Performance Isn’t Everything: The Importance of Conceptual Competence in Outcome Assessment of Experiential Learning

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On January 15, 2009, US Airways Flight 1549 flew through a flock of geese on takeoff from LaGuardia Airport, sucking birds into both of its engines. The engines immediately went dead, turning the plane into a low-flying, extremely heavy glider.

In an emergency situation, US Airways procedures call for the first officer to take the controls so the captain’s decision-making is unencumbered by the distraction of actually trying to fly the plane.\(^1\) On Flight 1549, however, Captain Chesley “Sully” Sullenberger assessed the situation and broke with protocol, taking the controls. Captain Sullenberger calculated that he was the more experienced pilot, he was looking out the side of the plane that faced all the important local landmarks, and furthermore he was not up-to-date with emergency protocols for that particular aircraft. Sully also knew that the first officer, Jeff Skiles, had recently been through training for the aircraft and would therefore more easily find the appropriate checklists and protocols in the bulky emergency handbook.\(^2\)

First Officer Skiles quickly initiated the three-page protocol for the loss of both engines, unaware that the engines had been damaged beyond repair by the goose strikes.\(^3\) While Skiles was struggling to restart the engines per standard procedure, Sully was considering the options for bringing the plane down safely. He saw that Teterboro Airport, in New Jersey, was too far away to reach at their airspeed and rate of descent. He calculated that they also did not have the ability to turn around and return safely to LaGuardia. He also noted that it was a calm day, and the Hudson River, while dangerously cold, was also home to a great deal of river traffic, which meant that rescuers would be able to reach the plane quickly.\(^4\) Concluding that it was safer to land in the river than to follow protocol,\(^5\) he guided the plane to a


\(^2\)Id.


\(^4\)Sully’s Tale, supra note 1.

\(^5\)Id.
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smooth landing, preserving the lives of everyone aboard. The whole event unfolded in just a few minutes, so quickly that Skiles did not make it past the first page of the three-page checklist for engine failure by the time they hit the water.\(^6\)

In the aftermath of these astonishing events, a tremendous amount of attention was paid to Sully’s actions in safely landing the aircraft without the use of the engines. But the focus on Sully’s flying performance obscures an important element of the incident: the reasoning underlying his performance. To successfully land the plane, Sully ignored the US Airways protocols for command and did not rely on the procedure for restarting the engines. If Sully and Skiles had simply performed the procedures they had been trained to follow, perhaps things would have ended much less successfully. Instead, Sully quickly created a new plan to account for the specifics of the situation. His quick thinking led to the actions that saved the lives of the crew and passengers.

The decision making of Sully on Flight 1549 highlights the importance of the cognitive process in expertise. Experts do not simply perform well; they reason well.

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The American Bar Association (the “ABA”) has recently signaled\(^7\) its intention to make a major change in its accreditation standards for law schools by moving away from the current focus on input measures—what students are taught in law school\(^8\)—to a focus on learning outcomes—what students learn in law school.

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\(^6\)The protocol was designed for high-altitude engine failure, not low-altitude failure. The solution proposed by the NTSB was to create additional checklists for low-altitude emergencies. National Transportation Safety Board, supra note 3, at 52.

\(^7\)ABA Sec. on Legal Educ. & Admission to the Bar, Report of the Outcome Measures Committee 1 (July 27, 2008) [hereinafter Outcomes Report].

\(^8\)The current Standard 302(a) mandates a law school to “require that each student receive substantial instruction in:

1. the substantive law generally regarded as necessary to effective and responsible participation in the legal profession;
2. legal analysis and reasoning, legal research, problem solving, and oral communication;
3. writing in a legal context, including at least one rigorous writing experience in the first year and at least one additional rigorous writing experience after the first year;
4. other professional skills generally regarded as necessary for effective and responsible participation in the legal profession; and
In 2007, amidst a growing chorus calling for the incorporation of outcome measures into American legal education, the ABA’s Council of the Section of Legal Education and Admissions to the Bar (the “Council”) created a “Special Committee on Output Measures” (the “Outcome Subcommittee”) and charged it with determining “whether and how [the Council] can use output measures, other than bar passage and job placement, in the accreditation process.” After conducting a thorough review of legal education around the world, professions other than law, and American legal scholarship about outcomes, the Outcome Subcommittee’s report recommended a re-examination and reframing of the Standards for Approval of Law Schools (the “Standards”) “to reduce their reliance on input measures and instead adopt a greater and more overt reliance on outcome measures.”

