BEYOND A RULE-FOLLOWING MODEL OF SKILLFUL PRACTICE IN TEACHER DEVELOPMENT

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Abstract. Both contemporary popular and scholarly discourse on teacher development and evaluation assumes the truth of a certain view of normative human behavior, one that holds that skill in a given domain is predicated upon the application of maxims, rules, or principles in a given situation. Such a view would allow one to isolate behaviors associated with expert practice, distill the rules that give rise to them, and both develop new teachers and evaluate practicing teachers on the basis of such maxims. In this essay, Derek Gottlieb argues that the phenomenon of skillful teaching, and studies thereof, expose the inconsistencies and confusion underlying this model, encouraging the field generally to consider alternative holistic accounts of expert teacher practice as we seek to train and appraise great teachers.

Introduction

“And what [is] teaching,” asks Elizabeth Green, writing in the New York Times Magazine, “if not a series of bite-sized moves?” 1 Despite the fact that Green phrases it as a truism, I argue in this essay that teaching is no more a series of bite-sized moves than riding a bicycle is a series of bite-sized moves. I maintain that attempts to specify and extract the knowledge, rules, reasons, and behaviors believed to underlie or cause that which is recognizable as good teaching both stem from and reproduce conceptual confusion around skillful teaching. Specifically, I contend that this distortion follows from and leads to what Simon Glendinning calls a “phenomenon-splitting” account of skillful practice — an account that inaccurately separates the rule from the event, the mental from the behavioral, and the teacher from the classroom context. 2

Such accounts prove nefarious precisely because they reify a view of teacher practice in which events follow logical rules, behaviors follow cognition, and judgments follow from abstract and articulable reasons. In each case, the problem for teacher educators becomes a problem of propositional knowledge — adequate knowledge of correct criteria will yield a flawless evaluation; adequate knowledge of the situation and the rule book, as it were, will yield flawless practice. Perhaps most contentiously, I argue that even the foremost scholar in the field of teacher development, while explicitly recognizing the insufficiency of the model just described and seeking a way around it, nevertheless retains in his discussions of


skillful behavior a reliance upon propositional knowledge as a causal condition of exemplary practice.

I seek to demonstrate that while such propositional knowledge has a place in the development of good teachers, the ways in which excellent teachers cease to rely on propositional knowledge in their day-to-day practice represents a new dimension of the discussion of teacher development and merits a research project of its own.

Behaviorism as Insufficient to Developing Excellent Teachers

The educational journalism of *New York Times* reporter Elizabeth Green and the project she documents, orchestrated by Doug Lemov, serve as good examples of a view of teacher practice in which the quality thereof is both recognizable and transferable by means of correlating student performance on state assessments with particular teacher behaviors. This approach assumes that teaching as a skillful activity is properly characterized as “a series of bite-sized moves,” as Green puts it. Lemov’s project involves studying the practice of excellent teachers — whose excellence is certified by their students’ performance on state assessments — and extracting the “bite-sized moves … meant to be adaptable to everyone” that apparently cause those high test scores. The hope, as Lemov puts it, is to “get [teachers] to improve really fast and at scale.” I maintain that the implementation of “Lemov’s Taxonomy” is both insufficient to the (re)production of excellent teaching and a dangerous acquiescence to an equally inadequate view of skillful human practice in any given domain, as Green’s contradictory interpretations of the identical behaviors serve to demonstrate.

In her in-depth examination of Lemov’s approach to the problem of developing “a better teacher,” Green depicts and evaluates several teachers in the act of teaching. Early in her article, Green describes a seemingly baffling situation: a Syracuse school that seems to have all of the indicators associated with academic success — a “state of the art curriculum,” teachers “who seem to care,” “rigorous standards,” and even “a software program to analyze test results for each student” — still manages to fail. As Green says, “when it came to actual teaching, to the daily task of getting students to learn, the school floundered.”

She then offers examples of classroom phenomena that she intends to support her claim: “Students disobeyed teachers’ instructions, and class discussions veered away from the lesson plans. In one class Lemov observed, the teacher spent several minutes debating a student about why he didn’t have a pencil.”

Although the primary evidence of the school’s pervasive failure rests in the state assessment — “student test scores had dipped so low that administrators worried the state might close down the school” — Green nonetheless explicitly draws the connection between test scores and the quality of the school’s teaching: “when it came to actual teaching … the school floundered.” She then points

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to the above phenomena as evidence by which her readers will see what she sees: floundering teaching. According to her description, poor teaching consists, at least partly, in students’ disobeying teachers’ orders, class discussions’ diverging from the lesson plan, and teachers’ choosing to engage with students about class preparation at the expense of whatever else these teachers had planned. Green conveys the deficiencies of the teaching by means of these particular examples.

