



TEACHING FOR  
**DEEPER  
LEARNING**

Tools to Engage Students in  
**Meaning Making**

JAY MCTIGHE | HARVEY F. SILVER



**Hawker Brownlow**  
Education a Solution Tree company

# TEACHING FOR DEEPER LEARNING

## Tools to Engage Students in **Meaning Making**

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# Preface

Legend has it that the world-renowned architect and thinker Buckminster Fuller once told an aspiring young architect that a great design must achieve four goals. Fuller framed these goals as the following four simple questions:

1. Does the design meet its intended purpose?
2. Is it functional?
3. Will people like it?
4. Is it beautiful?

These four questions have guided the design of this book. First, we set out with a clear *purpose*: to help educators make the critical shift from providing information to students (a knowledge consumption model) to empowering students to become active meaning makers who seek deep understanding and are able to transfer their learning.

Second, because it has been our experience that educators are looking for resources that are practical and easy to implement in their classrooms, we strove to make our book highly *functional*, providing a wealth of ready-to-use tools and strategies to help you put its ideas into practice immediately.

To help us address the question *Will people like it?*, we have tested and refined the book's ideas and tools in our workshops, coaching partnerships, and professional development work in schools. We are proud to say that the feedback from educators has been extremely positive and enthusiastic.

Then there's that last question, the most subjective one of all: *Is it beautiful?* One way to think of beauty is as something that is both simple and deep, like a haiku—easy to comprehend but profound in its effect. In writing a book full of simple tools designed to create deep change in classrooms and schools, we sincerely hope that we have met this beautiful standard of simplicity and depth. Most important, we hope that we inspire you—a designer of instruction—to see the beauty in what you teach, in how you teach it, and in the impact your work has on students' futures.

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# Introduction

*Mitosis* versus *meiosis*, logarithms, the Battle of Hastings: can you recall a time in high school or college when you “learned” something and were able to pass a test on it, only to quickly forget it? Perhaps the information was not important to you, or maybe you only learned it by rote. Cognitive psychologists have characterized such learning as *inert* knowledge—learning that was superficially acquired, never really understood, and promptly forgotten (National Research Council, 2000). Now contrast those examples with something that you *really* understand—learning that has endured. What is the difference in how you came to learn and understand it? What can you now do because of that understanding?

These differences are familiar to us, and they underscore one of the chief goals of this book: to promote deep and lasting learning that enhances the retention of information, leads to conceptual understanding, and equips students to be able to transfer their learning to new situations.

But what does it mean to learn something deeply? We propose that deep learning results in enduring understanding of important ideas and processes. However, we also contend that understanding must be “earned” by the learner. In other words, understanding is not something that teachers can transmit simply by telling. Although we can directly teach facts and procedures, understanding of conceptually larger ideas and abstract processes must be constructed in the mind of the learner. Students earn understanding through the active mental manipulation of content via higher-order

thinking skills. We refer to this active construction of meaning by students as *meaning making*.

When deep learning and understanding are the goals, the teacher's role expands from that of primarily a dispenser of information or modeler of a skill (the sage on the stage) to a facilitator of meaning making (a guide on the side). More specifically, teachers facilitate understanding of classroom content by helping students process that content using thinking skills that engage them in active meaning making.

In this book, we highlight the following seven thinking skills:

1. Conceptualizing
2. Note making and summarizing
3. Comparing
4. Reading for understanding
5. Predicting and hypothesizing
6. Visualizing and graphic representation
7. Perspective taking and empathizing

Use of these seven skills helps students achieve deep and lasting learning by facilitating acquisition of information for greater retention and retrieval, fostering active meaning making that leads to deeper understanding of “big ideas,” and building the ability to apply, or transfer, learning to new situations both within school and beyond.

### **Why *These* Skills?**

Obviously, there are a great many thinking skills that can enhance meaning making and understanding. So why did we select these seven in particular?

We have made these skills the focus of this book for the following reasons:

- *They embody the essentials of good thinking.* Good thinkers employ these skills in school, at work, and in life. They are deeply embedded in current academic standards and standardized tests. What's more, they are the foundations of more complex forms of reasoning, such as argument, inquiry, and design.