Responding to the Outcome Subcommittee’s report, the ABA Standards Review Committee has proposed new approval criteria (the “Proposed Standards”) that heavily incorporate outcomes measures. The latest version of the Proposed Standards would require each law school to articulate the outcomes it will seek to give its students. In conjunction with selecting outcomes, law schools would be required to design a curriculum to create those outcomes, assess student learning through a variety of methods to “provide meaningful feedback...
to students,”14 and regularly and continuously assess their success at achieving their student learning outcomes goals.15

Although the proposed changes to the accreditation requirements would generally afford law schools flexibility in determining their own learning outcomes, they also include several required outcome goals. One mandatory outcome measure that schools would be required to adopt is “competency as an entry-level practitioner” in “a depth and breadth” of professional skills.16 This requirement would represent a significant change for experiential legal education: at present, law schools are required only to provide “substantial instruction” in professional skills, with no competency requirement.17

Requiring law schools to focus on instruction in competency in skills is a laudable goal. However, neither the proposed standards nor the proposed interpretations attempt to define the nature of competency in skills. To effectively apply the Standard as proposed to experiential education, the ABA will first need to articulate a definition of competency in practice: is it simply the ability to perform certain skills, or, as in Sully’s case, the ability to reason through problems effectively in practice?

Much of the recent focus by the ABA—and legal scholarship—on defining learning outcomes has been influenced by the 2007 monograph from the Carnegie Foundation for the Advancement of Teaching, Educating Lawyers: Preparation for the Practice of Law18 (the “Carnegie Report” or the “Report” or “Carnegie”), which argues that law schools should make a greater effort to prepare students for the professional practice of law.19 Carnegie draws heavily on the work of Hubert Dreyfus and Stuart Dreyfus20 to articulate a theory of expert

14Id. at Standard 304.
15Id. at Standard 305(a).
16Id. at Standard 302(b). Although the Proposed Standards are silent about which professional skills are required to give sufficient “breadth and depth,” a proposed Interpretation indicates that “interviewing, counseling, negotiation, fact development and analysis, conflict resolution, organization and management of legal work, collaboration, cultural competency, and self-evaluation are among the professional skills that could fulfill” this Proposed Standard. Id. at Interpretation 302-2.

17Standards, supra note 8 at Standards 302(a), 302(b).
19See infra, notes 27 to 39 and accompanying text.
20Sullivan et al, supra note 18, at 116-9. See infra notes 67 to 80 and
legal practice based on performance, which leads to a model for training law students in lawyering skills that stresses the importance of learning the concepts and procedures of the legal profession in a way that is structured for intuitive performance. By focusing on performance as the measure of competence, Carnegie emphasizes the importance of protocols and techniques for performing particular lawyering tasks in curriculum design and outcome assessment.

In reaching its conclusions, Carnegie relied substantially on another report on legal education reform, *Best Practices for Legal Education*21 (“*Best Practices*”). *Best Practices* was published in 2007 by the Clinical Legal Educators Association, an organization of clinical law professors, with the purpose of providing “a vision of what legal education might become if legal educators step back and consider how they can most effectively prepare students for practice.”22 Like Carnegie, *Best Practices* focuses on performance as a measure of competency and suggests varied techniques for teaching law students the tools of the trade.23

However, current research into expert practice indicates that the ability to intuitively follow protocols is not a fully accurate reflection of competence.24 As is apparent from the landing of Flight 1549, experts do not simply rely on intuition or standardized protocols. Sully quickly reasoned through the problem and crafted an appropriate solution. His quick reasoning in the problem-solving process highlights the centrality of cognition to his expertise as a pilot. Current research into expert practice indicates that reasoning is an important element of expertise not only as a pilot but in the practice of professional skills such as lawyering. Expertise in practice involves thinking, reasoning, and decision-making processes.25 Therefore, this research demonstrates that to teach law students to handle their clients’ problems expertly, learning objectives should be geared to the development of effective reasoning strategies to handle different and varied problems, not just intuitive ability to perform.

