Chapter 1

WHAT'S AT STAKE? TEACHING TOWARD EXPERTISE—WITH A SENSE OF URGENCY

ESSENTIAL QUESTION

How can we best support learners in developing usable real-world expertise?

If our goal is to transform learners' motivation and capacity into those of experts, *then we must apprentice learners* into this motivation and into this expertise. This is accomplished by meeting the conditions of motivation (Csikszentmihalyi, 1990) and through deliberate practice that develops mental models of expert practice and conscious competence, which allows for high-road transfer to new tasks and problems throughout one's lifetime.

The most effective way we have ever found to move away from deeply embedded educational practices and move to planning and implementing guided inquiry for this kind of transformational teaching and learning is EMPOWER. In this chapter, we explain the EMPOWER framework more fully, and show how it captures the research about creating the conditions of motivation; the research on developing expertise, especially through the use of deliberate practice; and the research on achieving transfer. This process is called 3D teaching and learning in which learners come to *know* (understand conceptually like an expert), *do* (perform and use knowledge more like an expert to get things done), and *think* (justify and explain what and how they know, monitor and self-correct performance, and adapt what has been learned for use in new situations). This promotion of knowing, doing, and thinking mirrors what cognitive scientists would call *understanding*.

What's in this shift for you? Becoming a more consciously competent and professional teacher who can more expertly motivate and assist your learners. What's in it for the learners? Everything! EMPOWER moves learners into the future with purpose, motivation, and expert tools that provide them with the deep understanding to make their way in the world as learners and as democratic citizens in ways rarely achieved by traditional instruction.

The mental model of EMPOWER, which helps teachers simplify the design and delivery of teaching with the lens of guided inquiry, honors and aligns with the cognitive

science of *improving*. At every stage in the process, students actively engage in the "hard fun" of mastering new learning. There is much explicit and active teaching punctuated by periods of learners' deliberate practice, and then time to use and enjoy, make choices, consolidate, personalize, and extend their new competence. In other words, there is a balance of instructional work and independent work—of apprenticeship, practice, and then independent use.

Teaching requires adept decision making and intentional design. Every day, there are multiple decisions to make about how to plan, design, revise, differentiate, and implement instruction, not to mention managing your students' energy—which is best done through both caring relationships and engaging and assistive instruction. In our work with teachers, we have found that just getting *started* on planning can provide the biggest challenge. Pre-service teachers, and even many in-service teachers, face the challenge of knowing how to take the first steps. As a result, they often rely on textbook questions or turn to Pinterest or Teachers Pay Teachers to grab a lesson plan. Such lessons were not designed or differentiated for their own students' deepest felt needs and current challenges. The result is typically disappointing because it is not responsive to specific students and does not build the professional knowledge of the teacher.

The alternative is to develop a powerful mental model of expert planning and teaching based on what we know about our own students and their needs. After all, you are the world's only expert on *your* students. In line with this "filter," we develop a rich repertoire of strategies for delivering the assistance our students need *right now* to progress toward deep engagement, understandings, and use.

Expert teaching and deep learning do not happen by accident; they happen by *design*, through mindful planning and implementation. Teachers design classroom culture and learning experiences. We design learning experiences not just for our students but also for ourselves and even our school and local communities. We must ask: What kinds of experiences do we want to have with students? What kinds of papers do we want to read? What kinds of projects do we want to collaborate on and share with the community?

TEACHING TOWARD EXPERTISE

Expertise in teaching is knowing *how* to teach people *how* to do new complex tasks: to read, write, problem solve, and do math and science more like experts. We want our students to develop authentic, applicable, real-world expertise across all content areas and human pursuits. This is usable expertise that is "tool-ish" instead of "school-ish" (Newmann, Carmichael, & King, 2016; Smith & Wilhelm, 2002, 2006); it is learning that has value outside of school in a variety of contexts.

For example, when students really learn and internalize a mental model for logical argumentation, it helps them in many ways: They can advocate for themselves and for others, they can resolve conflicts more peacefully, they can identify "fake news," they

can apply reasoning in their problem solving and evidence in their interpretations, and so on. Expertise in the whole enterprise of argumentation—from composing arguments developed from evidence to analyzing arguments to discovering compelling opportunities to use them, not to mention developing even *more* transferable skills such as deep and focused listening throughout the process—is representative of the kind of tool-ish learning we're talking about here and throughout this book. If our teaching does not lead students toward applicable expert practice, we are not teaching for understanding and use; we are in the realm of the school-ish, and kids are merely "doing school." Cognitive scientists call this authentic application of expertise *meeting the correspondence concept* (Bereiter, 2004). In other words, good teaching corresponds to what actual experts do. It meets the real reader test and the real writer or mathematician test.

