JAY McTIGHE

HARVEY F. SILVER

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.

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

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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.

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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.

Focus on Big Ideas

Clearly, our world is changing dramatically—and the focus of our teaching needs to change in response. Attentiveness to trends like the ones described above has driven leading curriculum experts (Erickson, 2007, 2008; Wiggins & McTighe, 2005, 2011, 2012) to recommend that a modern curriculum be prioritized around a smaller number of conceptually larger, transferable ideas. They make this recommendation for four reasons:

1. *There is simply too much information to be able to cover it all in school.* The explosion of knowledge means that we can address only a relatively small amount of all possible content, especially in history and the STEM subjects (science, technology, engineering, and math). This makes it imperative to identify the big ideas that are essential for students to understand and to focus instruction accordingly.

2. *Trying to cover too much content can result in superficial and disengaged learning.* By contrast, when we focus on fewer but bigger ideas and transferable skills, we have more time to engage students actively in making meaning of those big ideas. Moreover, we can expand the use of performance tasks that involve students in applying their learning in authentic and meaningful ways, leading to deeper learning and transfer abilities.

3. *An emphasis on larger ideas reflects our understanding of how knowledge is best structured for retention and use.* Research on how experts' knowledge is organized relative to that of novices reveals that "[experts'] knowledge is not simply a list of facts and formulas that are relevant to their domain; instead, their knowledge is organized around core concepts or 'big ideas' that guide their thinking about their domains" (National Research Council, 2000, p. 36).

4. *The rapid changes and unpredictability of the modern world call for learners who will be able to* transfer *their learning.* Rote learning of factual information will not, by itself, equip learners to effectively apply it to new situations. Because transfer requires an understanding of broader concepts and generalizations, teaching for transfer requires focusing on conceptually bigger ideas.

Please note that our recommended emphasis on big ideas and transferable processes is not meant to minimize the importance of teaching basic skills or foundational knowledge. We simply propose that basic facts and skills should be treated as a means to greater ends—in other words, as raw material for developing the larger conceptual understandings that we want students to walk away with. It is noteworthy that the most recent generation of standards in the United States—including the Common Core State Standards, the Next Generation Science Standards, and the College, Career, and Civic Life (C3) Framework for Social Studies—all emphasize teaching for deep understanding of larger concepts rather than superficially covering vast amounts of information.

Concept-Based Curriculum Design

The sheer volume of potential content and the corresponding problem of "mile-wide, inch-deep" curriculum require curriculum teams and individual teachers to be able to prioritize—that is, to determine the most important curricular outcomes, as well as the best use of available instructional time. By focusing curriculum around conceptually important and transferable ideas, teachers can go into greater depth to develop and deepen students' understanding rather than simply trying to cover large volumes of discrete facts.

In this chapter, we describe three approaches that teachers can use to frame curriculum and instruction around important ideas:

1. **A Study In . . .** encourages teachers to plan their units to focus on the key concepts to be understood rather than just topics, skills, or texts.

2. **Concept Word Wall** reminds teachers to identify the key concepts that will help students develop a deep understanding of the content—and to make those concepts visible in the classroom.

3. **Essential Questions** shows teachers how to frame their content around open-ended and thought-provoking questions that help students make meaning of and "uncover" the big ideas.

A Study In . . .

A simple yet effective way to ensure that an instructional unit maintains a conceptual focus rather than just addressing topics, basic skills, or activities is to frame it as "a study in" a larger, transferable concept or theme (Silver & Perini, 2010). Select an appropriate concept or theme (see Figure 1.1 for a list of possibilities), build it into your unit title, and use the selected concept to focus instruction over the course of the unit. Here are some examples of units that were framed in this manner:

- Argument Writing: A Study in *Craftsmanship*
- Impressionism: A Study in *Revolution*
- The Four Seasons: A Study in *Change*
- The Pentagon Papers: A Study in *Deception*
- Four Films by Hitchcock: A Study in *Obsession*
- Weight Training: A Study in *Proper Technique*
- Whole Numbers: A Study in *Rules and Relationships*
- Formal Versus Informal Forms of Address in Spanish: A Study in *Respect*

When deciding which concept to pick for a given unit, remember that there's no "correct" choice; the choice should be supportive of targeted standards and reflect whatever big idea or message you want to highlight. A team of English language arts (ELA) teachers, for example, considered framing a unit on argument writing as a study in *perspective,* a study in *balance*, or a study in *persuasion*—but ultimately decided on a study in *craftsmanship* because they wanted to emphasize the idea that crafting an argument takes care and skill. An art history teacher similarly considered different ways to frame a unit on Impressionism but went with "Impressionism: A Study in *Revolution"* because he felt that *revolution* best captured the central idea that he wanted students to understand and remember: that the Impressionists "overthrew" the established mode of painting and replaced it with one that was radically different in terms of both style and subject matter.