Given the influence of Carnegie, a strong possibility exists that the ABA—or a law school following the lead of Carnegie—will...

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22 Id. at 1.

23 See infra notes 57 to 62 and accompanying text.

24 See, e.g., infra notes 96 to 132 and accompanying text.

25 See infra notes 81 to 132 and accompanying text.
unreflectively define “competency of an entry-level practitioner” primarily in terms of ability to perform certain lawyering tasks rather than the capacity to reason in practice. The ramifications of such a definition to legal education would be quite significant. It is an axiom of learning theory that the determination of learning outcomes drives the educational process. Accordingly, if the approach to learning outcomes advanced by Carnegie is accepted, all aspects of legal experiential education—from curriculum development to individual course design to outcome assessment—will be focused on training students for intuitive performance, not for reasoning in practice.

In this Article, we respond to the ABA’s call for increased focus on learning outcomes by critically examining the nature of “competency in practice.” Relying on cognitive science research on expertise, we, unlike Carnegie, propose that outcomes in experiential legal education should be primarily focused on students learning to reason in practice. In Part I we describe the approach to legal education, especially the theories of experiential learning and expertise, underpinning the Carnegie Report. In Part II we present findings from current cognitive science research on expert practice and contrast them with the performance-based focus of Carnegie. In Part III we address the different measures of outcome assessment flowing from Carnegie’s approach and our approach. In Part IV, we describe an experiment for assessment of reasoning in practice that we are currently conducting, and its applications. Finally, in Part V, we provide recommendations for the ABA and law schools in defining the nature of learning outcomes.

I. The Carnegie Report

To describe its vision of professional competence, Carnegie identifies what it calls “the three apprenticeships of professional education.” The first of these focuses on student knowledge and “the ways of thinking” of the legal profession—Carnegie calls this the cognitive apprenticeship. The second is the practical apprenticeship, which is concerned with “the forms of expert practice shared by competent practitioners.” The third is the ethical and social

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27 SULLIVAN ET AL, supra note 18, at 28.

28 Id. at 28.

29 Id. at 28.

30 Id. at 28.
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apprenticeship, which incorporates “the purposes and attitudes that are guided by the values for which the professional community is responsible.” Carnegie argues that law schools have focused overwhelmingly on the first apprenticeship, to the neglect of the second and third.

A. The Signature Pedagogy

Carnegie asserts that legal education has traditionally been narrowly focused on the cognitive apprenticeship, through the almost universal use of the “case-dialogue” method of education, in which professors lead students through discussions of appellate cases to tease out legal analysis. Carnegie calls the case-dialogue method the “signature pedagogy” of legal education, its distinct method for inducting new members into the profession. Assessing the success of the signature pedagogy in “preparing students for the complex demands of professional work—to think, to perform, and to conduct themselves like professionals,” Carnegie finds it wanting. While endorsing the case-dialogue method to initiate students into the study of law—as in the first year—Carnegie criticizes law schools’ overemphasis on legal analysis through continued use of the case-dialogue method into the second and third years with diminishing returns.

Carnegie argues that, although the signature pedagogy rapidly socializes students to the academic approach to studying law and adequately teaches students to engage in legal analysis and to “think like a lawyer,” it has several consequences. Rather than preparing students to become lawyers, the signature pedagogy “prolongs and reinforces the habits of thinking like a student rather than an apprentice practitioner.” Carnegie argues that a narrow focus on legal analysis has a “corrosive effect” on professional development because it marginalizes practical and ethical aspects of lawyering.

31Id.
32Id. at 23. The signature pedagogies of other professions described by Carnegie include “the varieties of design and performance studio in engineering and architecture, bedside teaching and clinical rounds in medicine and nursing, the interpretation of texts and instruction in preaching in seminaries.” Id.
33Id. at 27.
34Id. at 77.
35Id. at 186.
36Id.
37Id. at 188.
38Id. at 77.
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To remedy the current imbalance in legal education, the Carnegie Report argues that legal education should establish a new signature pedagogy, one that incorporates training in cognitive, practical and ethical aspects of law through “educational experiences oriented toward preparation for practice.”

