

**Introduction**

In 2015, the U.S. Congress reauthorized the Elementary and Secondary Education Act through a bill known as the Every Student Succeeds Act (ESSA). One of the requirements of ESSA is that school improvement initiatives be rooted in “evidence-based activities, strategies, or interventions.” The Kentucky Department of Education (KDE) has provided a wide variety of resources to assist school leaders in developing a thorough understanding of evidence-based practices. Those resources can be found on [KDE’s Evidence-based Practices webpage](https://en.wikipedia.org/wiki/Meta-analysis). While ESSA provides clear definitions of evidence-based practices for educational purposes, there are some allowable study designs that were not specifically referenced in the federal regulations. This instrument is designed to help education leaders gain an understanding of the process and use of meta-analysis for educational decision making.

A meta-analysis is an analytical process that uses statistics to combine the results of multiple scientific studies into one descriptive report. Meta-analysis is widely considered to be a high quality research methodology because it allows for the combination of information and increases the statistical power of the study findings. The meta-analysis process generally begins with a search of the existing literature on a topic. Next, authors identify the inclusion criteria that will be used to select studies for aggregation. Finally, a series of statistical tests are run to create an overall measure of effectiveness.

The Kentucky Department of Education (KDE) has determined that meta-analysis are allowable under ESSA’s evidence-based practices provisions despite their exclusion from the formal definition. KDE has based this decision on the more detailed definitions of evidence-based practices listed in EDGAR, specifically the provision that multiple studies can be combined to meet the large and multi-site sample requirements (34 C.F.R. 77.1). Additionally, meta-analysis is considered to meet the legal definition of an evidence-based practice in other parts of the law, such as regulations related to criminal justice and the medical field.

This document will provide guidance to education leaders as they work to evaluate meta-analysis and use information provided by an analysis to make instructional decisions. When completing this instrument, consider the following:

* Examples are provided through the instrument; however these are not comprehensive. There are other possible answers to a question outside of those that have been included. For consistence, each set of examples is limited to only three choices. KDE encourages shareholders to fully examine a piece of evidence and answer the questions to the best of their abilities, even if the answer is not provided in the exemplar.
* This instrument is for individual use. No two evaluations will look exactly the same. While it is not required, if this instrument will be used as supporting documentation for a grant application or school improvement plan, please be as specific as possible by including exact quotations and American Psychological Association (APA) citations from the source.
* KDE recommends reading and annotating the analysis in its entirety before attempting to complete this instrument.
* Responses must be typed in the grey boxes, which will expand as information is entered.

**Overview**

Reason for Evaluation: Choose an item. If other, describe: Click here to enter text.

Citation (APA preferred): Click here to enter text.

Identify the Intervention Studied: Click here to enter text.

Identify the relevant outcome(s) of the analysis. A relevant outcome is the student outcome(s) (or the ultimate outcome if not related to students) that the proposed process, product, strategy or practice is designed to improve, consistent with the specific goals of a program (i.e., reading comprehension).

Click here to enter text.

**Research Methodology**

The research methodology describes the process used by the authors of meta-analysis to compile the literature and complete the analysis. An understanding of the framework used by the authors is vital for the correct interpretation of meta-analysis findings. Incomplete or nondescript discussions of the methodology deployed should raise concern in the reviewer. While the statistical methodologies used to complete a meta-analysis are standardized and reliable, the protocols for searching the literature, determining inclusion criteria, and collecting data for analysis can introduce bias to an analysis. The questions below will help education leaders identify and consider key factors of the meta-analysis study design.

1. How many studies were included in the meta-analysis? Click here to enter text.
2. Describe the process used by the authors to locate studies for analysis. This could include a list of databases and/or search terms deployed by the authors.

Click here to enter text.

1. When completing a meta-analysis, it is common for authors to create a set of inclusion criteria that helps to determine which studies will be incorporated into the analysis. For example, it is considered best practice to include only studies of similar design, such as all randomized-controlled trials. Describe the inclusion criteria used by the authors.

Click here to enter text.

**Analytic Sample**

The analytic sample is the sample on which an analysis is based. The [Non-Regulatory Guidance: Using Evidence to Strengthen Education Investments](https://ed.gov/policy/elsec/leg/essa/guidanceuseseinvestment.pdf) describes the importance of aligning the analytic sample with the population of your school. The highest quality evidence will align to a school in both setting and population and will include a large and multi-site sample. When considering the sample of a meta-analysis, leaders are encouraged to examine the aggregate sample created by all of the studies included in the analysis.

1. Briefly describe the demographics of the analytic sample. Be sure to include any relevant information, including, but not limited to, grade levels, race/ethnicity, gender, socio-economic status, special education status or English language status.

Click here to enter text.

1. How many people or groups of people are included in the analysis? Click here to enter text.
2. How many individual sites or locations were included in the analysis? Click here to enter text.
3. Which descriptor best describes the setting of the studies used in this analysis? Choose an item.
4. Are there any special circumstances for the sample? Special circumstances may include, but are not limited to, the reporting of additional subgroups, alignment with common academic labels (such as “at risk” or “gifted”) or the exclusion of certain groups from the analytic sample.

Click here to enter text.

**Intervention Delivery**

When evaluating evidence, it is important for education leaders and shareholders to consider the specific methods used by the researchers to implement an intervention. Schools should seek to replicate the conditions used in a study in order to achieve similar results. If an evidence-based practice is not implemented in a way that accurately replicates the conditions used in a study, the intervention may not work as reported. In a meta-analysis, study authors may describe the unique characteristics of each study or create a narrative that describes common traits of the studies included in the analysis.

1. Describe the way the intervention was implemented. Be sure to include relevant details you may need to replicate the results, such as the intervention delivery method, materials used and other protocols unique to the studies included in this analysis.

Click here to enter text.

**Results**

The [Non-Regulatory Guidance: Using Evidence to Strengthen Education Investments](https://ed.gov/policy/elsec/leg/essa/guidanceuseseinvestment.pdf) suggests that quality evidence “shows a statistically significant and positive (i.e. favorable) effect of the intervention on a student outcome or other relevant outcome.” Education leaders should pay careful attention to the findings of meta-analysis and how those results were determined.

1. Describe the procedures deployed by the authors to select and aggregate specific data points for analysis.

Click here to enter text.

1. Describe the findings of the analysis. Be sure to include the findings for any reported subgroups and relevant outcomes and a discussion of the statistical significance of the results. A well-structured meta-analysis should include the statistical outputs for each study used in the analysis. Meta-analysis will also include a statistical output that describes the overall magnitude of the aggregated study findings. Generally, this is reported as a correlation or effect size.

Click here to enter text.

**Implication**

Once a piece of evidence has been evaluated, education leaders and shareholders should consider the implications of the analysis on their school’s potential implementation of an evidence-based practice. In this section, you are encouraged to look beyond the items discussed in the analysis to consider your local context and school’s capacity to implement an intervention with fidelity.

1. Describe the implications of this analysis for your school. Does the analysis support the use of this intervention in your building? What special considerations are necessary for implementing this intervention? Be sure to examine all relevant factors, including cost, time and manpower.

Click here to enter text.

1. Identify any additional pieces of evidence referenced in this analysis that you may want to review before implementing the intervention.

Click here to enter text.

1. Using the [ESSA Evidence Levels](https://education.ky.gov/school/evidence/Documents/ESSA%20Evidence%20Levels.pdf) one-pager, consider all of the information collected here and provide an estimate of the level of evidence provided in this analysis. While meta-analysis are not directly included in the ESSA Evidence Levels, KDE treats meta-analysis in the same way as the group of studies aggregated to complete the analysis. Choose an item.