Later in the article, however, Green will use precisely the same behaviors, the same practices, in order to laud Deborah Ball for using her “pedagogical content knowledge” in order to further her students’ learning. Green describes an exemplary lesson, in which Ball engages with one of her students, a boy named Sean, in what amounts to number theory. The results are striking:

Ball had a goal for that day’s lesson, and it was not to investigate the special properties of the number six. Yet by entertaining Sean’s odd idea, Ball was able to teach the class far more than if she had stuck to her lesson plan. By the end of the day, a girl from Nigeria had led the class in deriving precise definitions of even and odd; everyone — even Sean — had agreed that a number could not be both odd and even, and the class had coined a new, special type of number, one that happens to be the product of an odd number and two. They called them Sean numbers.

Earlier, Green had set out some criteria by which floundering teaching is recognizable as such; among those criteria was the “veer[ing] from the lesson plan” of a given discussion. Yet here, precisely by not “[sticking] to her lesson plan,” Ball “was able to teach the class far more.” This type of behavior — veering from the lesson plan — thus characterizes the quality of both excellent and poor teaching. It serves to demonstrate the excellence in excellent practice as well as the deficiencies in poor practice. It cannot, therefore, function as a criterion of identity for either, nor would anyone wish to use such a criterion in articulating rules or maxims for new teachers to follow. Adherence to such a rule could lead to either excellent or terrible practice.

But for Lemov and Green alike, teaching — even good teaching — is identifiable not only according to outcome measures, but also according to the specific behaviors that correspond to these desirable outcome measures. By naming and describing these behaviors, and then imparting them to new or less skilled teachers, Lemov hopes to bring these poor performers up to the very high standard that the American people seem to expect. According to Lemov, we can solve the problem of bad teaching simply by providing teachers with better techniques, better rules to follow.

That a certain teacher behavior exemplifies excellent practice in one case, while typifying poor practice in another, suggests either that the specific behavior in question is not a good proxy for teaching quality overall, or that attempting to declare a certain level of teacher competence based on the presence or absence of certain behaviors represents a fundamentally erroneous approach.

Perhaps the example just described is simply a case of misidentifying a correct teaching technique and not sufficient to indict the entire attempt to distill isolated behaviors from skillful practice. But I argue that the attempt to atomize skillful practice into its barest components necessarily causes the observer to distort the
observed practice in the process of atomization. Something in the classrooms of Ball and of the Syracuse school led Lemov and Green to see one case of veering from the lesson plan as exemplary of good technique and the other as typifying poor technique. But in attempting to view quality teaching merely in terms of isolable teacher behaviors, the context-specific elements that made one case poor teaching and the other good teaching drops out of the analysis. Behavioral criteria in the form of isolable techniques therefore appear insufficient to guarantee the presence of good teaching in either evaluation or reproduced practice.

Mental Causation as Insufficient to Flexible Responsiveness

Lemov’s approach constitutes raw behaviorism, an approach that holds that abstract and isolated teacher behaviors will have consistent and consistently positive effects on student outcomes, such that the task for teacher preparation becomes merely the inculcation of these behaviors in new teachers, and the task for teacher evaluators becomes merely the seeking out of these same behaviors, whose presence indicates quality and whose absence indicates its lack.

Despite the fact that Lee Shulman, an expert in teacher preparation, has seen his ideas labeled behavioristic as well, his own response to such criticism reveals that his approach is much more sophisticated. However, I hope to establish that even Shulman’s sophisticated view proves an inadequate account of the excellent teaching practice he valorizes; that such a view is predicated upon similarly flawed assumptions about the causal relation of mental states or internal beliefs to skillful practice, and is thus susceptible to problems akin to those that plague behaviorism; and that as a result, Shulman’s view also draws attention away from certain salient aspects of teacher preparation and evaluation.

While Shulman recognizes the importance of attending to truly excellent teacher practice as a means of developing good teachers, I argue that his descriptions of such practice are insufficient to support his assumptions about the ways in which good teaching works in practice. Shulman opens one of his oft-cited articles, “Knowledge and Teaching,” with a long description of a good teacher’s practice. Of Nancy, a “twenty-five-year veteran English teacher,” he notes that “the observer had been well impressed with the depth of [her] understanding of that novel and her skill as a pedagogue, as [the observer] documented how Nancy helped a group of California high school juniors grasp the many faces of that masterpiece.”

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Thus Nancy’s pattern of instruction, her style of teaching, is not uniform or predictable in some simple sense. She flexibly responds to the difficulty and character of the subject matter, the capacities of the students (which can change even over the span of a single course), and her educational purposes.  

The observer’s notes provide us with a solid description of good teaching: in the field of education, it is axiomatic that a teacher must consider the specific requirements of the subject matter, the needs of the learners, and the aims of society, or what the observer here calls “her educational purposes.” When the observer notes that Nancy does this skillfully, “flexibly” negotiating these three poles, the observer points directly at the flexibility Nancy exhibits in her instruction and importantly notes that the resultant instruction is “not uniform or predictable” in any “simple sense.” The flexibility involved in addressing these three guideposts characterizes the quality of Nancy’s teaching.