B. A Model for Learning from Practice

An important aspect of Carnegie’s model that prepares students for practice is its proposal for increased emphasis on the practical apprenticeship in legal education. In the traditional legal apprenticeship, as Carnegie describes it, a significant amount of the learning came informally from observation and imitation of an expert. The expert modeled performance in such a way that the learner could eventually imitate the performance while the expert provided feedback to guide the learner in making the activity his or her own.

Although Carnegie acknowledges that the traditional apprenticeship of an extended, close individual relationship for practical training is not realistic in legal education today, it purports to reformulate that model to incorporate the benefits of such a relationship into a modern educational setting. In its reformulation, Carnegie urges that the central elements of expert performance should be passed on in a much more formal fashion; they should be studied, distilled, simplified and taught to novices “in the form of rules, procedures, protocols and organizing metaphors for approaching situations or problems.” Carnegie refers to these devices as “scaffolds.” A scaffold could be, for example, a particular interviewing procedure, a protocol for problem solving, a technique for negotiating a deal, or a method for drafting a contract. With its focus on techniques and procedures, Carnegie’s model is based on studying the performance of experts and teaching students to imitate that performance.

In the Carnegie model, increased competence comes as a student gradually accumulates a “toolkit of well-founded procedures” in different areas of legal practice. Within this framework emphasizing

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39 Id. at 88.
40 Id. at 98.
41 Id. at 26.
42 Id. at 98.
43 Id. at 99.
44 Id. at 98.
45 Id. at 103.
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performance, “the prime learning task of the novice in law is to achieve a basic acquaintance with the common techniques of the lawyer’s craft.”46 In this approach, student reasoning takes a backseat to learning expert techniques. In fact, Carnegie argues that reasoning and attention to context by novice learners is unhelpful; instead, it posits that students should be taught to “recognize certain well-defined elements of the situation and apply precise and formal rules to these elements, regardless of what else is happening.”47 To Carnegie, the goal of the practical apprenticeship should be that students accumulate experience by practicing in accordance with the rules,48 and the focus of educators should therefore be on particular “scaffolds”—the techniques, rules and procedures of expert practice.

C. Using Scaffolds in Legal Education

Two examples illustrate the types and uses of scaffolds in a performance-based model of practical legal education.

1. The T-Funnel interview

As an example of the concept of a scaffold for law students, Carnegie points to the textbook Lawyers as Counselors,49 a framework for legal interviewing and counseling developed by several law professors that offers a step-by-step method in the form of a set of “practical guides and techniques”50 for novice interviewers and counselors.

One of the techniques described in Lawyers as Counselors that is touted by Carnegie is “T-funnel” interviewing. Such an interview “is a pattern of information-seeking”51 with two elements: open questions—the ‘upper portion’ of the T—to induce clients to think freely about the problem and ‘elicit evidence from the clients’ own frame of reference.’52 Closed questions—the ‘lower portion’ of the T—are used to focus narrowly on gathering information related to specific legal aspects of the case. The premise underlying this technique is that “thorough information-gathering rests on a combination of open and closed

46Id. at 117.
47Id.
48Id.
50SULLIVAN ET AL, supra note 18, at 102.
51DAVID A. BINDER ET AL, supra note 49, at 167.
52Id. at 168.
questions” in a particular sequence: start with an open question and gradually narrow the questioning.

Expanding on the basic T-funnel concept, *Lawyers as Counselors* gives techniques for using the T-funnel in specific interview situations, such as gathering information about a specific event or a particular topic. *Lawyers as Counselors* also provides techniques for resolving problems frequently encountered by beginners, such as avoiding getting sidetracked, “cycling” through multiple T-funnels to capture as much information as possible, and facilitating recollection in forgetful clients. The scaffold gives a novice a variety of techniques to use in different interviewing situations.

For a teacher, using a scaffold in Carnegie’s model takes on a distinct form: the scaffold is introduced to students, who are given multiple opportunities to practice using it and to receive feedback from the instructor on the use of this technique. In this way, scaffolds can help guide students’ “assimilation of more skillful practice.”

By practicing the application of the T-funnel technique to interviewing, for example, a student can accumulate enough experience with this scaffold to allow her to master its application. The T-funnel technique will then become part of the “toolkit” that, according to Carnegie, the student must assemble to achieve the “skilled performance” -- the goal of the practical apprenticeship.