Since the 1980s, data from the United States have demonstrated low average student competence in academic subjects, analysis and problem-solving skills, interpersonal relations, communication, technology use, and a wide variety of occupational skills (see, e.g., Autor & Price, 2013; Newmann et al., 2016). Further, there are major disparities in achievement along racial and ethnic lines, and by economic and disability status. The takeaway: We're generally not teaching for real-world expertise, and students who are marginalized in any way are especially endangered by standard teaching approaches. There is so much at stake for our students and for our world!

When we think of how little time during any given year we have to spend with our own students, and when we think of the momentous task of helping diverse learners to become more engaged and expert and to overcome social inequities, we feel a profound sense of urgency. After all, which one of our students doesn't need to be more engaged, more literate, more wide awake and aware, and more expert at reading, composing, critical thinking, and problem solving in every subject? Who does not need to be prepared to meet new and nonroutine challenges by drawing flexibly on what has been learned? These needs require us to be more consciously competent teachers, continuously improving and moving forward to teach in more wide-awake and powerful ways.

WHAT ARE THE PREREQUISITES TO ALL LEARNING? MOTIVATION AND ENGAGEMENT

The research is abundantly clear that motivation and engagement are prerequisite to learning. The research is also clear on the conditions that promote motivation and deep engagement that works toward expertise (Csikszentmihalyi, 1990; Ericsson & Poole, 2016). In other words, we need to develop both motivation, the *impulse* to do something new, and engagement, the behavioral and cognitive tools to *do* something new. Mihaly Csikszentmihalyi (1990) termed this experience of total motivation and engagement a flow experience. *Meeting these conditions is under the control of a teacher.* Here's how: First, we must plan to meet the conditions of flow experience, or the state of total immersion in a task or activity, which satisfies the basic human needs for motivation and for engagement. We must then plan for learners to deliberately practice the strategies of experts over time until they reach independence; Figure 1.1 shows how the conditions of flow correlate to the stages of the EMPOWER framework in a classroom. What kind of teaching and learning approach meets these demands? *Only* guided inquiry through cognitive apprenticeship: a learning-centered curricular

FIGURE 1.1: THE CONDITIONS OF FLOW EXPERIENCE IN AN EMPOWER CLASSROOM

FLOW CONDITION	WHERE IT CONNECTS TO EMPOWER	WHAT IT LOOKS LIKE
A clear purpose, payoffs, goals, and immediate ongoing feedback	Envisioning Mapping Reflecting	Learning framed as a problem to be solved (e.g., with an essential question); goals clear to all; culminating projects identified that require meeting the goals; instructional path to develop student capacity in meeting goals clear to all
A focus on immediate experience	Priming Orienting Walking Through	Proactive preparation for success through frontloading; focus on current relevance; active involvement: making and doing; immediate function and applications; fun and humor; edginess and debatability
A challenge that requires an appropriate level of skill and active assistance to meet the challenge as needed to be successful	Priming Orienting Walking Through Extending and Exploring Expertise	Guided assistance and apprenticeship in the strategies of experts; plenty of time for deliberate practice and ongoing procedural feedback
A sense of control and developing competence	Walking Through Extending and Exploring Expertise Reflecting	Use of one's voice and cultural resources; justifying one's practice; the opportunity to stake and defend points of view; provision of meaningful choice; naming growing competence and ways forward (procedural feedback)
The importance of the social and reflection	Walking Through Extending and Exploring Expertise Reflecting	Collaborative group work; peer assistance including reflecting together and providing feedback to each other; social purpose for all learning and use of learning; social reflection on how the purposes are being met and used; negotiating and sharing what is learned; reflecting on learning

structure that assists students to ask their own questions, solve problems, and create knowledge artifacts that do "social work" (Csikszentmihalyi, 1990; Smith & Wilhelm, 2002, 2006). These research findings explain why those one-and-done activities from textbooks or Teachers Pay Teachers fall woefully short. EMPOWER reflects research on motivation, engagement, and the deliberate practice necessary to develop consciously exercised expertise.

HOW DOES SOMEONE BECOME AN EXPERT? APPRENTICESHIP TOWARD CONSCIOUS COMPETENCE

Expert teachers teach for *conscious competence* and *high-road transfer*, for the flexible application of what is learned in various future situations different from those in which the learning took place. They teach for transformational change as learners move into the future.