This is markedly different from Lemov’s approach in at least one crucial way: where Lemov assumes that the fixed and identifiable behavior contains or constitutes the excellence in excellent practice, such that transferring specific techniques among teachers and classrooms will distribute excellent practice rather than a mélange of disconnected and isolated “tricks,” Shulman is careful to note that Nancy’s behaviors themselves are not “uniform or predictable in some simple sense.” Nancy’s good teaching, Shulman avers, has more to do with her flexible responsiveness than with the rigid application of isolated techniques. In point of fact, Nancy’s excellent teaching does not always look self-identical and is irreducible to a set of “best practices,” but it nonetheless always appears as “excellent teaching.” Shulman thus rightly acknowledges that understanding skillful teacher practice cannot be conceived as a form of behavior analysis, and on this point he diverges from Lemov and behaviorist schools of thought generally.

However, if Shulman rejects the notion that one might derive isolated and static behaviors from skillful practice in order to develop new and skillful teachers, his intellectual project nonetheless assumes that there is an isolated and static something that causes, underwrites, or grounds the flexible responsiveness that characterizes Nancy’s teaching. Shulman terms this something “strategic knowledge,” which he also relates to his concept of “the wisdom of practice.” My aim here is not to deny that something like “strategic knowledge” or “the wisdom of practice” exists, nor that it is part and parcel of skillful practice, nor even that an observer can easily ascertain these things by watching good teachers at work. My aim is to challenge the assumptions (a) that skillful practice is caused by these two elements in some combination; (b) that “the wisdom of practice” or “strategic knowledge” is available either to the practitioner or an observer in the form of “maxims that guide [or provide reflective rationalizations for] the practice of able teachers”; and, most importantly and following from the above, (c) that

5. Ibid., 3.
instilling in new or ineffective teachers the distilled “wisdom of practice” and “strategic knowledge” in the form of said maxims and rules represents a means of developing excellent practitioners. I argue that this approach, while more nuanced and promising than Lemov-style behaviorism, retains in its assumptions about the causal conditions of skillful practice some of the same flaws that undermine behaviorist accounts and that better accounts of skillful practice, such as that offered by Hubert Dreyfus, will avoid “phenomenon-splitting” modes of explanation.

Strategic Knowledge and the Wisdom of Practice

In “Knowledge and Teaching,” Shulman uses Nancy’s example as a jumping-off point for his own discussion of teacher capacities. Immediately following the narrative example of Nancy’s practice, Shulman asks, “What does Nancy believe, understand, and know how to do that permits her to teach as she does?” From the answers provided by this mode of interrogating Nancy’s example, Shulman hopes to better prepare other, future teachers, so that “teaching like Nancy’s can become typical.”

Shulman’s question rests on two assumptions: first, that Nancy’s beliefs, understandings, or know-how bear a causal relation to her teaching, that they “permit her to teach as she does”; and second, that understanding, believing, and knowing how are all similar species of mental states, states that can be rendered linguistically in the form of an answer to the question, “What does Nancy believe, understand, and know how to do that permits her to teach as she does?”

Addressing the second assumption first, understanding and believing are widely understood as similar concepts, each involving, broadly speaking, the mind and mental activity. One may articulate a belief unproblematically: I believe that in situation $x$, method $y$ is most appropriate. I believe that Santa Claus exists. Beliefs thus appear in the form of propositions. In fact, it is impossible to imagine a belief that is not amenable to articulation as a proposition. Understanding is conceptually quite similar, particularly in the way Shulman wields it grammatically: Nancy understands something, a direct object, that “permits her to teach as she does.” Furthermore, the question Shulman asks limits the scope of the concept of understanding here. One cannot respond that Nancy understands something large and vague, like “the classroom environment,” since such a response merely invites further atomization. Which aspects of the classroom environment does Nancy understand? What specific knowledge of the classroom environment comprises or constitutes this understanding? Understanding, as Shulman’s question constructs it, thus shares a category with belief, insofar as the understanding will manifest itself in a propositional form that precedes skillful practice. Nancy understands $x$, which means she knows something propositional about $x$, and this knowledge “permits” her to teach well.

Know-how, on the other hand, does not fit well conceptually into a category that includes belief and understanding, and herein lies a problem for Shulman’s model. Shulman acknowledges that know-how is fundamentally different from belief and understanding in a variety of places throughout his writings by appealing to the concept of “judgment” in the Schwabian sense of the term. In fact, Shulman points out that such know-how manifests itself in situations where belief in, or understanding of, maxims or rules proves insufficient: “But when you must lead away from a king to lead fourth highest, then propositional knowledge alone becomes limited in value. Strategic knowledge (or judgment) is then invoked.”

