

Chapter 1

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

ESSENTIAL QUESTION

What's the best way to prepare learners for real-world expertise?

If the goal of K–12 education is to ensure that our learners are ready for the next learning challenge—and eventually for college and careers and everything their futures hold—*then we must transform learners' motivation and capacity in ways that correspond to those of experts before they finish school.* We accomplish this when we motivate learners with authentic tasks learners find interesting, meaningful, and usable. Deliberate practice with strategies necessary to completing real-world tasks will develop the same mental models that experts use, which means learners will be able to transfer those skills and ways of thinking to new tasks and problems throughout their lifetime.

The most effective way to achieve this kind of transformational teaching and learning is by using the mental model of EMPOWER. In this chapter, we explain the EMPOWER framework more fully and show how it captures the research on creating the conditions of motivation, developing expertise (especially through the use of deliberate practice), and achieving transfer. The process in which learners come to **know** (understand conceptually like an expert); **do** (perform and use knowledge 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) is called *3D teaching and learning*. This promotion of expert knowing, doing, and thinking mirrors what cognitive scientists call *understanding*.

What's in this shift in practice for you? Becoming a highly competent professional teacher who can more expertly motivate and assist your learners towards real-world expertise and application. What's in it for the kids? 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 community members in ways rarely achieved by traditional instruction.

The EMPOWER model, which helps teachers enact the design and delivery of teaching through the lens of guided inquiry, aligns with the cognitive science of *improving*. At every stage in the process, learners actively engage in the “hard fun” of mastering new learning. There is explicit and active teaching throughout, punctuated by periods of learners’ deliberate practice, and then time to use and enjoy, consolidate, personalize, and extend their new competence. In other words, there is a balance of instructional and independent work—of apprenticeship, practice, and use—in a process of continuous and ongoing improvement.

Teaching requires intentional design and adept decision making. Every day, there are multiple decisions to make about how to plan, design, revise, differentiate, and implement instruction, not to mention managing learners’ energy—which is best done through both caring relationships and engaging and assistive instruction. In our work with teachers, we found that deciding on the first instructional move—or just getting *started* with planning—can provide the biggest challenge. As a result, teachers often rely on textbook questions or turn to Pinterest or Teachers Pay Teachers to grab a lesson plan. Such lessons may engage learners in the moment, but they were neither designed nor differentiated for your classroom’s deepest-felt needs and current challenges. These canned approaches prevent learners from developing to their full capacity and do not build the professional knowledge of the teacher.

Expert teaching and deep learning do not happen by accident; they happen *by design*, through mindful planning and implementation based on what you know about your own learners and their needs. We design learning experiences not just for our learners but for ourselves and even our schools and local communities. We also design the classroom culture that allows these learning experiences to be especially powerful and fruitful. We ask ourselves, *What kinds of experiences do we want learners to have and do we want to have **with** learners? What kinds of writing 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 pursue ever more complex reading, writing, problem solving, math, and science in more reflective and wide-awake ways that correspond ever more closely to the knowing, doing, and thinking of experts. We want our learners 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 et al., 2016; Smith & Wilhelm, 2002, 2006); it is learning that is authentic because it has value outside of school in a variety of contexts.

For example, when learners truly master how to share and support their opinions, it helps them in myriad ways: They can advocate for themselves, organize their ideas, provide reasons for their solution to a problem, listen more attentively, more peacefully

resolve conflict, and so on. Every part of the opinion-sharing process—reaching a decision, considering how they reached that decision, and clearly sharing why they think the way they do—represents the kind of “tool-ish” learning we’re talking about throughout this book. If our teaching does not lead learners toward consciously held and 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 the authentic application of expertise “meeting the correspondence concept” (Bereiter, 2004). All learning activities should move learners in the direction of expertise, along what is called the **correspondence continuum**. In other words, good teaching corresponds to what actual experts do. Instruction should meet the real-reader test, the real-writer test, the real-scientist test, and the real-mathematician test.

