWPBIS\) Tiered Fidelity Inventory \(TFI\)](#) (Algozzine et al., 2019) measures the extent to which school personnel are applying core features of SWPBIS.

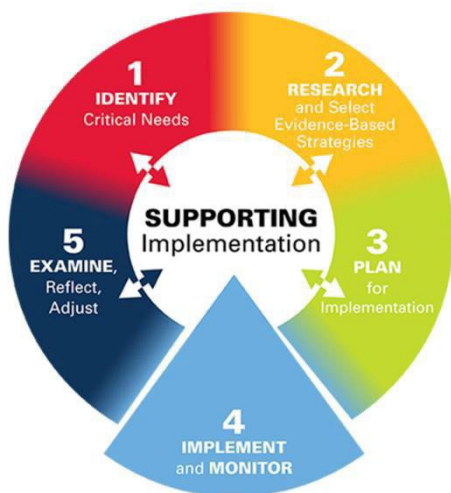
[Example of grades 2-6 Reading PALS Implementation Checklist](#)

EBITE RESOURCE GUIDE

Progress Monitoring

Purpose

This guide provides an overview and resources to help build an ongoing, effective progress monitoring system for evidence-based interventions. Monitoring and adjustment are necessary components of the [Continuous Improvement Process](#). If an intervention is not being implemented effectively and/or is not resulting in the desired student outcomes, some action is needed. Data on adult behaviors and student outcomes is essential for identifying the needed action.



Monitoring the Implementation of an Evidence-Based Intervention

Monitoring is collaborative learning through observing implementation of adult practices and their impact on student outcomes.¹

Adult practices - Are educators implementing the intervention as intended and as effectively as required? Implementation fidelity is critical to the success of an intervention because you can only harvest what you sow! If monitoring indicates that one or more adults is not implementing the intervention fully, correctly, or effectively, supports such as coaching, mentoring, professional development or additional resources can and should be deployed to sharpen fidelity. It is important to remember that the delivery of an intervention can be a burden for educators who are already facing many demands on their workload. Additional supports, therefore, might include reducing other demands, freeing up time for implementation, or securing assistance from other adults in the school.

Student outcomes - Are students mastering the content, skills, and/or behavior change(s) that are targeted in the intervention? Both formative and summative assessment of student learning/behavior are critical for successful implementation of an intervention. If student progress is not evident or adequate, implementation modifications or enhancements, or additional supports for the adults implementing the intervention may be needed.

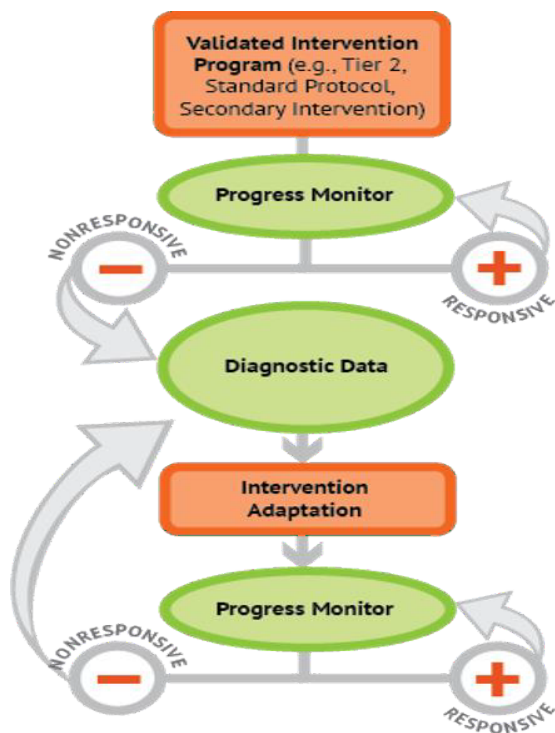
¹ [Ohio Department of Education and Workforce](#)

Monitoring adult practices

It is essential to monitor adult practices in implementing any intervention. Proper implementation is often referred to as implementation fidelity. Components or elements of implementation fidelity include: *Adherence, Exposure/Duration, Quality of delivery, Student Engagement, and Program Specificity*. The National Center on Intensive Intervention has an [excellent graphic describing key fidelity components](#). Identifying ways to monitor each of the five dimensions is important when planning to implement any intervention. Most evidence-based interventions include tools for progress monitoring which can be readily adapted to your needs. Other resources can be explored here.

Monitoring Student Outcomes

Progress monitoring of student outcomes includes identifying appropriate measures to assess changes in the knowledge, skills, and behaviors targeted in intervention, and then using the measures to collect data frequently enough to make them actionable for continuous improvement. Analysis of the data can guide decisions about whether and how to modify or enhance the intervention. Results might indicate, for example, that students are making appropriate progress and no changes are needed. Conversely, data may indicate that progress toward desired outcomes is not adequate, necessitating an examination of the content and/or fidelity of implementation and development of corresponding adjustments.