But *how* do we start to teach the *how* of becoming more expert with any learning process or performance?

Let's do a thought experiment. Think of something significant that you have learned to do, either in school or out. How did you progress toward and achieve competence and then expertise? How were other people implicated in your learning?

Also consider this: Was there something at stake? As in, why did you care about the learning in the first place? Did you learn to more efficiently exercise to lose weight, promote fitness, or finish a race? Did you pick up a new language because you planned to visit a different culture? Did you develop a new teaching strategy to solve a learning challenge, to engage students, and to stay current in our profession? Or did you simply have a deep "felt need" to explore some topic out of pure personal interest?

As a lifetime adrenaline junky and competitive athlete living in beautiful Maine, Jeff found learning how to white-water kayak was a natural fit. He was motivated to try a new sport, to go down rivers enjoying the outdoors, to paddle with friends and students, and to enjoy the excitement of white water. When he was first learning, he spent a lot of time learning how to roll his boat, a prerequisite skill for white-water kayaking. As Jeff improved, he watched kayakers roll in different situations (like in giant side waves or river holes) and tried to emulate them. He also watched slow-motion videos as an expert kayaker narrated her thought process while conducting an advanced rolling strategy, naming the moves and using prompts to guide practice, such as "Hand on your butt to save your butt!" when setting up to roll a boat in heavy roiling white water.

While practicing how to roll, a teacher helped Jeff place his hands (one hand on the butt!) and paddle in the right place (curl that wrist!), guiding his movements until he could execute the maneuver on his own. Jeff practiced another foundational move of rolling, the hip snap, while leaning against the side of the pool as well as in the gym with weights, ironing these muscular firing patterns into his mind until he mastered them. When he was competent enough, he went to increasingly challenging places in the river to practice rolling, using the cues and moves he learned from his teachers and paddling partners.

Over time, his confidence—and, more importantly, his *competence*—grew. And even more than that, Jeff grew increasingly conscious of *why* he was successful (or not), and was able to explain what contributed to his performance and to reflect on how he could improve. He became a *consciously competent* kayaker who understood the principles behind important practices, possessed *executive function*, and could *self-regulate* and self-correct his performance—and therefore teach others. From point zero (at first, he did not even know how to get into a kayak!), the process of apprenticeship is what helped Jeff become an accomplished kayaker (who has twice kayaked the Grand Canyon and even rolled his boat in the famous Lava Falls—and most definitely not on purpose!).

We wonder: How often does teaching and learning through this kind of apprenticeship happen in English language arts, math, science, or history class? How can we more mindfully enact this time-honored process of apprenticing learners into developing expertise in our own teaching?

HOW DOES SOMEONE IMPROVE? BY DEVELOPING MENTAL MODELS AND MAPS

Throughout our careers, we have all been obsessed with answering this age-old question at the heart of the teaching profession: *How* does anyone get better at anything? How do people become competent and then truly expert—especially with complex repertoires like those required by reading, composing, and doing math or science?

What role does an educator, coach, or mentor play in that process? In other words: *How* can we most powerfully teach and assist learners to transformative capacity?

Cognitive science provides us with a clear answer (Ericsson & Poole, 2016): Like Jeff in his kayak, experts are those who have been apprenticed and mentored into *deliberately practicing* to approximate and then master the stances and the thinking, problem solving, and performance activity of established experts. This deliberate practice can often be playful and involve mindfully trying things out. Those who have achieved expertise have used mindful practice over time to develop a rich *mental model* of the specific tasks they must navigate. This rich mental model is a kind of *map*, typically including rich visualizations (like a flow chart), that guides and then extends continued development of expertise over time. This mental task representation is consciously held, revised, and developed over time, and can guide us to create new kinds of knowledge. *Possession of such a mental model is considered to be the hallmark of expertise* (Ericsson & Poole, 2016). EMPOWER is such a map for planning and teaching. Throughout this book, you will experience mental maps for pursuing many specific kinds of teaching and learning performances.

Our careers as teachers and researchers have been about articulating mental models: making the stances, strategies, and processes of expert performances visible and available to teachers and to students. These elements of expertise become a model and a source of mentoring to students. Visible representations of expertise make critical standards clear, providing both a mirror and a measure of success. As one example, in *You Gotta BE the Book* (Wilhelm, 2016), Jeff presented a rich mental model of engaged reading and a map for how to help learners develop the strategies of engaged reading. The possession of a mental model is essential to expertise, to transfer and application, and to extending that expertise. Meeting any standard, like inferencing, analyzing, or understanding how authors achieve meanings and effects, or using evidentiary reasoning to make an argument, requires a rich mental model of how this task is pursued.