- *They separate high achievers from their average- or low-performing peers.* Through our many years of research and work in schools, we have found that successful students are able to handle the cognitive demands of complex work and rigorous content precisely because they enlist these skills to help them. Students who struggle with complexity and learning challenges tend to lack many of these thinking skills.

- *They are often undertaught.* Considering how vital these skills are to students' learning and academic success, it is striking how rarely they are directly taught in our classrooms. In fact, these skills are sometimes so hard to find that we might call them the "hidden skills of academic success." But if we are to hold ourselves responsible for preparing our students to meet the demands of rigorous cognitive and content challenges, then we must help them become better able to respond to such challenges. Teaching and reinforcing these seven skills are how such "response-ability" develops and how college and career readiness is realized.

- *They give all teachers a manageable way to raise achievement and increase student success.* We intentionally selected skills that cut across content areas and grade levels. No matter your grade or subject specialty, you can teach, assess, and benchmark these skills with relative ease. Plus, seven is a manageable number of skills to master—and we know from experience just how crucial manageability is to successful classroom implementation.

In sum, the thinking skills and tools that we've chosen to focus on have a dual benefit: (1) as a *means*, they support active construction of meaning by students, leading to deeper understanding of core content; and (2) as an *end*, they provide inherently valuable, transferable skills and tools that students can use throughout school and life. The tools, therefore, are as much for students as they are for you.

## How the Book Is Organized

While our primary goal in putting this book together was to provide educators with concrete skills and tools for engaging students in active meaning making and deep learning, we felt that the book wouldn't be complete

without also discussing what kind of content is worth making meaning about, how to incorporate the featured skills and tools into lesson and unit design, and how to build students' capacity to use the tools independently. Thus, we've made sure to address each of these important elements within the book's nine chapters. Let's look at how the information is organized.

Chapter 1 discusses what's worth having students understand and make meaning about. It emphasizes the importance of establishing a conceptually based curriculum to ensure that teaching and learning stay focused on important and transferable ideas, and it presents practical tools and strategies for doing so.

Chapters 2–8 explore the seven meaning-making skills in depth. The “how” section of each chapter is where you'll find practical and proven tools and strategies for targeting the skill in the classroom, along with illustrative examples that can help you use the tools and strategies more effectively.

Chapter 9 provides specific ideas to help you incorporate the book's strategies into your repertoire, as well as your students'. It presents a tried-and-true instructional process for teaching students to use the tools independently, illustrates how to infuse the skills and tools within curriculum units to engage students in active meaning making, and shows how you can use a curriculum Mapping Matrix to map out the units over an entire year to ensure that you are focusing on big ideas and systematically employing thinking skills to help students understand these ideas.

## **Tools Make It Possible**

Just as humans throughout history have used tools like the wheel, the astrolabe, the mechanical plow, and the computer to make their work easier and more effective, you can use the tools in this book to enhance *your* work as an educator. Instead of abstract, hard-to-implement ideas, these tools provide concrete and simple ways to promote deep and active learning, a means of making abstract and internal thinking processes visible, and a vehicle for bringing principles of sound instruction into your classroom in a format that both you and your students will enjoy.



## Framing Learning Around Big Ideas

In the Introduction, we discussed the importance of actively engaging students in meaning making. In Chapters 2–8, we'll explore thinking skills and tools that can help students make meaning of the content we teach. But what should we be teaching in the first place? What's worth having students understand and make meaning about? How can we design our curriculum in a way that promotes deep learning and transfer?

To address these questions, we need to consider several factors that affect a modern-day education. A fundamental characteristic of our world is the fact that our collective knowledge base continues to increase rapidly, with estimated doubling times that are expressed in months rather than decades. Indeed, knowledge is expanding faster than we're able to absorb it. And the accompanying reality that ordinary people can now access much of that knowledge on a smartphone means that contemporary schooling no longer requires memorization of all pertinent information.

A related trend has to do with the rapidity, and related unpredictability, of changes in today's world. From technological advances (e.g., automation and artificial intelligence) to political and economic transformations, shifts in global migration patterns, and climatic change, it is fair to say that we are no longer educating learners for a stable and predictable world.