ELEVATING EVIDENCE

EMPOWERED BY EVIDENCE

Reviewing Evidence under ESSA

Kentucky Department of Education
Our Children, Our Commonwealth

Office of Continuous Improvement and Support

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." While many clearinghouses and databases exist to assist schools in identifying and selecting appropriate evidence-based practices, it is important that education leaders and shareholders have the skills necessary to evaluate evidence on their own allowing for more informed decisions. This instrument provides a framework to guide education leaders and shareholders through the process of evaluating evidence.

While completing this instrument, consider the following:

- Examples are provided throughout the instrument; however, these are not comprehensive. There are other possible answers to a question outside of those that have been included. For consistency, each set of examples is limited to only three choices. The Kentucky Department of Education (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 a study in its entirety before attempting to complete this instrument.
- Responses must be typed in the grey boxes, which will expand as information is entered.
- While completing the instrument, a district/school may find it beneficial to consult other resources. Relevant resources may include:

    - Non-Regulatory Guidance: Using Evidence to Strengthen Education Investments
    - ESSA Evidence Levels
    - Evidence-based Practices Glossary of Terms
    - Webinar: Evidence-based Interventions: An Overview
    - Webinar: Evidence for ESSA – An Introduction to Study Design

Study Overview

Reason for Evaluation: TSI School Improvement Plan If other, describe: Click here to enter text.

Study Citation (APA preferred): Vembye, M. H., Weiss, F., & Bhat, B. H. (2022, May 4). The Effects of Co-Teaching and Related Collaborative Models of Instruction on Student Achievement: A Systematic Review and Meta-Analysis. https://doi.org/10.31222/osf.io/mq5v7

Identify the Intervention Studied: Co-teaching in the classroom

Identify the relevant outcome(s) of the study. 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).

Per the abstract in the article there was a positive and statistically significant effect of co-teaching (or collaborative instruction), especially when compared to single taught students.

Study Design

The study design provides a framework for the development and implementation of a study. A study is a detailed investigation and analysis of a subject or situation. The study design framework guides researchers as they collect and analyze data to test solutions and solve problems. Different study designs provide different levels of rigor and reliability. Education leaders and shareholders should carefully consider the study design used to evaluate an intervention.

In this section, you will evaluate the key features of study design. If you are unsure how to identify a study design, KDE encourages you to reference either the Evidence-based Practices Glossary of Terms or the Evidence for ESSA: An Introduction to Study Design webinar.

1. Identify the study design: Other

2. If participants were assigned to groups, describe the method used to assign them to groups. Common group assignment methods include, but are not limited to, random assignment, matched pairs or class assignment. If participants were not assigned to groups, record N/A.

This review used only quantitative studies and for quality purposes only used studies utilizing Treatment and Controlled groups. Controlled groups were assigned through three categories as listed: 1) non-inclusiveclassrooms with a single general education teacher, i.e., general education students only,compared to general students from co-taught classrooms (similar to those in Szumski et al.,2017), 2) inclusive classrooms

with a general education teacher, i.e., a blended student composition,either compared to general and/or special needs students in co-taught classrooms and 3)special education classrooms, such as resource rooms and pull-out classrooms, compared to studentswith special needs in co-taught classrooms. (p. 15).

3. Describe any statistical controls used to control for study bias. Statistical controls are more common in correlational studies than experimental/quasi-experimental studies, but they can be found in both. Common statistical controls include, but are not limited to, analysis of covariance, difference-in-difference adjustments and correlation. If no statistical controls were used, record N/A.

N/A.

Analytic Sample

The analytic sample is the sample on which an analysis is based. It is important for education leaders and shareholders to take time to review the analytic sample used in a study. The Non-Regulatory Guidance: Using Evidence to Strengthen Education Investments 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.

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.

Because the article referenced is a meta-analysis, the demographics of subjects is wide and described as follows: Students in grades one to twelve attending primary or secondary schools, including public and private day schools as well as boardingschools. Special education schools were also included since they functioned as contro lschools. We did not find any studies only including private school settings. Studies based on students in kindergarten, vocational or post-secondary education were excluded. Overall, we included three types of student samples: 1) students with special educational needs and/or disabilities,2) general education students, and 3) aggregated samples in which achievement outcomeswere measured on a blended group of general and special needs students. If studies reported disaggregated measures for “at-risk” or “low-SES (socioeconomic status)” students but these werenot formally characterized as special needs students, we amalgamated these results with the resultsfor general students or, if that was not possible, interpreted the results as belonging to thegeneral education population.” (p. 15).

2. How many people or groups of people participated in this study? Three groups of people were in the study.

3. How many study participants were assigned to the intervention group? If the study design did not include an intervention group, record N/A. The intervention group is not specifically listed in the study, however the

students attending co-taught classes could be considered in the intervention group. The study does not list how many students are in the intervention group because it is an meta-analysis of 128 studies.

4. How many study participants were assigned to the control group? If the study design did not include a control group, record N/A. The control group is not specifically listed in the study because it is a meta-analysis of 128 studies.

