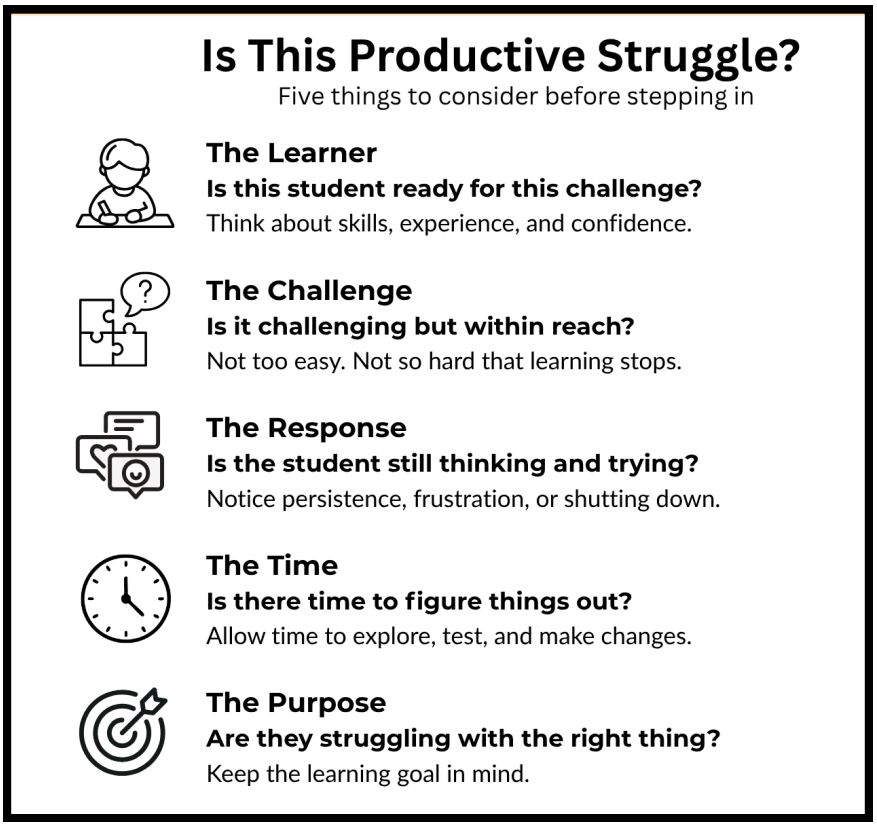
The Five Factors of Productive Struggle:

What Teachers and Families Should Consider



Encouraging productive struggle isn't always as simple as allowing students to work through a challenge. Sometimes students need more time. Sometimes they need support. And sometimes the activity itself needs to change. How do we recognize the difference?

Over the years, I've found that five factors can help me better understand what students are experiencing: the learner, the challenge, the response, the time, and the purpose.

Each offers something different to consider. Together, they help me make more informed decisions about when to step in, when to make adjustments, and when to allow students to continue exploring.



1. The Learner: Who Is Experiencing the Challenge?

Before deciding how much help to provide, I need to consider the student. What does this child already know? What skills and experiences can they draw upon? How confident are they when faced with something unfamiliar? Students don't approach challenges in the same way. Some jump right in, even when they aren't sure what to do. Others want to understand exactly what's expected before taking the first step.

I've also learned that a student's academic level doesn't always tell me how they'll respond to an open-ended challenge.

A student who easily completes traditional assignments may become uncomfortable when there isn't one correct answer. Meanwhile, a student who struggles academically may demonstrate remarkable creativity and problem-solving skills during a hands-on activity.

The goal isn't to remove the challenge because a student is struggling. It's to recognize what that particular student needs to engage with it.



2. The Challenge: Is the Task Within Reach?

An activity needs to offer enough challenge to encourage thinking without placing success completely beyond the student's reach.

If a task is too easy, students may complete it without learning much. If it requires knowledge or skills they haven't developed, they may spend their time feeling confused rather than making meaningful progress.

But there's an important distinction between a difficult task and an inaccessible one.

For example, a student designing a structure might struggle to figure out how to make it stable. That's potentially productive. However, if the student doesn't understand how to use the materials or tools, that difficulty may prevent them from exploring the intended engineering challenge.

Sometimes teaching a missing skill or providing a resource is exactly what allows productive struggle to begin.



3. The Response: What Is the Student Showing Me?

This is one of the factors that requires careful observation.
Frustration isn't always a reason to intervene. Students can be disappointed, uncertain, or even irritated while continuing to think and experiment.
I try to look beyond the emotion itself.