Note that the idea of framing learning around larger concepts and themes shouldn't be limited to teachers. In the next chapter, we'll show you

FIGURE 1.1

Examples of Transferable Concepts and Themes

abundance/scarcity	design	mood
acceptance/rejection	discovery	movement
adaptation	diversity	needs and wants
balance	environment	order
caring	equality/inequality	organization
cause and effect	equilibrium	parts and wholes
challenge	equivalence	patriotism
change/continuity	ethics	patterns
character	evolution	perseverance
communication	exploitation	perspective
community	exploration	prejudice
competition	fairness	production/consumption
composition	freedom	relationships
conflict	friendship	renewal
convergence	harmony	repetition
cooperation	honor	representation
correlation	interactions	revolution
courage	interdependence	rhythm
craftsmanship	interpretation	structure and function
creativity	invention	supply and demand
culture	justice	survival
cycles	liberty	symbiosis
defense/protection	loyalty	systems
democracy	maturity	tyranny

how to use this tool to engage *students* in identifying concepts and themes that unite the factual information they learn in class.

Concept Word Wall

Another simple way to keep classroom instruction focused on big ideas is to create a Concept Word Wall. To do this, identify the concepts, themes, or processes that will be the focus of a unit of study and post them on a wall or bulletin board. The words you choose can be specific to that unit or related to your discipline as a whole, or larger concepts that have relevance across disciplines. Ideally, your wall would contain a mixture of all three. A word wall on food webs, for example, might include unit-specific concepts like *producers* and *consumers,* broader science-related concepts like *ecosystem* and *energy*, and universal concepts like *renewal* and *cycle.*

Posting core concepts in an easily visible location serves to keep them front and center in your mind as you teach; it also makes students aware of the big ideas that are important to define, pay attention to, and come to understand deeply. Once the words are up, refer to and interact with them regularly—and encourage students to do the same. Show students how the words on the wall function as "conceptual Velcro," holding the facts and details from the unit together. Visit (and have students visit) the wall to link specific details or examples to larger concepts, add definitions, and identify connections between concepts. Using the wall in this way helps to grow students' understanding of both the individual concepts and the unit topic as a whole.

Essential Questions

A third way of framing your curriculum around important ideas is to use essential questions (EQs). Essential questions are open-ended questions that reflect the big ideas we want our students to come to understand. Rather than being designed to yield a single or final "correct" answer, essential questions are designed to stimulate thinking, spark discussion and debate, and raise additional questions for further inquiry. As such, they support one of the primary goals of a modern education, which is "to awaken, not 'stock' or 'train' the mind" (Wiggins, 1989, p. 46).

The following list shows examples of EQs in different content areas (McTighe, 2016). Notice how organizing your curriculum around questions like these encourages students to explore—and ensures teaching and learning stay focused on—core concepts rather than isolated facts and details.

- Dance: *In what ways can motion evoke emotion?*
- Geography: *How does* where *we live influence* how *we live?*
- Government: *How should we balance the rights of individuals with the common good?*
- Health/nutrition: *What should we eat?*
- History: *Whose "story" is this?*
- Instrumental music: *If practice makes perfect, what makes "perfect" practice?*

- Literature: *To what extent can fiction reveal truth?*
- Mathematics: *When is the "correct" answer not the best solution?*
- Reading/language arts: *How do you read between the lines?*
- Science: *How are science and common sense related?*
- Visual and performing arts: *How does art reflect, as well as shape, culture?*
- Writing: *How do effective writers hook and hold their readers?*

Because essential questions are connected to big ideas—abstract, transferable concepts and processes—they are meant to be explored over time. As students consider the questions, discuss different "answers," and rethink their initial responses, they construct meaning and deepen their understanding of the relevant content. Over time, as their understanding deepens, we expect their responses to become more sophisticated and better reasoned.

There are many strategies for generating essential questions. One of the simplest involves identifying a big-idea understanding that you want students to develop and then generating one or more associated EQs, as shown in Figure 1.2.

FIGURE 1.2

Examples of Understandings and Companion Essential Questions

Big-Idea Understandings	Possible Essential Questions
True friendship is revealed during hard times, not happy times.	*Who is a "true friend," and how will you know?*
A muscle that contracts through its full range of motion generates greater force. Follow-through improves accuracy.	*How can you hit with greater power without losing control?*
Statistical analysis and display often reveal patterns in data, enabling us to make predictions with degrees of confidence.	*Can you predict what will happen in the future? With what level of confidence?*
Great literature from various cultures and time periods explores enduring themes and reveals recurrent aspects of the human condition.	*How can stories from other places and times be about us?*
Humans process both verbal and nonverbal messages simultaneously. Communication becomes more effective when verbal and nonverbal messages are aligned.	*What makes a great speaker?* *How can a great speech be "more than words"?*

When beginning to incorporate EQs into your repertoire, it can help to keep in mind the following tips from McTighe and Wiggins's (2013) *Essential Questions: Opening Doors to Student Understanding:*

1. Use two to four essential questions per unit to prioritize the content, enabling students to focus on a few big ideas.

2. Post your essential questions prominently around the classroom to serve as a constant reminder of their importance and to encourage revisiting.