5. Were any additional comparison groups used in this study? If so, describe the demographic makeup of the groups.

N/A.

6. Describe the method used to select study participants.

Per the article, "1) students with special educational needs and/or disabilities,2) general education students, and 3) aggregated samples in which achievement outcomeswere measured on a blended group of general and special needs students." (p. 15).

7. How many sites were included in this study? 128 published studies on co-teaching included many various school sites.

8. Which descriptor best describes the setting of the study? Multiple Settings

9. 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.

As stated in the study, "If studies reported disaggregated measures for "at-risk" or "low-SES (socioeconomic status)" students but these werenot formally characterized as special needs students, we amalgamated these results with the resultsfor general students or, if that was not possible, interpreted the results as belonging to thegeneral education population." (p. 15).

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.

1. Describe the way the intervention was implemented in this study. 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 this study.

In "The Effects of Co-Teaching and Related Collaborative Models of Instruction on Student Achievement: A Systematic Review and Meta-Analysis", a meta-analysis was conducted on 128 studies on co-teaching.The analysis of those studies are discussed in depth throughout the article. A relevant detail explained the co-teaching models of one teach-one assist, and one teach-one observe are ineffective when compared to the other co-teaching models. Co-teaching is most effective when using a variety of the co-teaching models.

Results

The Non-Regulatory Guidance: Using Evidence to Strengthen Education Investments 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 results of a study and how those results were collected.

1. Describe the procedures used to collect data for this study. This information may be found in the Methods or Results section of the study. Be sure to include all relevant information such as the names of any standardized assessments, the conditions under which an assessment was given or archival data sets used.

The article referenced is a meta-analysis and states the following for procedures, "Preferred Reporting Items for Systematic Reviews and Meta-Analyses(PRISMA, Moher et al., 2009; Page et al., 2021) reporting guidelines and the recommendationsput forward by Pigott & Polanin (2019). Find completed PRISMA checklists athttps://osf.io/fby7w/. The review has been pre-registered at the Open Science Framework (OSF):see https://osf.io/ur2bs." (p. 13).

2. Describe the findings of this study. Be sure to include the findings for any reported subgroups and relevant outcomes and a discussion of the statistical significance of the results. It is generally accepted that study findings are statistically significant when *p* is less than 0.05 (p<.05). APA standards state that studies should include the *p* value when reporting on statistical significance either within the text or in a parenthetical. For example, the results of the statistical test Analysis of Variance should be reported [F (2, 145) = 3.24, p = .04]. In this example, *p* equals 0.04, which is less than 0.05. This would indicate that the results of this statistical test are significant.

As stated in the article by Vembye, "We found a moderate, positive, and statistically significantmean effect of $\overline{g}$ = 0.11, 95% CI[0.035, 0.184] of collaborative instruction compared to single-taught controls, using the correlated-hierarchical effects (CHE-RVE) model." (p. 2). A more robust analysis of the statistical data by Vembye explained, "We found a positive, statistically significant overall standardized mean difference of

0.11standard deviations (SD), t(40.3) = 2.97, p = 0.005, 95% CI[0.035, 0.184]. In line with Kraft's(2020) benchmarks for interpreting education interventions with standardized achievement outcomes,we consider this to be a moderate effect size. Using Cohen's U3, this result indicates that,on average, co-taught students had better achievement scores than 54.4% of the control studentsEFFECTS OF COLLABORATIVE INSTRUCTION ON STUDENT ACHIEVEMENT 37(Baird & Pane, 2019; Valentine et al., 2019), or put differently, there is a 54.4% chance that arandomly sampled score from the intervention group lies above the mean of the control group. Atthe student level, this translates to an expectation that a typical student from the control groupwould have had a percentile gain of 4.4% had they instead been exposed to a collaborative modelof instruction (WWC, 2020)." (p. 37).

Implication

Once a piece of evidence has been evaluated, education leaders and shareholders should consider the implications of the study 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 study to consider your local context and school's capacity to implement an intervention with fidelity.

1. Describe the implications of this study for your school. Does the study 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.

The positive implications of this study are relevant for Todd County Middle School. TCMS has been identified as a TSI school due to the performance of the special education population on the KSA. The study referred to in this document supports the use of the intervention of co-teaching (collaboration) at TCMS for the reason mentioned aforehand. Special considerations for implementation include: co-teaching training for special education teachers and general education teachers, time for teachers to plan together for co-taught classes, continued support and resources for specially designed instruction, and monetary support for classroom instructional needs such as technology, manipulatives, and textbooks.

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

Additional evidence referenced in the study included data on the effectiveness of co-taught classrooms utilizing untrained teacher aides or instructional assistants. This is not a barrier to the immediate implementation of co-teaching in the designated collaborative classrooms at TCMS, however it will be taken into consideration for increasing co-taught classrooms at Todd County Middle School.

3. Using the ESSA Evidence Levels one-pager, consider all of the information collected here and provide an estimate of the level of evidence provided in this study. Strong Evidence (Level I)