Shulman explicitly differentiates between strategic and propositional knowledge. For Shulman, then, such know-how is a kind of enacted judgment, of judgment in action, and he is quite right to understand it this way.

However, in his attempts to get at the nature of judgment, Shulman goes awry. When he asks Nancy to declare, as it were, “what she knows how to do,” Shulman changes the conception of know-how or “strategic knowledge” into something propositional, as any answer to the question would require. This move also splits the phenomenon of flexible responsiveness, separating the action from the judgment and compelling judgment to present itself in propositional terms along the lines of belief and understanding, such that “strategic knowledge,” like belief and understanding, might precede or stand above the actual classroom practice of excellent teachers. Shulman’s attempt to gather and theorize belief, understanding, and know-how under the same conceptual rubric transforms, against his own explicit wishes, strategic knowledge into a propositional kind.

But before turning to the demonstration of the distortion in question, it will be helpful to briefly mention again the first assumption Shulman makes — that Nancy’s skillful practice is “permitted” by a set of factors that is antecedent to the practice itself. If the distortion of know-how follows the trajectory I perceive, and know-how cannot be reduced to a species of propositional knowledge that is [like belief and understanding] separable from and prior to its enactment, then it follows that inasmuch as know-how is involved in skillful practice, the set of factors that supposedly causes or permits skillful practice will always be incomplete when the set appears in the codified representations for which Shulman strives. Something more than this will be required in order to develop new skillful practitioners by drawing on the wisdom of existing practitioners.

In pursuing this “something more,” it is important to see the site of the conceptual distortion of know-how clearly. This site manifests itself in Shulman’s accounts of “the wisdom of practice” and “strategic knowledge.” Shulman defines the first notion as follows: the wisdom of practice consists of “the maxims that guide [or provide reflective rationalizations for] the practices of able teachers.”

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This definition explicitly conceives of the wisdom of practice as a set of maxims, a series of rules. Shulman further attributes a dual function to these maxims: they both guide practice and provide reflective, post hoc rationalizations for teacher practice. An assumption underwriting this view of practical wisdom is that all teacher practice, from novice to expert, is fundamentally the same: no less than the novice, the excellent veteran teacher is “guided” more or less explicitly by maxims as he or she teaches, such that extracting the rules and maxims that veteran teachers follow might serve to develop new teachers.

But this assumption is faulty, as lived experience demonstrates. A first-year teacher finds herself constantly and consciously following maxims and rules in her practice. She recalls from her recently completed preservice training all the things her professors warned her about, all the methods they taught, and she struggles moment by moment to categorize the type of situation she finds herself in and to respond appropriately, given those rules. It is exhausting. Every teacher will recall the feelings of confusion, the relentless fatigue born of such ferocious and conscious attempts to respond well to the dynamic situation of the classroom. For the fifteen-year veteran, though, the experience is altogether different. While the veteran still cogitates and reasons and plans, obviously, the ability to flexibly respond to the chaos of the dynamic and emergent situation in the classroom seems to come naturally. We have language for this: the veteran teacher “is more on top of things” than the neophyte. The veteran teacher “is more at home in the classroom.” These phrases indicate something important: that at a certain point along the development of truly skillful practice, one ceases to rely upon maxims and rules, even implicitly. Managing the classroom environment and conducting the school day simply become “second nature,” another handy phrase that names this phenomenon. The first-year teacher is like a tourist abroad, consulting phrase books to order a coffee. The veteran teacher is like a native speaker. Just as native speakers do not explicitly reason out the best way to order coffee, veteran teachers do not necessarily reason out the best way to address a disruptive student. Like Nancy, they (simply) flexibly respond. Although the native speaker would be able, if pressed, to provide a reason for ordering coffee in a particular way, this post hoc rationalization is not evidence that the native speaker relied upon certain rules and maxims in order to do so.

However, this is precisely what Shulman assumes in treating “able teachers” and neophytes as a monolith. The ability of a professional to offer post hoc rationalizations is conflated with the professional’s use of those maxims in guiding teaching practice. This conflation is harmful for precisely the reason that Shulman himself identifies in the following sentence from “Knowledge and Teaching”: “One of the more important tasks for the research community is to work with practitioners to develop codified representations of the practical pedagogical wisdom of able teachers.”10 Such a task is important to the research community only insofar as the wisdom or practice actually guides skillful teachers.