Since the 1980s, data from the United States demonstrate low average learner competence in academic subjects, analysis, 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 latest National Assessments of Educational Progress (NAEPs) show that the problem is not going away and is probably getting worse (NAEP, 2019). The takeaway is this: We’re generally not teaching for real-world expertise, and learners who are marginalized in any way are especially endangered by standard teaching approaches. Shifting our practice begins to address these high-stakes issues for our learners and our world.

When we think of how little time during any given year we have to spend with our own learners and 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 of our learners doesn’t need to be 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 they learned? We want our learners to be consciously competent, and consciously competent students learn from consciously competent teachers. This necessitates that everyone in the classroom focuses on improving and deepening their understanding about the subject at hand.

WHAT ARE THE PREREQUISITES FOR ALL LEARNING?

The research is abundantly clear that motivation and engagement are necessary for learning. In other words, we need to develop both motivation (the impulse) and engagement (the behavioral and cognitive tools) to do something new. When we achieve both parts, we enter a state of flow (Csikszentmihalyi, 1990). The research is also clear on the conditions that promote motivation and deep engagement toward expertise (Csikszentmihalyi, 1990; Ericsson & Pool, 2016; Smith & Wilhelm, 2002, 2006). *Meeting these conditions is the responsibility of the teacher.* Here’s how: First, we must plan instruction that meets the conditions of flow experience. We must then plan for learners to deliberately practice the strategies of experts over time until they achieve independence and have a mental model they can use to think about, reflect on, and adapt to new situations. These research findings explain why those one-and-done

activities from textbooks or the Internet fall woefully short for developing expertise and understanding in any area.

What kind of teaching and learning approach does meet these demands? *Only* guided inquiry through cognitive apprenticeship: a learning-centered curricular structure that assists learners to ask their own questions, solve problems, and create projects. These projects must be knowledge artifacts that do “social work,” that are usable by others to learn or solve problems (Csikszentmihalyi, 1990; Smith & Wilhelm, 2002, 2006). We developed the EMPOWER framework to help teachers intentionally think through the process of apprenticing learners toward expertise. Figure 1.1 shows what the EMPOWER framework looks like in the classroom and how it meets the conditions of flow.

■ 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 feedback	Envisioning Mapping	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; an instructional path to develop learner capacity in meeting goals is clear and available to all
A focus on immediate experience	Priming Orienting	Prepare for success through frontloading; elicit preexisting interests and background knowledge that relate to the learning; 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 be successful	Priming Orienting Walking through Extending 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 expertise	Use of one’s voice and cultural resources; justifying one’s practice; the opportunity to stake and defend points of view; the opportunity for meaningful choice; naming growing competence and ways forward
The importance of the social and reflection	Walking through Extending expertise Reflecting	Collaborative group work; peer assistance, including reflecting together and providing feedback to each other; having a social purpose for all learning and use of learning; engaging in social reflection on how the purposes are being met and used; negotiating and sharing what is learned; reflecting on learning

HOW DOES SOMEONE BECOME AN EXPERT?

Expert teachers teach for **conscious competence** and **high-road transfer**, for the flexible application of what is learned in different situations. 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 learned to do, either in school or out. How did you progress toward and achieve competence and then expertise? How were other people involved in and affected by 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, engage learners, or stay current in our profession? Or did you simply have a deeply *felt need* to explore some topic out of pure personal interest?

As a lifetime endurance athlete and outdoorsperson living in beautiful Maine, learning how to white-water kayak was a natural fit for Jeff. He was motivated to try a new sport, to go down rivers enjoying the outdoors, to paddle with friends, and to enjoy the excitement of white water. When he started, 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 (e.g., 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 way (*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. Beyond that, Jeff grew increasingly conscious of *why* he was successful (or not), 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 do teaching and learning through this kind of apprenticeship happen in ELA, math, science, or social studies 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?

This is the 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 processes like those required by reading, composing, and doing math or science? What role does an educator, a coach, or a mentor play in that process?