2. The PrOACT Methodology for Problem Solving

A second example of a scaffold for novices comes from *Best Practices*. As an example of an effective methodology for helping novices develop skills for problem solving, *Best Practices* presents the PrOACT method of decision-making, with its broad applicability and “an easy to remember acronym.” The acronym PrOACT is created from these five steps: Problem, Objectives, Alternatives, Consequences, Tradeoffs. In this approach, the lawyer 1) defines the problem to be solved; 2) determines the desired objective(s); 3) identifies alternative courses of action; 4) evaluates the consequences

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53Id. at 167.
54Id. at 167-78.
55SULLIVAN ET AL, supra note 18, at 101-2.
56Id. at 124.
57See STUCKEY ET AL, supra note 21, at 64.
58Id.
59Id.
stemming from each alternative; and 5) structures how to make
tradeoffs among objectives and alternatives as a prelude to making the
decision.60

Best Practices contends that this protocol can be easily
understood by students and applied within a range of lawyering
tasks.61 By learning to effectively use a scaffold such as PrOACT,
students can take an important step toward becoming effective legal
problem solvers.62

D. The Impact of Carnegie

It would be difficult to overstate the influence of the Carnegie
Report on recent scholarship regarding legal education. The Report has
been cited as an authority in countless scholarly articles about legal
education, across a broad spectrum of pedagogical issues.63

60Id.

61Id.

62Id.

63See e.g. Charlotte S. Alexander, Learning to Be Lawyers: Professional
Identity and the Law School Curriculum, Md. L. REV. 465 (2011) (using Carnegie as a
“starting point” for integrating professionalism into curriculum); Kathleen M. Burch
and Chara Fisher Jackson, Creating the Perfect Storm: How Partnering with the
ACLU Integrates the Carnegie Report’s Three Apprenticeships, 3 J. MARSHALL L.J. 51
(2009) (describing a course designed explicitly to integrate Carnegie’s
recommendations); Kate Nace Day & Russell G. Murphy, “Just Trying to Be Human
in This Place”: Storytelling and Film in the First Year Law School Classroom, 39
STETSON L. REV. 247 (2009) (describing use of storytelling in terms of Carnegie’s
critiques of legal education); Jerry R. Foxhoven, Beyond Grading: Assessing Student
Readiness to Practice Law, 16 CLINICAL L. REV. 335 (2010) (applying insights of
Carnegie to assessment of clinical students); Madeline June Kass, Educating the
describing efforts of environmental law teachers to respond to Carnegie); ; Harriet
N. Katz, Evaluating the Skills Curriculum: Challenges and Opportunities for Law
Schools, 59 MERCER L. REV. 909 (2008) (suggesting ways to change skills curriculum
in light of Carnegie’s goals for skills education); Patricia Grande Montana, Lessons
from the Carnegie and Best Practices Reports: A Look at St. John’s University School
of Law’s Street Law Program as a Model for Teaching Professional Skills, 11 T.M.
COOLEY J. PRACT. & CLINICAL L. 97 (2008) (citing conformity with Carnegie’s
suggestions as support for effectiveness of Street Law course); Brent E. Newton,
Preaching What They Don’t Practice: Why Law Faculties’ Preoccupation with
Impractical Scholarship and Devaluation of Practical Competencies Obstruct Reform
in the Legal Academy, 62 S.C. L. REV. 105 (2010) (citing Carnegie’s recommendations
in support of radical restructuring of law faculty); Sean M. O’Connor, Teaching IP
From an Entrepreneurial Counseling and Transactional Perspective, 52 ST. LOUIS U.
L.J. 877 (2008); John O. Sonsteng et al., A Legal Education Renaissance: A Practical
Approach for the Twenty-First Century, 34 WM. MITCHELL L. REV. 303 (2007) (citing
Carnegie as support for the need for a reform of entire legal education system); Emily
Zimmerman, An Interdisciplinary Framework for Understanding and Cultivating
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Conferences have focused on Carnegie. Law schools have cited the Report as inspiration for curricular design. Indeed, the ABA Outcomes Subcommittee acknowledged Carnegie as a source of “significant guidance” in its study of outcome measures in legal education.