10. Ibid.
as maxims and rules. A professional’s ability to point to these maxims after the fact in order to defend or rationalize their practice is apparently meant to serve as evidence that such maxims preceded the activity itself. Again, this is insufficient evidence, as Hubert Dreyfus points out:

Indeed … the phenomena suggest that an expert has long since abandoned general rules as bikers set aside their training wheels. Thus, when an expert is forced to give the reasons that led to his action, his account will necessarily be a retroactive rationalization that shows at best that the expert can retrieve from memory the general principles and tactical rules he once followed as a competent performer.11

Dreyfus piggybacks here upon a Wittgensteinian insight: “Remember that we sometimes demand explanations for the sake not of their content, but of their form. Our requirement is an architectural one; the explanation a kind of sham corbel that supports nothing.”12 The fact that a rationalization can appear after the fact is not evidence that it functioned as a guiding principle beforehand. In fact, Dreyfus also rejects the notion that the rules and maxims become at some point implicit in practice: “To assume that the rules we once consciously followed become unconscious is like assuming that, when we finally learn to ride a bike, the training wheels that were required for us to be able to ride in the first place must have become invisible.”13

None of this is to say that divining maxims and rules from skillful practice for the purpose of developing novice teachers has no value; it is merely to insist that “codified representations of the practical pedagogical wisdom of teachers” do not contain or certify the skillfulness of the practice from which they are derived. Again, Ludwig Wittgenstein made a similar point:

No matter how you instruct him in continuing the ornamental pattern, how can he know how he is to continue it by himself? — Well, how do I know? — If that means, ‘Have I reasons?’, the answer is: my reasons will soon give out. And then I shall act, without reasons.14

Know-how or judgment — the essence of the practical, as Shulman would be happy to acknowledge — is about “choice and action, in contrast with the theoretic, which is concerned with knowledge.”15 The break with propositional knowledge that enacted judgment entails, I argue, is more radical than Shulman appreciates; or, more properly speaking, skillful enacted judgment is so essentially both knowledge and action at once that attempting to partition it into those two aspects and establish a causal relation between them inevitably distorts the very capacity that


Shulman seeks to understand. In attempting to capture the wisdom of practice in codified representations and attempting to compel strategic knowledge to explain itself in propositional terms, Shulman unwarrantedly splits the phenomenon of skillful practice into *a priori* knowledge and ensuing action; consequently, his emphasis on the maxims that guide or provide rationalizations for such practice constructs the problem of skillful activity as a problem of knowledge. Shulman’s model, in a move with which he might himself disagree, assumes that knowledge precedes all action, including skillful practice. Despite his many plaudits of the concept of judgment and his acknowledgment of its irreducibility, his descriptions thereof overemphasize the role of reasons and rationality in enacted judgment.

Strategic knowledge serves as Shulman’s account of that which goes beyond the rule- and maxim-bound role of propositional knowledge in skillful teacher practice, but his discussions of strategic knowledge reveal it to be merely another species of propositional knowledge. As noted previously, Shulman ties strategic knowledge directly to the concept of judgment: it names the capacity of the skillful practitioner to navigate situations in which either there are no maxims for guidance or in which two or more maxims conflict. Shulman goes on to observe, “When strategic understanding is brought to bear in the examination of rules and cases, professional judgment, the hallmark of any learned profession, is called into play. What distinguishes mere craft from profession is the indeterminacy of rules when applied to particular cases.”\(^\text{16}\) He acknowledges here that “the wisdom of practice,” which appears in or is amenable to the form of codified representations, is insufficient to the actualization of fully skillful practice. Strategic knowledge enters the picture precisely when the distilled wisdom of practice cannot, for one reason or another, guide one’s practice, and it therefore represents Shulman’s bridge from rule-following behavior to skillful veteran practice. Again, he appears to have the whole phenomenon of skillful coping, as long as strategic knowledge does not lapse into a form of propositional knowledge.

However, Shulman does place a premium on understanding judgment as a form or result of propositional knowledge, which itself *is* amenable to codified representation: “The professional holds knowledge,” Shulman says in the sentence immediately following the one just quoted, “not only of how — the capacity for skilled performance — but also of what and why. The teacher is not only a master of procedure but also of content and rationale, and capable of explaining why something is done.”\(^\text{17}\) This emphasis on explaining why something is done serves here, as it does in the “wisdom of practice” example, as post hoc evidence of an *a priori* knowledge that caused or permitted the skillful practice in question. Shulman is very clear that the concept of “strategic knowledge” enters where “propositional knowledge” leaves off, but he wishes as a scholar to extract from the enacted, embodied strategic knowledge precisely the “what and why” that *must*, in his model, permit or underlie the judgment visible in flexible responsiveness.

\(^{16}\) Shulman, “Those Who Understand,” 211.