Cognitive science provides us with a clear answer (Ericsson & Pool, 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, thinking, problem solving, and performance activities of established experts. This deliberate practice can be playful and involve a great deal of experimentation. Those who have achieved expertise use mindful practice over time to develop a rich **mental model** of the specific tasks they must navigate. This mental model is a kind of **map**, typically including rich visualizations (like an illustrated flow chart), that guides and then extends continued development of expertise. *Possession of such a mental model is considered to be the hallmark of expertise* (Ericsson & Pool, 2016). This book is filled with such mental models for teaching specific tasks. EMPOWER is our mental map for planning, and the practice chapters (6–15) contain a variety of mental maps for pursuing specific kinds of teaching and learning, such as questioning to develop understanding or collaborating to socially construct knowledge.

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 learners. Visible representations of expertise make critical standards clear, providing both a mirror and a measure of success. The possession of a mental model is essential to expertise, to transfer and application, and to the creation of new knowledge. Meeting any standard—such as inferencing, analyzing, or understanding how authors achieve meanings and effects or sharing and supporting an opinion—requires a rich mental model of how the task is pursued. This is a major takeaway of cognitive science: Without a mental model of a task, you cannot get better at that task.

Without evolving mental models, we would have to start from square one every time we want to solve a problem. Scientists would argue about how to conduct fair experiments every time they want 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. Doctors would not know what tests to use for a particular complaint, nor how to analyze the results to inform a treatment. And the list could go on and on. When we teach, we need to plan for how we will induct learners into competence and expertise, helping them develop the mental models used by experts. In other words, we are apprenticing our learners 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 the guided inquiry introduced in this book.

In the real world, experts do not act alone. Instead, they interact with others in what are known as **communities 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 in a professional learning community (PLC) or a professional learning network (PLN), we participate in a community of practice. We ask

questions about learning and teaching as we engage in guided inquiry that continues to apprentice us into an *expert* community of practice.

Vygotsky (1978) portrays learning as a form of cognitive apprenticeship that moves learners from their **zone of actual development** (ZAD) with a strategy or task 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 process helps learners understand the mental models that are currently shared by experts within a community of practice. Vygotsky considered the help we give learners to do what they cannot yet do alone—but could 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).

No one was ever motivated to read by learning the *cr-* blend or how to infer, but kids will learn such things with joy in support of learning something they care about. Unfortunately, many students—boys, in particular—tend to view school learning as separate from real life; they are not typically taught new concepts or strategies in a context of use but rather through decontextualized readings and worksheets. This powerfully undermines motivation and learning (Smith & Wilhelm, 2002). So it's important to remember the following:

- 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 identity—the central task of human development.
- Teachers need a growth mindset *about* their learners, as well as to develop this mindset *in* their learners (Smith & Wilhelm, 2002, 2006).

GUIDED INQUIRY: WHY THE BIG SHIFT IS NECESSARY

Guided inquiry as cognitive apprenticeship (ICA) is the rigorous mentoring of learners into the ways of thinking and doing that are 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 *Charlotte's Web*, you might use the novel to explore the question, *What makes a true friend?* Instead of teaching Rosa Parks as an important person in history, you could reframe the learning as a social issue using the question, *How can we best protect and promote civil rights in our school and community?* Instead of teaching the water cycle, you might ask the question, *What are the water problems in our community, and how can we help to address them?*

It's important to note that guided inquiry is *not* student-centered discovery learning, where learners simply 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 and deliberate practice over time. We support learners in applying what they have learned to solve real-world problems in the ways experts do and in reflecting on and honing expert processes. Over time, learners come to practice and use what they learned on their own as they explore and extend their newly developed expertise. In this exploration and extension phase, learning may look like discovery, but learners are making use of newly developed capacities achieved through apprenticeship. At the same time, the teacher observes, provides procedural feedback that makes expertise and ways forward more visible and conscious, and points learners in new directions.

