

Beyond Growth Mindset: Creating Classroom Opportunities for Meaningful Struggle

By **Brad Ermeling, James Hiebert, and Ron Gallimore**

Growing interest in teaching "grit" or "growth mindset" is a hopeful sign. It reflects an increasing awareness that richer, deeper learning can flow from having students struggle with a challenging task and persisting until completion.

But with this hopeful sign comes the risk of an ends-means reversal, a common misapplication of many good ideas. Consider cooperative learning, for example. Cooperative learning was intended, as growth mindset is now, to be a means to deeper, richer learning. But too often it became the end itself. In many classrooms, students have learned to be better "cooperators" but often without any distinct benefit for deeper learning. To avoid a similar fate with growth mindset, the instructional goals must be richer-learning, not just struggle.

Seventy-five years of research documents that learning is enhanced when students persist until successful—through perplexity, dilemma, and struggle. This "struggle effect" appears even in studies of conceptual teaching and learning when investigators were not looking for it.


This result wouldn't surprise the philosopher and education reformer John Dewey. In 1910, Dewey described learning as beginning with a dilemma—an uncertainty about how to proceed. Struggling to work through uncertainty and ambiguity to discover a solution was, for Dewey, essential to meaningful learning.

Struggling and persisting in the face of uncertainty is finding its way back into prescriptions for good classroom practice. Advocates for meaningful struggle recommend that teachers avoid telling students how to solve problems. Instead, teachers are urged to allow students to wrestle with a problem and try to solve it themselves.

Capturing Key Ideas


Evidence suggests that significant learning benefits result when students are allowed to do some of


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this hard work on their own and struggle with ideas they do not quite yet understand. Benefits are gleaned when the lesson goal is helping students deepen understanding and learning of important concepts or problems. Struggle is most useful when it helps students grasp and retain key lesson ideas, the ones with the most payoff in comprehension and understanding

For example, suppose the goal of a 4th grade lesson is introducing the concept of adding fractions with unlike denominators. Students already know how to add fractions with common denominators, such as $2/5 + 1/5$. One question teachers might typically pose in the new lesson is, "Can you find a common denominator for the problem $1/2 + 1/3 = ?$ "

But this question does not get at the key idea for the lesson—recognizing that units or wholes must be broken into same-size parts to calculate an exact answer to the problem. Finding common denominators can eventually be part of a procedure for finding the size of these parts, but finding common denominators at this point does not call students' attention to the key idea.

A better question to start the lesson is this: "Can you find how much juice we would have if we added $1/2$ cup of juice and $1/3$ cup of juice? Show how you found the answer by drawing a picture or writing how you thought about the problem." This question provides students with an opportunity to struggle with the key idea they need to understand—how to divide a cup of juice into smaller, equal amounts, so you can find an exact total amount for $1/2 + 1/3$.

Asking students to persist or struggle with classroom tasks can yield big benefits for deeper learning. But struggle is only productive when students engage with a task that captures the central idea of a lesson.

Struggle vs. Frustration

Engaging students in productive struggle is a challenge for teachers as well as the students. It takes time, persistence, and some experimenting to plan rich learning opportunities that challenge but don't frustrate students. Activities need to stretch students' thinking and performance just beyond the level they can do on their own—the zone of proximal development, or ZPDs, some call it.

Struggle works and does not frustrate when students have the knowledge and tools to tackle novel problems—ones they've not seen before, and are just beyond what they've already learned and mastered. In mathematics, that might mean a problem that can be solved by applying concepts learned in previous weeks—for example, the principle described earlier that finding exact answers when adding (or subtracting) fractions requires amounts to be divided into same-size parts. Designing challenging tasks that do not frustrate students but require just enough stretch takes refined and continuing teacher assessment and judgment.

Another crucial teaching role in productive struggle lessons is providing timely assistance. When a challenging task opens a productive-struggle zone, the teacher's judgment is again critical. Success depends on teachers recognizing when a little timely assistance sustains student persistence but does not prematurely terminate productive struggle and learning.

Getting the right balance can be difficult. For teachers accustomed to avoiding student struggles, there is temptation to intervene and help students get the right answers. To do so runs the risk of turning the activity into the classic recitation-style lesson—turning students into passive receivers of knowledge and teachers into "tellers."

For teachers who are adopting a new emphasis on grit and growth mindset, the other extreme can

be equally problematic—urging students to persist with a task that is well beyond their ZPD, without necessary tools to meaningfully tackle the challenge.

Ear Training

John Dewey was asked what he meant when he advocated that teachers should not “tell students what to do.” Puzzled that he had been interpreted this way, he said teachers could tell students all they wanted to tell—but they should be aware students would only hear what they have been prepared to hear. Struggling, or persistence, for Dewey, was (among other things) a way of preparing children to hear. Educators would do well to adopt this rule of thumb for how and when to engage students in struggle—that is, when you’re preparing them to hear something really important. This places meaningful parameters on what students should struggle with and when teachers should encourage it.

Creating opportunities for meaningful struggle in the classroom that truly enrich student learning involves several key elements:

- Determine timing and placement for productive struggle within the unit or curriculum—lessons that are “preparing students to hear something really important.”
- Align struggle activities with clear, specific learning goals.
- Design struggle tasks based on assessment of students’ prior knowledge and skills.
- Foster a safe environment that encourages student inquiry and exploration of important ideas.
- Use probing questions to solicit student thinking and provide strategic assistance to nudge students through their ZPDs.
- Follow-up each struggle episode with carefully structured lessons that build on students’ ideas, address misconceptions, and help students forge new understandings.
- Assist students to reflect and articulate what they learned as a result of *productive* persistence.

Valuable student growth and learning won’t come from struggle alone. There is little purpose in persistence that yields no tangible benefits in increased knowledge, understanding, or skill. But giving students an opportunity to struggle through a difficult problem with a clear learning goal in mind, combined with just enough stretch and strategic assistance, can help students develop lasting connections about important ideas, increased capacity for productive struggle, and durable skills for solving novel problems in life.

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