Experts capture threshold knowledge (i.e., knowledge that takes one through a gateway to a new and more expert way of knowing and doing) through a mental model or map that guides future problem solving, and that encourages the extension, revision, transfer, and sharpening of knowledge over time. Without evolving mental models, we would all have to start from square one every time we wanted to solve a problem. Scientists would argue about how to conduct fair experiments every time they wanted to test something instead of applying the scientific method. First responders would lose precious seconds during emergencies instead of performing life-saving assessment and action protocols. And the list could go on and on. With any teaching event, we need to plan for how we will induct students into competence and expertise, helping them to master mental models used by experts. In other words, we are apprenticing our students down the correspondence continuum toward mastery, deep knowledge, and high-road transfer. Cognitive scientists call this process cognitive apprenticeship (Collins, Brown, & Newman, 1992), and this is the basis of our form of guided inquiry.

Expertise is socially held in what is known as a *community of practice*, defined by Lave and Wenger (1991) as groups of people who share a concern or a passion for something they do and learn how to do it better as they regularly interact. When we inquire about a common

topic and help each other to understand, we form a community of practice. When we engage in guided inquiry, we are apprenticed into an expert community of practice.

We want to make this point clear: *Guided inquiry as cognitive apprenticeship can be used with any kind of curriculum, material, or text and will deepen the teaching and learning.*

In Vygotskian terms (1978), cognitive apprenticeship moves students from their zone of actual development (ZAD) with a strategy or task and through their zone of proximal development (ZPD). This means that learners are taken from where they currently are and what they can currently do independently and without help (ZAD), and are assisted and supported to do what they *cannot yet* do alone and without support (moving through the ZPD). This helps one move toward the expertise held by the community of practice made up of experts in the discipline. Vygotsky considered the help we give learners to do what they cannot yet do alone—but can do with support—*the very act of teaching*. Let's put it this way: School is where you go to learn what you don't *yet* know how to do. Otherwise, what's the point? One of the great motivations and joys of being human is transformation: outgrowing ourselves and developing new competencies (Seligman, 2002).

Further, no one was ever motivated to read by the *cr-* blend or by learning to infer, but kids will learn such things with joy in the context of learning something they care about! Unfortunately, learners—and boys in particular—tend to see school learning as separate from real-life applications, and it is precisely because typically they are taught new concepts or strategies not in a context of use but rather through decontextualized readings and worksheets (Smith & Wilhelm, 2002). It's important to remember that

- The linchpin of motivation is developing usable competence
- In order to be engaged, kids (1) need to see the value/usefulness of what they are learning and (2) need to feel assured they'll get the support needed to be successful
- Engagement is necessary to the development of competence, and competence is necessary to staking your identity, which is the central task of human development
- Teachers need a growth mindset about their students and to develop this mindset in their learners (Dweck, 2006)

GUIDED INQUIRY: WHY THE BIG SHIFT IS NECESSARY

Guided inquiry as cognitive apprenticeship is the rigorous mentoring of students into the disciplinary expertise required to become more expert and to address real-world problems. Guided inquiry involves framing what is to be learned—the objective of the apprenticeship—as a problem to be addressed and perhaps solved. For example, instead of teaching *Romeo and Juliet*, you reframe instruction as an exploration of problems like *What makes and breaks relationships?* Instead of teaching the civil rights era as history, you reframe it as *How can we best protect and promote civil rights in our school and community?* Instead of teaching the water cycle, you reframe it as *What are the water problems in our community, and how can we help to address these?*

It's important to note that guided inquiry is *not student-centered discovery* learning where students find their own way. Instead, we explicitly invite learners into a community of expert practice, provide them with models of expertise, give assistance, and offer guided deliberate practice over time to master the know-how of experts. We support students in applying what they have learned in order to solve real-world problems in the ways experts do, and in naming and reflecting on and honing expert processes. Over time, learners come to practice and use what they have learned on their own as they explore and extend the uses of their newly developed expertise. In this phase, learning may look like discovery, but learners are making use of newly developed capacities achieved through apprenticeship.