In light of the potential impact of the Carnegie Report on selection and definition of outcomes in the wake of the ABA’s proposed reformulation and application of its Standards, it is important to scrutinize its recommendations rigorously before accepting them as well-founded. To do this, it is helpful to understand the theoretical origins of the model put forward by Carnegie.

II. Role of Cognition in Expert Performance

A. Dreyfus Theory of Expertise

The crucial issue that arises from Carnegie’s focus on performance assessment is whether a theoretical or empirical basis exists for this approach. Cognitive science findings challenge the underlying expertise theory of Carnegie and suggest a different approach to the issue which highlights the cognitive attributes of expert performance, rather than the performance itself. This difference in emphasis is critical to the issue of assessment of law students because the methods of assessing performance and cognition are significantly different.

Carnegie’s theory of expertise is based entirely on the work of Hubert and Stuart Dreyfus – a philosopher and engineer. They posit


Erwin Chemerinsky, the Founding Dean of the University of California Irvine School of Law, designed the skills-intensive curriculum of the new law school “with the Carnegie Report’s recommendations in mind.” Drew Coursin, Acting Like Lawyers, 2010 Wis. L. REV. 1461, 1473 (2010). See also The Third Year in Detail, http://law.wlu.edu/thirdyear/page.asp?pageid=651 (last visited May 25, 2011) (describing Carnegie as one of the “sources of insight that were particularly influential” in Washington & Lee University’s development of a new third year curriculum).

Outcomes Report, supra note 7, at 5-6.

SULLIVAN ET AL, supra note 18, at116-19. The only other source cited by the
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that expertise is simply a matter of pattern recognition. They argue, for example, that we are able to ride a bike because of prior experiences operating such vehicles, not because we are engaging in some kind of cognitive process. As they observe, “No detached choice or deliberation occurs. It just happens, apparently because the proficient performer has experienced similar situations in the past and memories of them trigger plans similar to those that worked in the past and anticipation of events similar to those that occurred.”

They call this ability to use patterns without cognitive rules “holistic similarity recognition” and argue, “Normally, experts don’t solve problems and don’t make decisions; they do what normally works.”

With this theoretical outlook, the Dreyfuses assert that acquisition of this kind of expert intuition requires the novice to learn protocols and strategies for identifying the facts and features of a particular situation and performing in response to these facts. They also contend that people pass through a least five stages of qualitatively different perceptions of their tasks (novice, advanced beginner, competence, proficiency, expertise) as they acquire a skill
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through instruction and experience. After progressing through these five stages of accumulated experiences, a person is unconsciously able to recognize new situations as similar to remembered ones and eventually becomes an expert. This process, the Dreyfuses posit, reflects an evolution from the abstract toward the concrete – “from the analytic behavior of the detached subject, consciously decomposing his environment into recognizable elements, and following abstract rules, to involved skilled behavior based on accumulation of concrete experiences and the unconscious recognition of new situations similar to whole remembered ones.” In the Dreyfuses’ own words, as students become experts, they act arationally. In other words, expert performance is essentially mindless. Accordingly, under the Dreyfus approach, expertise is not reflected as much in cognitive competencies as it is displayed by mindless performance in response to perceived situations.

It should now become apparent why the Carnegie apprenticeship model focuses so much on performance rather than cognition. Consistent with Dreyfus, Carnegie envisions that students should first learn abstract rules, particular strategies, methods, and protocols and learn to recognize patterns and perform in particular situations. Following Dreyfus, the report contends that after numerous experiences, students go through different stages and acquire expertise. As they develop expertise, they stop relying on abstract rules and instead respond unconsciously to new situations by perceiving similarities to whole remembered past experiences.

Accordingly, as described previously, Carnegie contends that the

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73 Id. at 19-35.
74 Id. at 35.
75 Id.
76 Id. at 36.
77 See Tim Thornton, Clinical Judgment, Expertise and Skilled Coping, 16 J. EVALUATION IN CLINICAL PRAC. 284, 290 (2010). See also Peña, supra, note 67, at 3 (noting that under the Dreyfus model, “the brain is a secondary or spurious referent”). It is surprising that the clinical community, with its long tradition of encouraging the teaching of “reflective practice,” see, e.g., Richard K. Neumann, Donald Schön, the Reflective Practitioner, and the Comparative Failures of Legal Education, 6 CLINICAL L. REV. 401 (2000) has been at the forefront of urging the adoption of a report that is based on a theory which envisions mindlessness as the goal of legal education.
78 SULLIVAN ET AL, supra note 18, at 99, 117.
79 Id. at 116.
focus of experiential education should be primarily on performance – the student’s “ability to judge that when a situation shows a certain pattern of elements, it is time to draw a particular conclusion, ... [and to] act in a certain way to achieve the selected goal.” It is the student’s action, rather than her reasoning process, that is of paramount importance.