3. Frame the questions in student-friendly and age-appropriate language to make them as accessible, relevant, and engaging as possible for the sophistication level and experiences of your students.

4. Pose follow-up questions to sustain and push student thinking—for example, *Because? What is your evidence for that? Who has a different idea? What would you say to someone who disagrees?*

One final note: the practice of generating essential questions isn't just for teachers. Because a modern education seeks to engage students in meaning making and to develop self-directed learners, students should be encouraged to develop their own questions—and to pursue the answers through active inquiry.

Summing Up

In this chapter, we made the case that a modern-day curriculum should be focused around important concepts that we want students to come to understand. But designing instruction around big ideas is only the start. If our goal is to prepare today's students for the challenges they'll face both in and out of the classroom, we need to think not only about what's worth teaching but also about how we can help students make sense of the information they acquire and apply their learning to new contexts. An effective way to help students develop the necessary thinking and meaning-making skills is to incorporate these skills into your everyday instructional design. The tools and strategies in Chapters 2 through 8, and the instructional planning processes in Chapter 9, will enable you to do just that.

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About the Authors

Jay McTighe brings a wealth of experience developed during a rich and varied career in education. At the school and district levels, he worked as a classroom teacher, resource specialist, and program coordinator. At the state level, Jay helped lead Maryland's standards-based reforms at the Maryland State Department of Education and led the development of the Instructional Framework, a multimedia database on teaching. He also served as director of the Maryland Assessment Consortium, a state collaboration of school districts working together to develop and share formative performance assessments.

Jay is an accomplished author, having coauthored 17 books, including the award-winning and best-selling *Understanding by Design* series with Grant Wiggins. His books have been translated into 14 languages. Jay has also written more than 36 articles and book chapters and been published in leading journals, including *Educational Leadership* and *Education Week*. He has an extensive background in professional development and is a regular speaker at national and international conferences and workshops. He has made presentations in 47 U.S. states, in 7 Canadian provinces, and internationally in 38 countries on six continents.

Harvey Silver, EdD, is the cofounder and president of Silver Strong & Associates and Thoughtful Education Press. A dynamic speaker and a leading expert on the use of practical, research-based techniques for improving classroom instruction, Harvey presents regularly at national and regional

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education conferences. He also works directly with schools, districts, and education organizations throughout the United States, conducting workshops on a wide range of topics, including student engagement, differentiated instruction, thoughtful assessment, instructional leadership, and strategic lesson/unit design.

Throughout his career, Harvey has worked to help teachers—and students—fulfill their potential. With the late Richard W. Strong, he developed The Thoughtful Classroom, a nationally renowned professional development initiative aimed at helping each and every student succeed. More recently, he collaborated with Matthew J. Perini to develop the Thoughtful Classroom Teacher Effectiveness Framework, a comprehensive system for observing, evaluating, and refining classroom practice that is being implemented in school districts across the country. Harvey is the author of a number of educational best-sellers, including ASCD's *The Core Six* and *The Strategic Teacher*. He is also the lead developer of the award-winning Tools for Today's Educators series of books, which provides teachers with easy-to-implement tools for enhancing teaching and learning.

Related ASCD Resources

At the time of publication, the following resources were available (ASCD stock numbers appear in parentheses).

Print Products

Compare & Contrast: Teaching Comparative Thinking to Strengthen Student Learning (A Strategic Teacher PLC Guide) by Harvey F. Silver (#110126)

Cultivating Curiosity in K–12 Classrooms: How to Promote and Sustain Deep Learning by Wendy L. Ostroff (#116001)

Designing Authentic Performance Tasks and Projects: Tools for Meaningful Learning and Assessment by Jay McTighe, Kristina J. Doubet, and Eric Carbaugh (#119021)

Ditch the Daily Lesson Plan: How do I plan for meaningful student learning? (ASCD Arias) by Michael Fisher (#SF116036)

Essential Questions: Opening Doors to Student Understanding by Jay McTighe and Grant Wiggins (#109004)

The i5 Approach: Lesson Planning That Teaches Thinking and Fosters Innovation by Jane E. Pollock and Susan Hensley (#117030)

Learning in the Making: How to Plan, Execute, and Assess Powerful Makerspace Lessons by Jackie Gerstein (#119025)

Reading for Meaning: How to Build Students' Comprehension, Reasoning, and Problem-Solving Skills (A Strategic Teacher PLC Guide) by Harvey F. Silver, Susan C. Morris, and Victor Klein (#110128)

The Relevant Classroom: 6 Steps to Foster Real-World Learning by Eric Hardie (#120003)

The Understanding by Design Guide to Creating High-Quality Units by Grant Wiggins and Jay McTighe (#109107)

What If? Building Students' Problem-Solving Skills Through Complex Challenges by Ronald Beghetto (#118009)

For up-to-date information about ASCD resources, go to www.ascd.org. You can search the complete archives of *Educational Leadership* at www.ascd.org/el.

DVDs

Core Six: Strategies for the Classroom DVD by Harvey Silver

Essential Questions DVD by Jay McTighe and Grant Wiggins (#614035)

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