Though there are many large-scale studies demonstrating the unique power of guided inquiry and apprenticeship approaches, our favorites include the Fred M. Newmann restructuring schools and authentic intellectual work studies (Newmann & Associates, 1996; Newmann et al., 2016; Newmann & Wehlage, 1995) because these studies show how our approach engages students, helps them deeply understand and develop expertise with value beyond school, and helps them retain gains over time. Literacy researcher George Hillocks made a career out of showing that guided inquiry is the way to most effectively teach writing (1986a, 1986b) and language use/grammar (2001) and to promote engagement and conceptual learning generally (1999). He found that for deep learning, students need to be *positioned* as inquirers and assisted to explore how texts and language work for meaning and effect.

John Hattie's (2008) influential review conflates inquiry as student-centered discovery learning with guided inquiry approaches such as inquiry as cognitive apprenticeship, and this alone accounts for the diminished effect size he reports. When data are collected about guided inquiry as cognitive apprenticeship, this approach is shown to be far and away the superior approach to teaching for engagement, understanding, and application.

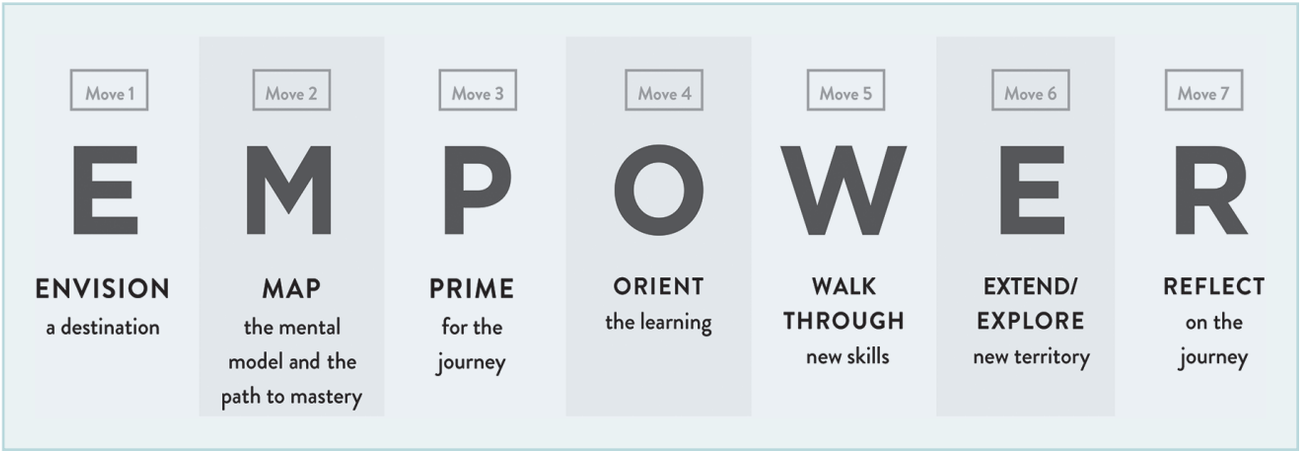
Further, although this is not why we teach, we must acknowledge the elephant in the room: next-generation standards and assessments. Rest assured, the model we propose is the most effective teaching model for the goals of higher scores and meeting standards as evidenced by disaggregation of standardized test data like the National Assessment of Educational Progress (NAEP), Trends in International Mathematics and Science Study (TIMSS), and Programme for International Student Assessment (PISA) based on the effect of teaching treatment (e.g., McTighe, Seif, & Wiggins, 2004).

Perhaps most crucially, meeting the demands and solving the problems facing our local and global communities will require new kinds of knowledge and new ways of making knowledge—in other words, traditional methods and rote learning of established information is woefully insufficient to our current and future needs.

THE EMPOWER MODEL: A FRAMEWORK FOR PLANNING AND TEACHING THROUGH GUIDED INQUIRY

We've been arguing that (1) we need to teach toward real-world expertise, which is captured by mental models, and (2) guided inquiry is the way to motivate and apprentice learners into expertise. Now we want to show you a framework—the EMPOWER model—as a highly effective model for planning/teaching through guided inquiry. Figure 1.2 shows the steps of EMPOWER at a glance.