\(^{17}\) Ibid.
He is explicit in drawing a causal relation between such articulable knowledge and judgment elsewhere as well, portraying skillful teachers as “refer[ring] to the full range of practical arguments ... as they reason about and ultimately make judgments and decisions about situations they confront and actions they must take.”\textsuperscript{18} The reasoning to which he refers takes place beforehand; the judgment proceeds from the teacher’s weighing of arguments, arguments that are propositional. Shulman appears to insist either that the interrogation of judgment should yield propositional results, in which case it is difficult to see how strategic knowledge is truly nonpropositional in nature; or that the “how — the capacity for skilled performance,” because of its nonpropositional nature, straightforwardly resists or does not warrant meaningful academic attention. The point of my analysis is not to suggest that propositional reasoning never informs or should not inform judgment; the foregoing merely highlights the fact that, following Martin Heidegger, judgment is never reducible to the type of calculative process that Shulman’s model requires.\textsuperscript{19}

In his 2007 response to Rodney Evans’s criticism of his work, Shulman accepts and even reproduces a quotation from Heidegger on the “wealth of the possible” that Evans includes, but if Shulman applauds Heidegger’s idea, he seems to miss the point, which is to undercut the possibility of arriving at a self-consistent propositional ground for the infinitely variable set of practices that “inspires” Shulman.\textsuperscript{20} As Dreyfus says,

On [Heidegger’s] account, the modern views according to which objects cause visual experiences, and experiences of volition based on beliefs and desires cause actions, give us an analysis of the special case of deliberate action, but “pass over” both skillful coping and the background.\textsuperscript{21}

One of Heidegger’s most important insights divorces the notion of mental causation from discussions of “skillful coping,” observing that what we do when we engage in skillful activity is so little a matter of conscious reasoning that attempting to understand the sort of flexible responsiveness that Nancy’s teaching exemplifies by recourse to post hoc rationalizations in effect transforms the actuality of Nancy’s practice from an ungrounded situational responsiveness into what Shulman calls “grounded unpredictability, the exercise of reasoned judgment,”\textsuperscript{22} a construction that once again highlights the primacy of reason as the very ground that determines such judgments.

While it is inaccurate to label Shulman a behaviorist, as some have, his assumption of a ground underlying Nancy’s responsiveness leads the field

\textsuperscript{18} Shulman, “Practical Wisdom in the Service of Professional Practice,” 560.


\textsuperscript{20} Shulman, “Practical Wisdom in the Service of Professional Practice,” 562.

\textsuperscript{21} Hubert L. Dreyfus, Review of Frederick A. Olafson’s Heidegger and the Philosophy of Being, Philosophical Review 100, no. 3 [1991]: 526.

\textsuperscript{22} Shulman, “Those Who Understand,” 211.
to overvalue Nancy’s after-the-fact, propositional rationale for her particular judgments in the classroom, and it precludes the possibility of raising the more salient question: if Nancy’s flexible responsiveness is a species of Heidegger’s ungrounded “skillful coping,” how does a teacher move from conscious rule- and maxim-following behavior to a flexible responsiveness like Nancy’s? If one cannot guarantee or predict good teaching beforehand on the basis of reason and rationale, how can a teacher consistently teach well?

**An Alternative Account of Developing Skillful Practitioners**

Hubert Dreyfus first made a name for himself as a philosopher at the Massachusetts Institute of Technology by presciently predicting the failure of the research into “strong” artificial intelligence (AI) funded by the Defense Advanced Research Projects Agency. On Dreyfus’s view, the structural assumptions of early AI research contributed directly to its collapse. AI’s approach assumes a clear distinction between a consciousness and a world, and for that reason, intelligent or skillful behavior would depend upon two things: (a) adequate (propositional) knowledge of the world and (b) adequate rules for the consciousness to follow. As Dreyfus says in a brief but insightful summary of the matter,

> In the early seventies … Minsky’s AI lab ran into an unexpected problem. Computers couldn’t comprehend the simple stories understood by four-year-olds. Minsky suggested that giving the computer the requisite commonsense knowledge would merely require representing a few million facts. But it seemed to me that the real problem wasn’t storing and organizing millions of facts; it was knowing which facts were relevant.24

Dreyfus goes on to point out that relevance exists only in context, in the mutual engagement of mind and world, and thus resists “codified representation” on either the side of the consciousness or the side of the world. The attention to the question of relevance marks the point of Dreyfus’s major contribution to the discussion of skillful coping. Unlike Shulman’s accounts of “strategic knowledge” and “the wisdom of practice,” the relevancy question forces the practitioner to “choose a perspective” according to which certain situational features demand attention and others retreat into the background. The choice of perspective, I argue, is best understood as an ungrounded leap, akin to the “hazardous commitment” that characterizes early disciplinary inquiry in Joseph Schwab’s writings.25 What little Shulman shares with Lemov consists of a hyperfocus on “codified representations” of facts, reasons, rules, or techniques that are supposed to guarantee the presence and propagation of skillful teacher practice. Such an approach is certainly useful,

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23. Dreyfus uses the terms “expert” and “expertise” in a limited and technical sense: to denote excellence in a particular domain of skillful coping. This is not to be confused with the nefarious connotations of the term Robert Welker considers in work he published in the early 1990s [see Robert Welker, *The Teacher as Expert: A Theoretical and Historical Examination* (Albany: State University of New York Press, 1992)]. Despite the possibility for confusion, I have retained Dreyfus’s usages in quotation because they are so prevalent in his work. For my own part, I choose “skillful” or “excellent” as a means of avoiding confusion with Welker’s critique.


but its utility has limits, and Dreyfus’s account of skill development directs our
attention beyond those limits to other meaningful aspects of skillful practice.

