

EFFECT SIZE

WHAT IS AN EFFECT SIZE?

When studying the impact of an educational practice, researchers determine two primary statistical numbers.

First is the **statistical significance**, which indicates whether the practice has an impact on student outcomes.

Second is the **practical significance**, which reports how much of an impact the practice has on student outcomes. Practical significance is reported as *the effect size or ES*.

In other words, **effect size represents how meaningful the practice's relationship is to educational outcomes.**

HOW TO INTERPRET EFFECT SIZE:

Effect sizes are reported as a number; the bigger the number, the greater the effect the practice has on student outcomes.

CONSIDERED EFFECT	EFFECT SIZE
Negative	Anything less than zero
No effect	0.0
Small	0.2
Medium	0.5
Large	0.8

In educational research, most practices average a 0.4 effect size. Therefore, any practice with an effect size of 0.4 or higher is considered to have a desired effect.

CE-BASED PRACTICE

MASTERY LEARNING

EFFECT SIZE: 0.67

Quality Instruction Connection:

Instruction Assessment

Effective Teaching

WHAT?

Based on the premise that all students (at their own speed) learn differently, this practice calls for all student material at equivalently high (or more). It often involves engaging in formal processes and providing additional opportunities for students to learn content.

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CUSTOMIZED SUPPORTS

Each learner is provided with or selects appropriate and timely support to achieve growth or competency and to engage in personalized learning pathways. These customized supports are based on data about the learner's demonstrated strengths, interests and needs.

EVIDENCE-BASED PRACTICES

Educators:

- [Collective Teacher Efficacy](#) (Effect Size [E.S.] 1.34)
- [Response to Intervention](#) (E.S. 0.73)
- [Microteaching/Video Review of Lessons](#) (E.S. 1.01)
- [Planning and Prediction](#) (E.S. 0.76)
- [Problem-Solving Teaching](#) (E.S. 0.61)
- [Explicit Instruction](#) (E.S. 0.59)
- [Scaffolding](#) (E.S. 0.52)
- [Flipped Classrooms](#) (E.S. 0.56)
- [Intervention Programs](#) (E.S. 0.50)
- [Enrichment Programs](#) (E.S. 0.49)

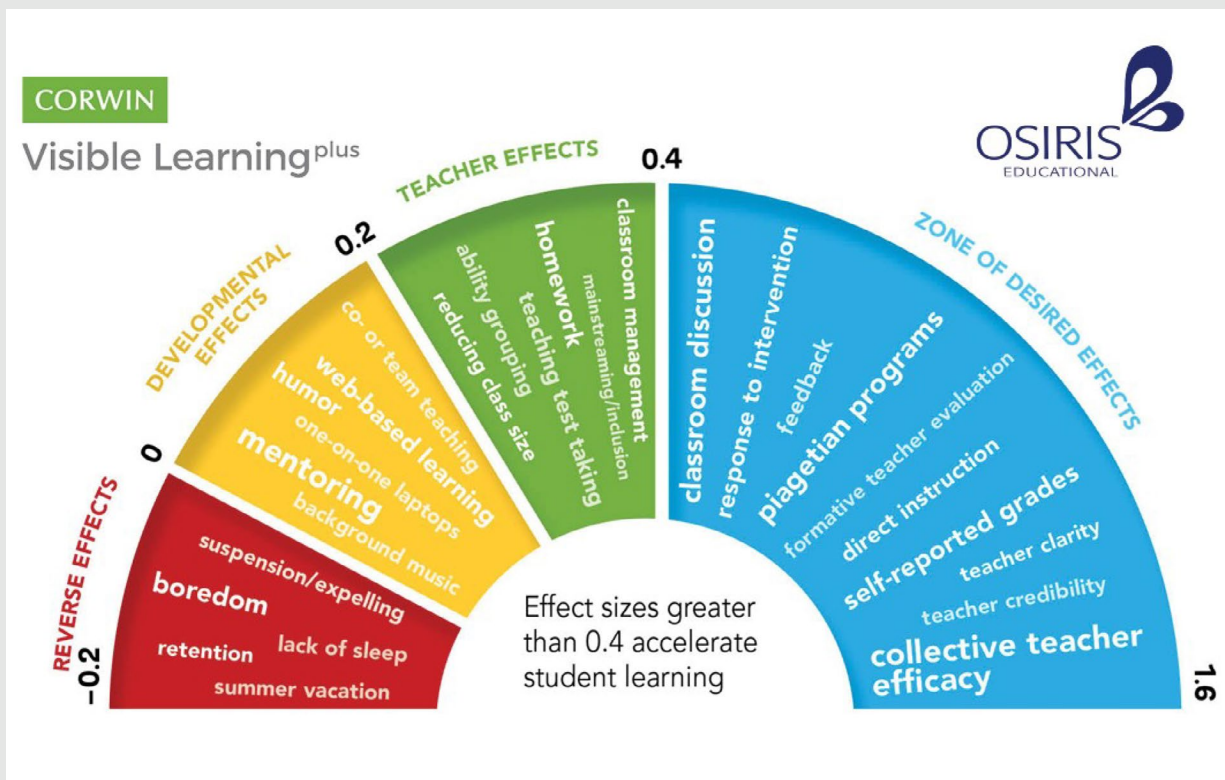
Students:

- Jigsaw Method (Effect Size [E.S.] 1.20)
- [Classroom Discussion](#) (E.S. 0.82)
- [Reciprocal Teaching](#) (E.S. 0.74)
- [Summarization](#) (E.S. 0.74)
- [Outlining and Summarizing](#) (E.S. 0.71)
- [Concept Mapping](#) (E.S. 0.64)
- [Re-Reading](#) (E.S. 0.53)
- [Note-taking](#) (E.S. 0.51)
- [Questioning](#) (E.S. 0.49)
- [Critical Thinking](#) (E.S. 0.49)
- [Underlining and Highlighting](#) (E.S. 0.44)

WHY IS THE EFFECT SIZE IMPORTANT?

While all educational practices impact student outcomes, the effect can be positive or negative, and some have greater impacts than others. Effect size allows educators to select practices identified as having a greater positive impact on students.

For example, the [Visible Learning Meta^x](#) identifies the effect size for Teacher Clarity as 0.85, while Teacher Expectations has an effect size of 0.58. Both practices are within the educational research zone of desired effects (>0.40). However, if educators focus on developing and using the skills for Teacher Clarity, they will apply a practice with a more promising relationship to increasing student outcomes. The Utah State Board of Education has identified evidence-based practices that have demonstrated a significant impact on student outcomes. These are outlined in detail in the [Evidence-Based Practices Playing Cards](#).



THINGS TO CONSIDER

FIDELITY OF IMPLEMENTATION

Effect sizes are determined by research. As a result, the practices being reviewed are applied with great attention to detail and training.

The success of educational practices, even those with high effect sizes, relies on applying the skills necessary for students to benefit from the practice.



Single (One-Time) Study vs. Meta-Analysis

A single or one-time study is when a research project takes place with one set of data being used to analyze the impact of an educational practice.

A meta-analysis, such as Visual Learning Meta^x, is a study of many studies. For more information on what a meta-analysis is, how a meta-analysis compares studies, and how a meta-analysis effect size is determined, view this [video](#).

Any research can report an effect size. Knowing which type of study the effect size is reporting creates a better understanding of the impact. An effect size on a single study relies on the methods or conditions used in the study. A meta-analysis generalizes the impact across the many methods or conditions created within the single studies reviewed. An effect size from a meta-analysis typically has more validity than that from a single study. However, all research should be reviewed to ensure an accurate understanding of the outcomes.