Important questions to consider when selecting a student progress monitoring tool:

Is the monitoring tool age appropriate?

Is it aligned with the desired outcomes of the intervention (academic, social-emotional, behavioral...)?

What are the cost requirements for the tool?

How difficult is it to administer and analyze the data?

Is the measure sensitive enough to detect change in student performance?

[IRIS Center, Vanderbilt University](#)

Evidence-based Intervention Training for Education (EBITE)



Resources for monitoring student academic and non-academic outcomes during interventions

Many evidence-based intervention packages include measures for assessing student progress related to outcomes targeted in the intervention. Schools may choose to use different or additional tools. For interventions that do not include progress monitoring instructions or tools, educators can find many options at the online sites below.

The AIR Center on Multi-Tiered Systems of Supports provides [resources on academic and behavioral progress monitoring, including tools, help with selecting data systems, and analyzing progress monitoring data.](#)

The IRIS Center at Vanderbilt University has an entire [module on using data to monitor progress and make instructional decisions.](#)

The National Center on Intensive Interventions provides numerous [tools for academic and behavioral progress monitoring and rapid cycle assessment.](#) The Academic Progress Monitoring Tools Chart and the Behavior Progress Monitoring Tools Chart allows for filtering by categories such as grade, subject, and target behavior, and provides ratings on the quality of the monitoring tools listed.

[Early Childhood Math: Use Progress Monitoring to Build on What Children Know.](#) REL Central developed this YouTube video to guide the development of progress monitoring in elementary mathematics.

The Community and Youth Collaborative Institute (CAYCI) offers a variety of brief, feasible surveys on non-academic outcomes related to student success at school. The collection includes surveys for elementary and secondary students, teachers and staff, and parent/caregivers. At the [CAYCI survey website](#), educators can find descriptions of surveys for these four types of respondents related to academic and learning supports (e.g., support for learning), family engagement (e.g., school support for parent/caregiver engagement; family support for learning), school climate and non-academic conditions (e.g., school connectedness, peer relationships, social skills, student psychological well-being), and involvement in activities. Costs vary depending on the number of assessments.

At the [School Success Profile website](#) educators can search for brief, feasible measures related to racial justice perceptions of students and teachers, teacher bias awareness, and perceptions of disciplinary fairness at the school by searching for “race” in the Search Measure box. Descriptions and ready-to-use brief scales can be downloaded.

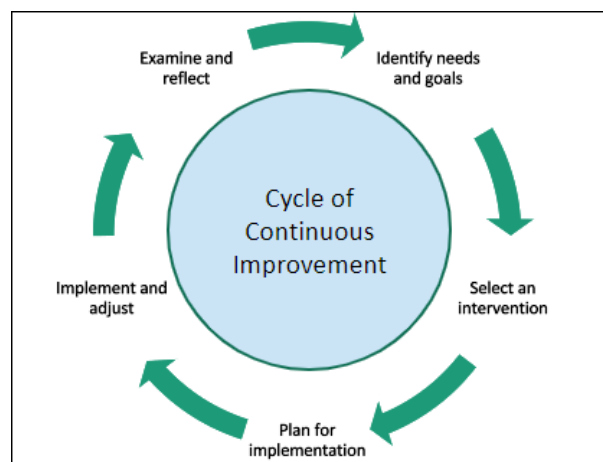
Examine & Reflect: Outcomes and Data

Purpose

This guide focuses on the various ways educators can evaluate outcomes and use data to understand the impact of interventions. Specifically, various parts of the evaluation process will be discussed, from evaluation design to data-based decision-making based on intervention and program results. Resources for several evaluation toolkits are provided.

Examine and Reflect

The *Examine and Reflect* stage is a fundamental component of the cycle of continuous improvement process. Recall from Resource Guide #1 that the cycle of continuous improvement is a systematized approach to intervention that supports educators in making data-driven decisions through learning from their experiences and continuously evaluating their methods to meet student needs. *Examine and Reflect* usually involves a process of data collection, analysis, and thoughtful reflection to inform subsequent intervention decisions.



Key Elements to Consider

Below are some key elements to consider when evaluating outcomes of programs and interventions.