Dreyfus and his brother, in their 1986 book *Mind Over Machine*, illustrate
the clear distinction between knowledge *that* and knowledge *how*, and in
doing so they recognize two important things. First, know-how, contrary to
Shulman’s account, is never really articulable “in the form of facts and rules,”
or even amenable to post hoc causal accounts; given this, it is impossible
to answer the question, “What does Nancy know how to do that permits
her to teach as she does?” Second, know-how emerges from “practice and
sometimes painful experience.” In this section I flesh out the picture of how
practice and pain (and also joy) might contribute to the development of skillful
practice.

Dreyfus and Dreyfus lay out a five-part phenomenological account of skill
acquisition. Broadly speaking, the first two phases of this account describe the
role that rule-following (propositional knowledge) plays in skill acquisition, while
the final two phases offer an account of Shulman’s “flexible responsiveness”
[know-how] without recourse to any ground in antecedent reason. I wish,
however, to focus on the third, middle phase of their account, in which the
philosophers explain how one makes the transition from rule-following to flexible
responsiveness.

Dreyfus and Dreyfus label this middle stage “competence.” In terms of its
continuity with the earlier rule-following stages, in which action depends on
[propositional] knowledge of situational features and [propositional] knowledge of
rules to follow, the competent practitioner has, in this stage, begun to perceive
a literally overwhelming number of situational aspects in the process of his or
her practice, and each one calls to the practitioner in such a way that selecting
any one over the rest becomes difficult. Without the sense of relevancy, the
number and variety of aspects calling for his or her attention threatens to result in
paralysis. In order to cope with this overwhelming horde of aspects, the competent
practitioner must choose a perspective, which will define the situation such that
the aspects will sort themselves according to their importance with regard to that
perspective. In a subsequent article, the authors describe the frightening position
of the overwhelmed learner, and the failure of rules in this situation:

> Indeed, in any skill domain the performer encounters a vast number of situations differing
from each other in subtle ways. There are, in fact, more situations than can be named or
precisely defined, so no one can prepare for the learner a list of types of possible situations
and what to do or look for in each. [Learners], therefore, must decide for themselves in each
situation what plan or perspective to adopt without being sure that it will turn out to be
appropriate.28

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27. Ibid., 16.

28. Hubert L. Dreyfus and Stuart E. Dreyfus, “Peripheral Vision: Expertise in Real World Contexts,”
This looks very similar to the role Shulman ascribes to the concept of strategic knowledge. The choice of a perspective allows the competent practitioner to navigate the overwhelming indeterminacy of the rules that govern the application of behaviors within the overwhelming multiplicity of situational aspects that appear. But Shulman’s model, despite his explicit efforts to the contrary, constructs strategic knowledge as a species of propositional knowledge, in which the choice of perspective comes from the disinterested application of reason, as though one steps outside of the situation, weighs factors, and then chooses. But because the very factors that one would weigh themselves emerge only on the basis of or according to an existing perspective, there is no such outside-the-world stance for one to take. Choosing a perspective necessarily precedes the possibility of reasoned judgment, and thus the choice always and inevitably represents the hazard in the Schwabian “hazardous commitment.”

And yet, for excellent skillful practitioners, the choice of perspective and the responsiveness that flows from it most often turns out to be appropriate. There must be something at work that, if not “ensures,” then “assists” these practitioners in consistently making the appropriate choice.

The new element that Dreyfus and Dreyfus add to the discussion is that of the practitioner’s emotional involvement in the outcome. They illustrate the shortcomings of abstract reasoning in the following description:

Given this uncertainty, coping becomes frightening rather than merely exhausting. Prior to this stage, if the rules don’t work, the performer, rather than feeling remorse for his or her mistakes, can rationalize that he or she hadn’t been given adequate rules. But, since at this stage, the result depends on the learner’s choice of perspective, the learner feels responsible for his or her choice. Often, the choice leads to confusion and failure. But sometimes things work out well, and the competent [learner] then experiences a kind of elation unknown to the beginner.29

With personal responsibility comes both the euphoria of success and the anguish of failure. That the outcome depends now on the practitioner’s choice of perspective rather than on the veracity or the validity of a set of rules makes the practitioner interested in the result such that the elation becomes a goal and the anguish becomes a penalty. This is a positive thing for our decision-making process in choosing perspectives, Dreyfus and Dreyfus contend.