B. Cognitive Science Critique of the Dreyfus Theory of Expertise

Most cognitive scientists do not dismiss the role that pattern recognition plays in expert performance, but they reject the notion that intuitive pattern recognition alone is determinative of expert performance. In fact, the Dreyfus theory conflicts with a number of empirical findings on expert decision making. First, studies show that, contrary to that theory, in many domains requiring complex problem solving, expertise is not reflected in a decrease in abstract thought and a concurrent increase in concrete thinking. Indeed, in those domains, experts have been found to analyze problems at a deeper, more abstract level than nonexperts. Second, the existence of progressive stages in expert development is not supported by the evidence. The Dreyfus theory suggests that the more experience individuals have in a particular area, the more intuition they would acquire, and the more expertise they would gain. Studies have shown, however, that those individuals with extensive experience in a field do not necessarily perform any better than less-trained persons. In fact, the number of

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80Id. at 117 (emphasis added).

81See, e.g., Vimla L. Patel et al., Steering through the Murky Waters of a Scientific Conflict: Situated and Symbolic Models of Clinical Cognition, 7 ARTIFICIAL INTELLIGENCE IN MED. 413, 421 (1995) (in examining cognition in the medical treatment, authors acknowledge that the performance of physicians in routine situations often necessitates immediate nonanalytic responses and that “there are diagnostic tasks in perceptual domains such as dermatology and radiology in which a significant degree of skilled performance ... rel[ies] more on pattern recognition than deliberative reasoning”).

82Fernand Gobet & Phillipe Chassy, Expertise and Intuition: A Tale of Three Theories, 19 MIND & MACHINE 151, 154 (2009) (observing that in physics, experts solve problems at a deep, abstract level, while novices perform at a superficial, concrete level).

83Id.

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years of experience in a field is a poor predictor of attained performance.\textsuperscript{85} It is not unusual, for example, to observe lawyers with 30 to 40 years of experience in a particular courthouse who are far from exhibiting expertise in their field. Finally, neuroscience evidence does not support the notion of holistic similarity recognition. This research demonstrates that complex decision making entails a rich connection of different neural subsystems (explicit and implicit) and an interplay between them.\textsuperscript{86}

Accordingly, some other factors must apparently be involved in expert performance than mere intuitive pattern recognition acquired through accumulated experiences. Most cognitive scientists contend that, contrary to the Dreyfus theory, experts in fact do use particular cognitive processes in their decision making.\textsuperscript{87} These processes are not always consciously deliberate. Rather, they reflect the interaction between implicit knowledge – unconscious abstract representations that experts have acquired through their knowledge of the domain and experience – and explicit knowledge – explicit representations which are conscious and can be verbalized.\textsuperscript{88} Especially in domains, like law and medicine, in which complex knowledge systems and symbolic representations play an integral role, more is involved in making decisions than mere pattern recognition of previous similar situations.\textsuperscript{89} When a physician, for example, evaluates a patient,

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\textsuperscript{86}Peña, supra note 67, at 5.

\textsuperscript{87}See, e.g., Gobet & Chassy, supra note 67, at 132; John R. Anderson et al., Situated Learning and Education, EDUC. RESEARCHER, May 1996, at 5; Patel et al., supra note 81, at 413.

\textsuperscript{88}See, e.g., Peña, supra note 67, at 5-6; Patel et al., supra note 81, at 421-22.