FIGURE 1.2: THE EMPOWER MODEL



EMPOWER is *not* a formula; it *is* a mental model or map—a representation of how an expert teacher performs the complex tasks of teaching. *The possession of a complex mental model or map for complex task completion is considered to be the hallmark of expertise* (Ericsson & Poole, 2016). Thus, possessing EMPOWER helps you on your journey toward expert teaching. According to Ericsson and Poole's (2016) seminal research, *deliberate practice* through the apprenticeship process is the way anyone becomes expert at anything. Deliberate practice always has the following elements, which also correspond to EMPOWER:

- Clear and specific goals (E-M)
- Preparation for success (P-O)
- Focused practice (W-E)
- Pushing beyond one's comfort zone (W-E)
- Receiving high-quality feedback (R)
- Developing a mental model of the expert task (R)

EMPOWER provides a map for teachers to follow as you plan and then apprentice learners through navigating and completing a complex task using particular kinds of expert stances, concepts, and strategies. As we will explain, EMPOWER provides a

process for planning and implementing instruction, and for learning itself, that reflects the expert knowledge and research in a wide variety of areas. Here's how the stages of EMPOWER unfold:

E-M: Offstage, before students enter the classroom, expert educators first *envision* (E) a destination for learners and then *map* (M) out each step of the journey necessary to achieving that destination, including how to develop the knowledge, tools, and mental models (the process experts use for this task) required for achievement of mastery. This is often known as *backwards planning*, mapping out instruction with the end goals and deliverables in mind.

P-O: Once in front of students, educators build motivation and personal connection as they *prime* (P) learners by activating and building their background knowledge and preexisting interests so these can be used as resources for the new learning, and *orient* (O) learners toward the new destination, and the purpose and payoffs of reaching it. Orienting identifies learning outcomes in terms of what students will be able to do and compose/make *independently* by the close of the unit, and how they will use their new capacities now and in the future.

W-E: Students now require explicit instruction and active apprenticeship in developing new ways of understanding and performing knowledge that is required to meet the goals. Educators model the use of new strategies and concepts for learners, and support them in deliberately practicing their use. This *walk-through* (W), or explicit instructional modeling and deliberate practice, develops and extends the expertise of learners through a variety of guided and collaborative tasks. These tasks increase in challenge/complexity and decrease in scaffolding/support over time, embodying a gradual release of responsibility to achieve independence. This is the time for modeling, coaching, and feedback as students rehearse, practice, and "scrimmage" as they approximate ever more closely the robust understandings and practices of experts. These activities are purposeful, contextualized, low-stakes learning experiences that prepare students for success on higher-stakes tasks.

With their skills and knowledge built, it is then time for students to put their learning to the ultimate test. Educators challenge students to *extend* their learning and to *explore* (E) new territory to apply their learning more independently, transferring what has been learned into novel situations that present the possibility of failure and the necessity of consolidating, revising, and improving on what has already been learned. This is very much like the "call to action" found in the hero's journey, the build-up to the "big game" in sports, or an opening-night performance in the arts. At this point, the mentor has moved mostly onto the sidelines. The teacher's job now is to step back and let students create new meanings and navigate trouble together so that they become ever more independent. Teachers intervene only as necessary to keep the learning moving forward. This is where high-road transfer is put into play.

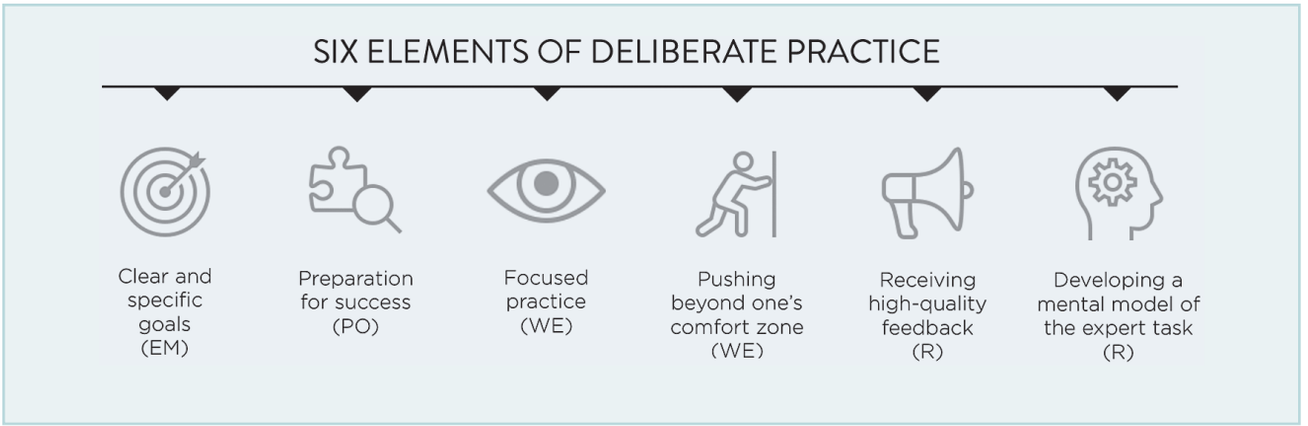
R: Throughout this entire process, at each step, but especially near the end, with the big game, opening-night performance, culminating project, and general dragon slaying behind us, we—as teachers and learners—collectively *reflect* (R). What is being learned/was learned, and how? Why is it important, and how does it connect to our current and future goals? How can we use it now and in the future? What are our