- **Evaluation Design:** When planning for evaluation, use the *logic model* established earlier in the intervention process and the agreed upon *SMART goals* as a guide to develop the actual evaluation plan. These two intervention planning tools – the logic model and SMART goals -- help you keep in mind your initial intervention activities and desired outcomes as you develop questions to be answered during the evaluation process (e.g., did the activities specified in the logic model take place? Did the intervention promote the targeted X% increase in student engagement during circle time). Also consider other parts of the evaluation process when formulating a plan, such as who will conduct each part of the evaluation and when? How will the necessary data be collected?
- **Data Collection:** Data collected to answer evaluation questions at the end of the first cycle of continuous improvement can be either quantitative or qualitative. *Qualitative* data may include information gathered from individual or group interviews, open-ended questionnaires, administrative data such as office referral narratives, and other means. Examples of *quantitative* data sources are brief closed-ended questionnaires for students or teachers about one or more SMART Goal outcomes, questions about the acceptability and feasibility of the intervention, longer questionnaires that were used at the beginning of the cycle of improvement to identify goals, and classroom, school or state-level test and/or achievement/assessment or administrative data on academics or behavior.

The outcomes on which you seek data should be closely tied to the outcomes your selected intervention was designed to target; and, if desired, aspects of the intervention implementation itself. Data may be collected, organized, and merged, if appropriate, through a combination of Google Docs, Google Forms, Google Sheets, or Microsoft Excel, or through

systems supported at your school.

- **Data Analyses:** Your pre-specified SMART Goals included specific change goals. Evaluate your outcome data in relation to those goals. What amount of change did you seek on a particular outcome (and in what timeframe)? Do the data reflect that amount of change? For example, did the number of office referrals decrease by as much as you hoped? Did more students reach proficiency in Math? Did scores on school engagement increase by your prespecified percentage? Did reading scores of English language learners increase to the desired level? Even if you missed your change targets, is the amount of change meaningful? Do the observed change measures suggest the intervention was effective and should be continued? If little or no change occurred, consider potential barriers to the intervention's success. Did teachers report the intervention was not feasible? Did administrative support decline over the course of the intervention? Did the intervention prove to be a poor fit for your students and context? Did students refuse to engage in the intervention?
- **Sharing Results and Data-based Decision Making:** As your improvement team examines and reflects on the results of its evaluation, results should be shared with stakeholders—for example, teachers, school leaders, and community members (e.g., parents/caregivers). Students may also be included in the examination of results. Decisions about dropping, continuing, or modifying the intervention should be made with these stakeholders. If target goals were met, the discussion of how to move forward into the next cycle of improvement will include the formulation of new goals. If target goals were missed, barriers to success that were identified will need to be addressed, if possible. Upon your examination and reflection on data from the completed intervention, it is possible that new interventions may need to be chosen for the next cycle of continuous improvement.

Resources

Ohio's Improvement Process: Step 5: Examine, Reflect, Adjust

- [Examine, Reflect, Adjust - Ohio Improvement Process: Department of Education and Workforce \(2023\)](#)
- The Ohio Department of Education and Workforce's website provides guidance for step 5 of the cycle of continuous improvement, and recommendations for implementation adjustments and planning

Program Evaluation Toolkit: Quick Start Guide - IES Regional Educational Laboratory (REL) – Central

- [Program Evaluation Toolkit: Quick Start Guide IES \(2021\)](#)
- The Quick Start Guide outlines IES' eight modules designed to help users understand how to assess implementation and outcomes of local, state, and federal programs. Instructions on how to access the modules, as well as module overviews, are provided. Module topics include Logic models, Evaluation questions, Evaluation design, Evaluation samples, Data quality, Data collection, Data analysis, and Dissemination approaches.

The 2010 User-Friendly Handbook for Project Evaluation – National Science Foundation (NSF)

- [https://www.purdue.edu/research/oevprp/docs/pdf/2010NSFuser-User Friendly Handbook for Project Evaluation: NSF \(2010\)](https://www.purdue.edu/research/oevprp/docs/pdf/2010NSFuser-User%20Friendly%20Handbook%20for%20Project%20Evaluation%20-%20NSF%20(2010).pdf)
- In-depth guide on evaluating programs of different contexts (e.g., classrooms, higher

Evidence-based Intervention Training for Education (EBITE)



education, scientific research). Topics range from getting started on the evaluation process (i.e., creating a design), to selecting data collection methods, to considering multisite evaluation challenges. Guidelines for conducting evaluations through culturally responsive frameworks is also discussed.

Evaluation Toolkit – United States Agency International Development (USAID)

- [Learning Lab Evaluation Toolkit: USAID \(2016\)](#)
- USAID provides various toolkits that provide guidance on evaluating the effectiveness of a program. Topics include Impact Evaluations, designing and managing plans for progress monitoring, data collection, and evaluation, and considering stakeholder roles in the evaluation process

EBITE RESOURCE GUIDE

Examine & Reflect: The Continuous Cycle Loop.