They anticipate the obvious argument that emotional investment would cloud the issue and undermine the consistent application of good teacher behaviors for which one searches:

While it might seem that involvement could only interfere with detached rule testing, and so would inevitably lead to irrational decisions and inhibit further skill development, in fact, just the opposite seems to be the case. Patricia Benner has studied nurses at all levels of skill acquisition. She finds that, unless the trainee stays emotionally involved and accepts the joy of a job well done, as well as the remorse of mistakes, he or she will not develop further, and will eventually burn out trying to keep track of all the features and aspects, rules and

29. Ibid., 784.
maxims that modern medicine requires. In general, resistance to involvement and risk leads to stagnation and ultimately to boredom and regression.30

The adoption, then, of a particular perspective is an uncertain endeavor in which a teacher is necessarily implicated personally; as Dreyfus and Dreyfus point out, any attempt to make it certain by translating it into the form of articulable “features and aspects” to be navigated according to “rules and maxims” will actually inhibit further skill development in the practitioner. Moreover, they suggest that further skill development relies upon the nonrational and fundamentally hazardous element of emotional involvement, a factor that conceiving of skillful practice solely as a rationally governed process actively precludes. As Dreyfus and Dreyfus say,

Only if the detached, information-consuming stance of the novice ... is replaced by involvement, is the student set for further advancement. Then, the resulting positive and negative emotional experiences will strengthen successful responses and inhibit unsuccessful ones, and the performer’s theory of the skill, as represented by rules and principles, will gradually be replaced by situational discriminations, accompanied by associated responses. Proficiency seems to develop if, and only if, experience is assimilated in this embodied, atheoretical way. Only then do intuitive reactions replace reasoned responses.31

Success in developing excellent teachers requires explicit attention to the nonrational aspects of good teachers’ practice in addition to the types of analyses Shulman pursues; from there, we can attempt to cultivate in inexperienced teachers not only the kind of base-level competence that excellent teachers evince, but also the excellence itself. Further, in acquiescing to our human limits as regards the ability to represent even the highest levels of skillful behavior in abstract, essentialist, universal terms, we might also free ourselves for the task of judging skillful behavior in equally contextualized, local terms. Insisting on a single understanding of behaviors, practices, or rules that constitute or indicate good teaching delimits unnecessarily and without warrant our ability to call great teaching great.

**Conclusion**

I wish to make clear once more that the approaches Shulman and Lemov each adopt are perfectly adequate for the inculcation of competent teaching practice, and thus necessary to the development of excellent teachers. As Green’s article points out, Teach for America is one of Lemov’s clients and a believer in his taxonomy. That program attempts to take fresh-faced college graduates and prepare them for the classroom in an intensive six-week summer course. In this context, Lemov’s behaviorism seems eminently reasonable: without practical experience, becoming truly proficient at a given skill is impossible, but being able to swiftly demonstrate competence upon entry into the context is not.

However, these approaches are not sufficient for the development of excellent teaching practice. The problem for the educational discourse lies in the conflation

30. Ibid., 785.
31. Ibid., 786.
of the process of moving from novice status to competence with the process of moving from competence to excellence. The error rests in the assumption that the same procedure that leads to intermediate-level skill in a given area will lead continuously on to expertise, without the need for any alteration in procedural kind. But experience in the situational context takes over for abstract rules and definitions at a certain point along the developmental continuum, such that continuing to rely upon models of reasoning that refer to rules and definitions will inhibit growth, as Dreyfus and Dreyfus point out.

When Lemov observes the very best teachers, then, he is not observing mere behavior; when Shulman watches Nancy teach, he does not watch a merely reason-governed activity. Buried in the assumptions of their approaches lies an incomplete view of the causal conditions of excellent teaching, one that privileges a priori reasoning and thus abstract knowledge, and that short-circuits the possibility of the flexible responsiveness that Shulman himself seeks. In fact, for practitioners with a certain amount of experience, such reliance on abstractly articulated knowledge will have the opposite of the intended effect, leading to behavioral rigidity and impeding the development of intuition. Furthermore, the distillation of context-free techniques from contextualized expert practice may seduce practitioners in the field into believing that an evaluation of teaching quality based on the presence or absence of those techniques has adequate rigor.

The accounts of teacher skill that Shulman and Lemov adhere to, finally, are models that reach their limit in explaining and developing competent teaching. The models themselves limit the ability of their adherents to progress beyond that. Insofar as the public, through proxies such as Arne Duncan and a host of politicians, clamors for great teaching, the models of teacher excellence critiqued herein require some amendment. In order to develop both competent teachers from rookies and bring those competent teachers to excellence, we will need at a certain point to leave the rule-following model for something much more existential: the inculcation of emotional involvement in the decision-making process such that competent teachers acquire the kind of flexible responsiveness characteristic of the great ones.