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

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

We must also acknowledge the elephant in the room: next-generation standards and assessments. The model we propose is the most effective teaching model for the goals of achieving higher scores and meeting standards, as evidenced by standardized test data like the NAEPs, TIMMS, and PISA (see, e.g., Wiggins & McTighe, 2005). And we want to make this point clear: **Guided inquiry as cognitive apprenticeship can be used with any kind of curriculum, material, or text to deepen the teaching and learning.**

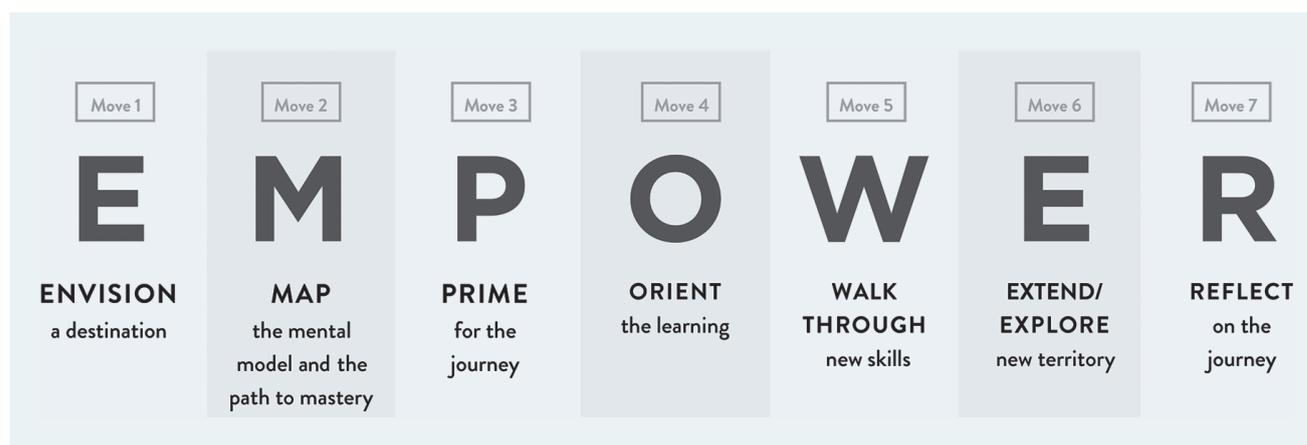
Perhaps most crucial, meeting the demands of—and solving the problems that face—our local and global communities will require new kinds of knowledge. In other words, traditional methods and rote learning of established information are woefully

insufficient to our current and future challenges and needs. Not only is current knowledge insufficient to solve current problems, but new problems continue to emerge. *Only learning how to learn, inquire, and problem-solve will suffice.*

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 such expertise. Now we want to share a framework—the EMPOWER model—as a highly effective model for planning and 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 the framework that informs and the process an expert teacher takes to perform 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 & Pool, 2016). This is why using EMPOWER helps you map your journey toward expert teaching. According to Ericsson and Pool's seminal research (2016), becoming expert at anything requires **deliberate practice** using and developing the processes of experts with the support of apprenticeship. Deliberate practice involves all of the following six elements highlighted by EMPOWER, as shown in Figure 1.3:

- Clear and specific goals (*envision* and *map*)
- Preparation for success (*prime* and *orient*)
- Focused practice (*walk through* and *extend and explore*)
- Pushing beyond one's comfort zone (*walk through* and *extend and explore*)
- Receiving high-quality feedback (*reflect*)
- Developing a mental model of the expert task (*reflect*)

■ FIGURE 1.3: SIX ELEMENTS OF DELIBERATE PRACTICE



EMPOWER provides a map for teachers to follow as they plan and then apprentice learners through navigating and completing a complex task using 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 from various learning sciences. Here’s how the stages of EMPOWER unfold:

EM: “Offstage,” before we engage with learners, 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 required for achievement of mastery. This is often known as **backward planning**, mapping out instruction with the end goals and deliverables in mind.

PO: Once in front of learners, 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; they also *orient* (O) learners toward the new destination and the purpose and payoff of reaching it. Orienting identifies learning targets and success criteria in terms of what learners will be able to do and create *independently* by the close of the unit, and learning outcomes that explain how they will use their new capacities now and in the future. Orienting means learners understand the purpose and payoffs of the new learning.