individual and collective strengths and struggles? How did we navigate trouble? What will we change and do next time we meet this kind of challenge? What opportunities do we foresee for using and further developing this knowledge now and in the future? What are our next steps?

When you teach via EMPOWER, students do and make things every day (*daily deliverables*) that engage them, promote learning, involve deliberate practice, and provide the learner and teacher with opportunities to reflect, and to name what's been learned and possibilities for moving forward. This kind of reflection is formative assessment *as* and *for* learning.

It's important to note that every step in EMPOWER (Figure 1.3) is essential. Figure 3.8 (at the end of Part 1) demonstrates what might happen if a step is skipped or removed from your planning and instruction.

FIGURE 1.3: SIX ELEMENTS OF DELIBERATE PRACTICE



THE PRIMACY OF PLANNING

Planning instruction for your specific students in your particular context at this moment in time (something that you are the world's only expert on), at the unit and lesson level, *is the central challenge of teaching.*

Professions are defined by knowledge creation, and planning instructional practice is a special province of teacher professional knowledge. At first glance, planning might seem like a fairly simple and even mundane task. But it is neither. Planning is the foundational and prerequisite process of teacher expertise and creativity. The EMPOWER model helps us get after the big questions of *why* we teach, and *why* we teach *what* we teach and in *the ways* that we do. *What* should be our major goals, and *why* are these goals worth achieving? *How* can we most effectively assist learners into motivation and even joy, and then into deep understanding and application of their learning as they work toward these goals? *When*, *where*, and under *what* conditions is teaching and learning most engaging, joyful, and effective? All of these questions are in service of becoming more expert teachers, and making our students more expert as readers, composers, and disciplinary knowledge makers. With time, teachers become agile planners

who can intuitively replan and reorient their teaching in the middle of a lesson because they know what they are trying to accomplish and the various ways to do so, and they see opportunities for goal accomplishment arise. This capacity is developed through deliberate practice over time.

TEACHING FOR TRANSFER

EMPOWER captures the "must-make moves" of planning and implementing guided inquiry. It cultivates a spirit of high-road transfer, which is the crux of inquiry as cognitive apprenticeship.

A focus on transfer may seem obvious, but research shows that transfer rarely occurs in school (Haskell, 2000; Perkins & Salomon, 1988). And when it does, the transfer is usually *low-road transfer*, when two tasks so closely resemble each other that you automatically use the same strategies. For example, if you get a rental car, you transfer what you do to drive your own car to driving the rental. *High-road transfer*, on the other hand, requires "mindful abstraction of skill or knowledge from one context to another" (Perkins & Salomon, 1988, p. 25). For example, if you suddenly had to drive a forklift or a truck with multiple clutches, you'd have to ask yourself, "Okay, what do I do first?" This mindful abstraction constitutes what Haskell (2000) calls "theoretical understanding"; that is, to transfer knowledge from one context to a dissimilar context requires you to possess *conscious competence* with *principles of practice*. You need to know just what it is you do, why you do it and do it that way, how you do it, how you know it works, in what kinds of situations you might use the knowledge, and how to self-correct and think through problems if things don't work.

Again, research shows that high-road transfer rarely occurs in school. For example, students don't automatically apply strategies required by one reading to subsequent readings. The good news is that learners can and do transfer new strategies if particular conditions are met. Haskell (2000) presents 11 of those conditions, which we have collapsed to 4:

1. Learners must deeply understand the knowledge that is to be transferred and the purposes served by using this knowledge; the conceptual principles and the payoffs of using that knowledge must be clear.
2. Learners must understand the principles and processes of practice to be transferred; students must have a mental model and map for applying the principles.
3. The classroom culture must cultivate a spirit of transfer; students must be continually considering and rehearsing how the knowledge can be used in a variety of potential contexts, both immediately and in the future.
4. Learners must deliberately and repeatedly practice applying the meaning-making and problem-solving principles to new situations.