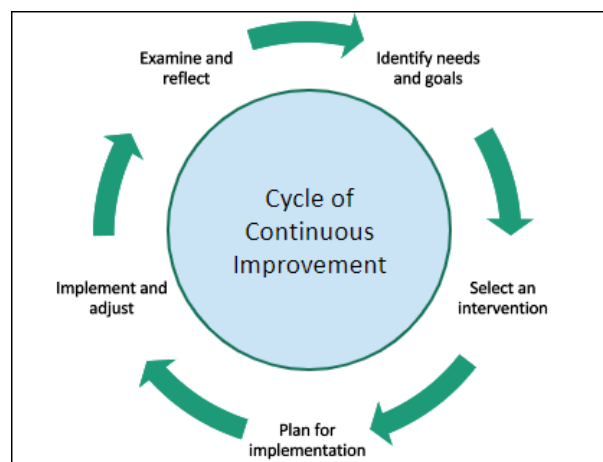
Purpose

This guide focuses on the various ways educators can examine and reflect on the processes they followed in the cycle of continuous improvement. It will outline some key elements to consider in the fifth step of the cycle which has an overarching goal of assessing progress, learning from past experiences, and making informed decisions about possible adaptations or modifications, as well as guide future programs and interventions.

Things to consider in Step 5: Examine and Reflect

The examination and reflecting stage is a fundamental aspect of the cycle of continuous improvement process. Recall from Resource Guide #1 that the cycle of continuous improvement is a systematized approach that supports educators in making data-driven decisions, learning from their experiences and continuously evaluating their methods to assure they are adequately meeting student needs. This is the phase where educators are able to re-assess their teaching practices, strategies, and student outcomes to enhance the learning experience and foster academic growth.

Examining and Reflecting usually involves a systematic process of data collection, analysis, and thoughtful reflection to inform instructional decisions.



Key Elements to Consider

Below are some key elements teams can reflect on after data collection, analysis, and evaluation.

- **Identify Successes and Challenges:** Recognizing achievements and challenges is a proactive way of checking if the intended outcomes were met or not, and clarifying any challenges that came with either implementation or evaluation. Using collective evidence and the logic model guiding program activities and expected outcomes, teams can determine the extent to which SMART goals were met and document all expected and unexpected challenges that occurred.
- **Summarize Lessons Learned:** Tapping into lessons learned allows valuable insight to be gained into the intervention and/or implementation processes and educator experiences that worked and those that didn't. The team can start by discussing strategies, activities and monitoring practices that were related to successful achievement of intended outcomes and those that posed hinderances to reaching achievement goals. This process could include asking questions like: *Are strategies being implemented as designed? Were the allotted budget and resources sufficient to support program implementation? Was the proposed strategy and action plan effective in reaching the intended goal? Were measures and assessment tools reasonable, meaningful, and easy to use?*



- **Adjust and Revise:** Following an examination of and reflection on intervention goals and implementation processes, teams can use this information to guide modifications of practices and strategies as necessary. This adjustment and revision process may include making necessary adjustments to classroom instructional methods and/or management.

Continuing the Cycle

The cycle does not end with the ‘Examine and Reflect’ stage but rather, it’s an iterative process that ensures that educators initiate the process all over again by updating critical needs, setting new goals, and modifying or devising new strategies to continue to support and improve student outcomes. Overall, following the continuous improvement cycle strengthens capacity for effective use of research evidence and high-quality implementation of evidence-based interventions. This reliance on cyclical and informed decision making promotes a culture of improvement by focusing on principles of implementation science to foster instructional and student success.

Resources

Ohio’s Summary of the Cycle

- [Examine, Reflect, Adject, Ohio Improvement Process: Department of Education and Workforce \(2023\)](#)
- The Ohio Department of Education and Workforce’s website provides guidance for step 5 of the cycle of continuous improvement, and recommendations for implementation adjustments and planning.

Michigan’s Implementation/Improvement Science Brief

- [Integrating Improvement and Implementation Science to Enhance Educational Outcomes, Michigan Department of Education \(2021\)](#)
- This Michigan brief clarifies the differences and similarities between Implementation Science and Improvement Science and suggests approaches in which they can be used together to improve capacity for implementation of evidence-based interventions. The tools and methods follow the Plan-Study-Do-Act continuum.

US “Evidence Act” Toolkit

- [Evidence Act Toolkits: Office of Evaluation Sciences \(2018\)](#)
- A collection of tools created under the 2018 *Foundations for Evidence-Based Policymaking Act* by the General Services Administration (GSA). Part of these tools include guidance for establishing an Evaluation Working Group, which schools and EBI teams could consider as part of their improvement/implementation science activities.

IES REL Northeast and Islands – Continuous Improvement Toolkit

- [Continuous Improvement Toolkit: IES REL \(2020\)](#)
- A collection of tools based on the Plan-Study-Do-Act cycle, including a flow-chart detailing decision-making steps on “adopting, adapting, abandoning” an evidence-based intervention.

Videos

- [Continuous Improvement Toolkit: IES REL \(2020\)](#)
- The IES Northeast and Islands supplements their Continuous Improvement Toolkit with a collection of videos, including one on [Continuous Improvement: A School Perspective](#)