WE: Learners now require explicit instruction and active apprenticeship in developing new ways of understanding and performing knowledge that are 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 learners rehearse, practice, and approximate the robust understandings and practices of experts. These activities are purposeful, contextualized, low-stakes learning experiences that

prepare learners for success on higher-stakes tasks. The walk-through is robust Tier 1 instruction.

With their skills and knowledge built, it is then time for learners to put their learning to the ultimate test. Educators challenge learners to *extend* their learning. This is where various kinds of differentiation and robust Tier 2 and Tier 3 instruction take place. Those who need more help get it in different forms. Those ready to move forward get support to further develop their mental model and its application. Soon, instruction moves to *explore* (E) new territory: to apply their knowledge more independently, transferring skills and ideas into novel situations that present the possibility of failure and the need to consolidate, revise, and improve on what they 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 to the sidelines. The teacher’s job now is to step back and let learners create new meanings and navigate trouble with one another so that learners become ever more independent. Teachers intervene only as necessary to keep the learning moving forward and focus their energy on encouraging and celebrating their learners and their journeys. This is where high-road transfer is put into play.

R: Throughout this entire process—each and every day but particularly near the end of a learning sequence—with the big game, opening-night performance, culminating project, and general dragon slaying behind us, we—as teachers and learners—collectively *reflect* (R). What 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, learners 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 on and name what’s been learned, as well as possibilities for moving forward. This kind of reflection is **formative assessment as and for learning**.

THE PRIMACY OF PLANNING

Planning instruction for your specific learners 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 central piece of teacher professional knowledge. At first glance, planning might seem like a fairly simple and even mundane task. It is neither. Planning is essential to becoming an expert teacher and also provides an opportunity for creative expression. The EMPOWER model helps us answer the big questions of teaching: *Why* do we choose to teach? *Why* do we teach *what* we teach 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 toward motivation and even joy and then into deep understanding and application of their learning? *When, where,* and under *what* conditions are teaching and learning most engaging, joyful, and effective?

All of these questions are in service of becoming more expert teachers and making our learners more expert readers, writers, and knowledge creators. Being flexible and responsive to the specific learners and learning needs in the room is one of the most challenging aspects of teaching and a distinguished indicator of teacher expertise.

TEACHING FOR TRANSFER

EMPOWER captures the “must-make moves” of planning and implementing guided inquiry. It also cultivates a spirit of high-road transfer, which is the crux goal 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). When it does, it’s usually *low-road transfer*, where two tasks so closely resemble each other that learners automatically use the same strategies. For example, if you rent a car, you transfer what you know about driving 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 school bus, you’d have to ask yourself, “What do I do first?” This mindful abstraction constitutes what Haskell calls *theoretical understanding*—that is, to transfer knowledge from a familiar context to an unfamiliar one requires you to possess **conscious competence** with **principles of practice**. You need to know what you do, why you 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.

Again, research shows that this kind of transfer rarely occurs in school—for example, learners don’t automatically apply strategies required for one reading to subsequent readings or from one writing assignment to the next one. The good news is that learners can and do transfer new strategies if particular conditions are met. Haskell (2000) presents eleven of those conditions, which we have collapsed to four:

1. Learners must deeply understand the knowledge that is to be transferred and the purposes served by using this knowledge; that is, the conceptual principles and the payoffs of using that knowledge must be clear. (*Knowing*)
2. Learners must deliberately and repeatedly practice applying the meaning-making and problem-solving principles to new situations. (*Doing*)
3. Learners must understand the principles and processes of practice to be transferred; learners must have a mental model and map for applying the principles, reflecting on them and revising them for new situations and demands. (*Thinking*)
4. The classroom culture must cultivate a spirit of connection making and intellectual risk-taking; learners must continually consider and rehearse how to use and adapt their knowledge immediately and in the future. (*Thinking*)

Based on our work as thinking partners with thousands of teachers over the years, we know that EMPOWER helps teachers know *how* to teach learners *how* to develop and use expert strategies as readers, writers, and problem solvers.