In our work as thinking partners with thousands of teachers over the years, we have found that EMPOWER helps teachers know *how* to teach students *how* to develop and use expert strategies as readers, writers, and problem solvers in ways that promote high-road transfer.

DEVELOPING CONSCIOUS COMPETENCE (AS TEACHERS AND IN LEARNERS)

Here's a big itchy problem: Teachers, even those who have a repertoire for transformational teaching, often revert to traditional practices of the pedagogy of poverty (Haberman, 2010; see Chapter 2), often due to the pressures of curriculum, school structures and schedules, parental/student/colleague expectations, standardized assessments, and so on. EMPOWER is a powerful solution because it helps you to be vigilant, wide awake, and mindful in the face of the salience of the traditional.

This kind of conscious competence occurs when you achieve a level of mindful awareness and the necessary tools to successfully navigate, monitor progress, productively struggle through challenges, and reflect to consolidate and justify learning and to move forward.

When we proceed with conscious competence as teachers, we can assist students to conscious competence as readers, composers, and problem solvers. With the achievement of conscious competence in students, a room full of teachers and thinking partners is created. The hallmark of expertise, and the goal of all teaching and learning, is the achievement of conscious competence through the possession of a transferable mental model. Conscious competence does not mean that solving any problem at hand will run smoothly. What it does mean is that the teacher or learner has a sense of when things go awry, can explain why that might be, and has paths of action for what to do about it. Teachers and learners have the capacity to monitor, to reframe, to develop, and to draw on a repertoire for moving forward. This kind of expertise can eventually be internalized and might look like unconscious competence, but experts can dig deep to go back to their map and make it conscious again when needed. Figure 1.4 details the progression from unconscious incompetence to conscious competence.

FIGURE 1.4: CONSCIOUS COMPETENCE MATRIX: DELIBERATE PRACTICE IS THE WAY TO MOVE FROM STAGE 2 OR 3 TO STAGE 4

	UNCONSCIOUS	CONSCIOUS
INCOMPETENCE	1. **Unconscious incompetence** • The learner is not aware of the existence or relevance of the conceptual/skill area or his or her deficiency in it.	2. **Conscious incompetence** • The learner becomes aware of the existence, significance, and relevance of the skill area/knowledge—and his or her deficiency and struggles to master and apply competence; this is where new learning can begin.
COMPETENCE	3. **Unconscious competence** • The learner is able to make use of the skill/concept area, but the learner does not know why or how this is made to happen, so he or she cannot mindfully repeat it, impart it, reflect on it, transform it, or extend it. The skill/concept is not yet conscious, nor does it constitute "knowledge."	4. **Conscious competence** • The learner has developed a rich map and mental representation of the task and can mindfully perform it—talk through it, reflect on it, self-monitor and correct it, share it with others, procedurally provide feedback about it, and revise and extend it reliably and at will.

Note: We align ourselves with researchers who see an advanced form of unconscious competence as a potential stage 5, when the competence is so internalized and automatized that it has become second nature. In this case, the competence can be retrieved, extended, or revised as needed as problems arise.

POWERFUL PLANNING WITH SO MUCH AT STAKE

There is a lot at stake when we consider how to most effectively teach.

For teachers, this is about achieving higher purposes as a teacher; achieving a higher level of professionalism; developing *conscious competence*, the capacity to develop knowledge about teaching and our subject(s); and experiencing joy as a teacher. It's about working to actualize the fullest potential for each and every student, especially those who may be reluctant, who may struggle, or who are marginalized in any way. *For students*, it's about engagement and joy through learning; achieving understanding and conscious competence; an agentive identity as a reader, learner, scientist, mathematician, and so on; and a sense of evolving possibilities for these identities. Most of all, it's about achieving competence and then transfer of learning into the next task and into the future. *For teachers and students*, it's about creating a collaborative and supportive classroom community that is a disciplinary *community of practice*, and that meets the deepest needs and expresses the deepest hopes, aspirations, values, and commitments of all its members. EMPOWER assists all of these stakes and goals.

Bottom line: What is at stake is whether we truly *teach* and learners really *learn*.

Really, teaching means that learners and their understandings are transformed, and that learners achieve new transferable ways of doing and being and a conscious competence that justifies what they know, how they know it, and how they will use it. So yes, there is very much at stake.