Is the student still trying different approaches? Are they asking questions, talking through ideas, or examining what happened? Or have they stopped participating, become overwhelmed, or decided they simply cannot succeed?

I also have to remember that students communicate these reactions differently. Some express frustration openly. Others become quiet. A student who appears calm may be completely disengaged, while another who complains may still be working hard.

I'm not simply asking whether the student is happy or frustrated. I'm trying to determine whether meaningful learning is still taking place.



4. The Time: Is There Room to Work Through the Challenge?

Productive struggle takes time.
Students need opportunities to think, experiment, make mistakes, examine results, and try again. However, classroom schedules don't always cooperate.

Sometimes I have to decide whether to extend an activity, provide additional support, simplify part of the process, or return to the challenge another day.

The important question is whether the time available allows students to engage in the thinking I intended.

A rushed activity can become an exercise in finishing rather than learning.



5. The Purpose: What Am I Actually Trying to Teach?

For me, this may be the most important factor.
When students encounter difficulties, I need to return to the original purpose of the lesson.

What did I want them to learn? What decisions did I want them to make? What skills or ideas were they supposed to explore?

Not every difficulty within a challenging activity is the difficulty students need to overcome.

In my Game Theory lesson, for example, I wanted students to make decisions about designing their own games. Their struggles with unreliable technology were interfering with that goal.

Changing the resources and methods they used didn't eliminate the intended challenge. It made that challenge more accessible.

Sometimes the most productive thing I can do is remove an obstacle that has nothing to do with what I'm trying to teach.

Putting the Five Factors Together

These factors don't operate independently.
A challenge that works well for one student may overwhelm another. A student who is willing to keep trying may become discouraged when time runs short. An activity that initially seems appropriate may reveal an unexpected difficulty once students begin working.

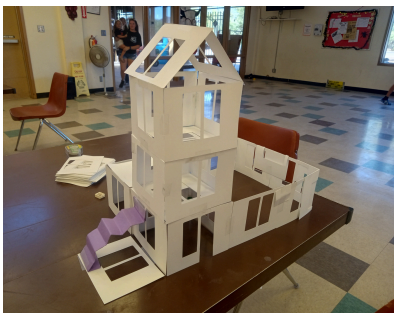
That's why I don't see the five factors as a checklist that automatically produces an answer. They're questions that help me observe, reflect, and make adjustments. Depending on the situation, I might decide to:

Keep Going	Allow the student time to continue thinking, trying, and making progress.
Add Support	Ask a question, provide a resource, or offer a starting point without taking over.
Remove a Barrier	Teach a missing skill or address a difficulty unrelated to the learning goal.
Adjust the Task	Change the materials, expectations, approach, or time available.
Stop & Rethink	Pause when the activity isn't producing meaningful learning. Revisit the purpose and decide how to proceed.

These aren't steps to follow in order. They're possible responses based on what I'm observing.

Try It Yourself

Here are three classroom scenarios.
Using the five factors, consider how you might approach each situation.



Scenario 1: The Tower Challenge

Students are challenged to build a tower using index cards and tape. The tower must be strong enough to support a small object.

As the activity begins, several students have difficulty getting started. Some experiment with different arrangements, while others wait for instructions or watch their classmates.



Scenario 2: The Capable Student

A student who regularly demonstrates strong problem-solving skills during hands-on activities is participating in a unit that requires more reading, writing, and logical reasoning.

As the unit progresses, the student's behavior begins to change. Rather than participating as usual, the student becomes increasingly disruptive, making jokes, asking unrelated questions, and distracting classmates. At times, the student seems determined to bring the activity to a stop.



Scenario 3: The Materials Challenge

Students are asked to invent an animal with special adaptations and create a model using clay.

Some students develop detailed ideas but have difficulty representing them with the material. Others create models quickly, although their designs reveal little about the adaptations they were supposed to explore.

What Would You Do?

1. Which of the five factors would you consider?
2. What additional information would help you understand the situation?
3. What might you do next, and why?

Finding the Right Balance

The five factors don't provide a formula for productive struggle. They give us a way to examine what's happening, ask better questions, and make thoughtful decisions.

What works for one student may not work for another. What works today may need to change tomorrow. And sometimes, what we learn from an activity is just as important as what our students learn.

The more we observe, reflect, and adjust, the better we become at recognizing when struggle is helping students learn and when something needs to change.

Continue Exploring

For a quick classroom reference, download **Is This Productive Struggle?**, a printable guide featuring the five factors and possible responses.

Visit the Productive Struggle collection on the **STEM Learning Page** at DottysPlace.org for additional articles and resources.