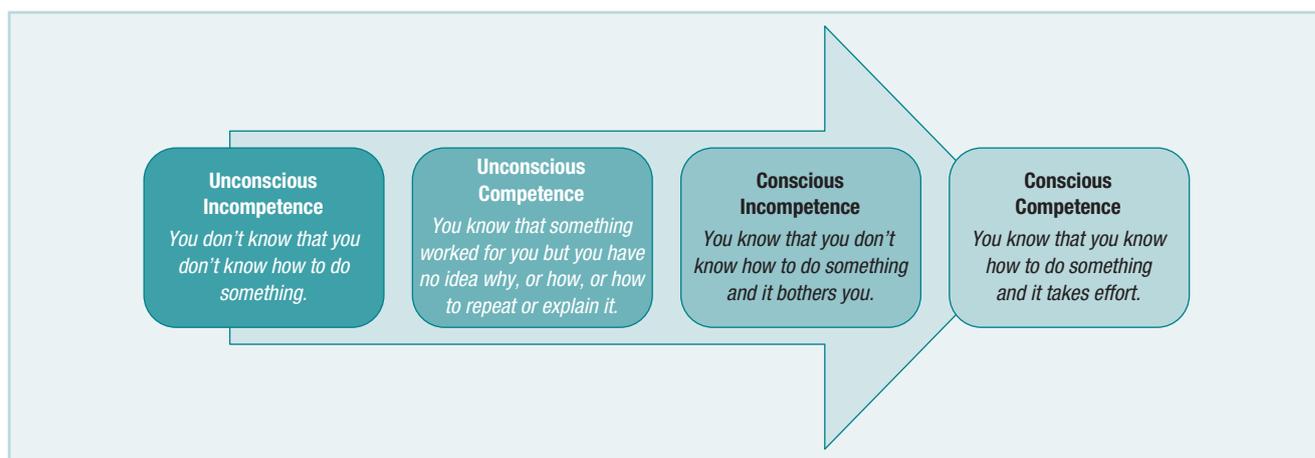
DEVELOPING CONSCIOUS COMPETENCE (AS TEACHERS AND IN LEARNERS)

Here’s a big, itchy problem: Teachers, even those who have a repertoire for transformational teaching, often revert to traditional practices due to the pressures of curriculum, school structures and schedules, parental/learner/colleague expectations, standard assessments, and so on. EMPOWER is a powerful solution because it provides a coherent and research-proven response to “But we’ve always done it this way.” It also provides educators with a common language for thinking and talking about teaching and learning.

The hallmark of expertise—and the goal of all teaching and learning—is the achievement of conscious competence. Conscious competence in teaching occurs when you achieve a level of mindful awareness and the necessary tools to successfully identify a group of interrelated learning targets, monitor progress toward them, productively struggle through challenges along the way, reflect to understand and explain student learning, and move forward. When we proceed with conscious competence as teachers, we can assist learners to conscious competence as well.

With the achievement of conscious competence in learners, a room full of teachers and thinking partners is created. Conscious competence does not mean that solving any problem at hand will run smoothly. What it does mean is that the teacher and/or learners have a sense of when things go awry, can explain why that might be, and can develop a path of action for what to do about it. They have the capacity to monitor, reframe, develop, and draw on a repertoire for moving forward. This kind of expertise can eventually be internalized and might look like *unconscious* competence, but the expert can return to the 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 CONTINUUM



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 much at stake when we consider how to most effectively teach. *For teachers*, this is about achieving higher purpose and a higher level of professionalism, developing **conscious competence**, possessing the capacity to develop knowledge about teaching and our subjects, experiencing joy as a teacher—and working to develop the fullest capacity of each and every learner. *For learners*, it's about finding engagement and joy through learning, understanding, and conscious competence, as well as discovering and forging an evolving identity as a learner, reader, scientist, mathematician, and so on. Most of all, it's about achieving transfer of learning toward the next task and into the future. *For teachers and learners*, 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 in meeting all of these goals.

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

Teaching well means that learners and their understandings are transformed—that they achieve transferable ways of knowing, doing, thinking, and being—and 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.