\textsuperscript{89}See, e.g., Patel et al., supra note 81, at 417 (examining medical profession, researchers observe, “[t]he complex and varied nature of medicine demands that a physician acquire abstract biomedical models that have a certain degree of generalizability across classes of problems, and medical tasks (e.g., diagnostic and therapeutic decision making.)” This necessitates the development of rich symbolic
although she may not be aware of all the cognitive processes involved, she is conscious of the patient’s characterization of his symptoms, her own diagnosis of the problem, and her requests for tests. The Dreyfus model, by not recognizing the complex and rich interaction between implicit and explicit knowledge, fails to explain skills that are not just routines but instead involve complex tasks, such as finding solutions to problems.

Unlike driving a car or riding a bike, handling a legal problem in practice requires more than intuition based on pattern recognition. Lawyers must juggle, for example, the substantive legal doctrine, the procedural context, the particular facts of the situation, the client’s needs, and the cultural and social context. The Dreyfus theory may account for simple procedurally-oriented skills like asking for an adjournment or conducting an inquest to obtain a default judgment, but it does not address the kinds of complex decision making required in most lawyering. Lawyers make decisions at a much more complex conceptual level than just recognizing patterns, and real expertise is associated with this higher level.

Therefore, these insights from cognitive science suggest that expert lawyers need to acquire cognitive processes that help them organize the myriad information they need to process in a case. Development of these processes requires more than simple rules, protocols, and strategies to facilitate pattern recognition. As researchers have observed in regard to the application of the Dreyfus to nursing, that theory “is too simple to account for the complex pattern of phenomena linked to expert intuition” in that domain. And it is development of these cognitive processes that are largely ignored by the Dreyfuses and Carnegie.

90Peña, supra note 67, at 6.
91Id.
92See generally Anderson et al., supra note 87, at 9 (criticizing apprenticeship models of instruction such as those touted by Carnegie, researchers argue, “the real goal should be to get students motivated and engaged in the cognitive processes that will transfer. What is important is what cognitive processes a problem evokes and not what real-world trappings it might have. Often real-world problems involve a great deal of busy work and offer little opportunity to learn the target competencies.”).
93Gobet & Chassy, supra note 67, at 132. See also Peña, supra note 67, at 6 (arguing that “[a]nyone who wants to propose a model to develop clinical problem-solving skills, must recognize that the skills used to solve [ill-defined] problems are of a different nature than the skills used to solve [well-defined] problems”).
C. Cognitive Processes Used by Experts

Relying on the Dreyfus model of expertise, the Carnegie Report eschews the importance of “formal modes of thinking” and instead emphasizes “skilled human performance” as the focus of lawyering skills education.\(^\text{94}\) To move from novice to expert, the Report asserts, students must acquire “the common techniques of the lawyer’s craft” for such performance.\(^\text{95}\) In contrast to focusing simply on expert techniques and protocols, cognitive scientists have looked to the different reasoning processes that are used by experts when making decisions in practice. It is the acquisition of these cognitive processes by students, they assert, that is just as significant, if not more important, in the development of expertise.

1. Expert Mental Schemas

One attribute of expertise identified by cognitive scientists is the use of schemas: frameworks of representations that help experts engage in complex reasoning quickly. These researchers distinguish between working and long-term memory. Working memory is equivalent to conscious thought. Our working memory is only capable of holding seven elements of information at a time and can only deal simultaneously with two or three items when processing information. Anything beyond the simplest cognitive activities, then, overwhelms working memory.\(^\text{96}\) In contrast, long-term memory can store large amounts of information and engage in complex cognitive processes. We are not directly conscious of long-term memory, but “human intellectual prowess comes from this stored knowledge, not from an ability to engage in long, complex chains of reasoning in working memory.”\(^\text{97}\)

Knowledge is stored in long-term memory in the form of schemas. Schemas are “ordered patterns of mental representations that encapsulate all our knowledge regarding specific objects, concepts, or events.”\(^\text{98}\) They are sophisticated, unconscious problem-solving rules that allow us to organize information efficiently. For instance,

\[\text{[w]hen faced with a problem such as } (a+b)/c = d, \text{ solve for}\]

\(^{94}\text{SULLIVAN ET AL, supra note 18, at 116.}\)
\(^{95}\text{Id.}\)
\(^{96}\text{John Sweller et al., Cognitive Architecture and Instructional Design, 10 EDUC. PSYCHOL. 251, 252-53 (1998).}\)
\(^{97}\text{Id. at 253-54.}\)
\(^{98}\text{Mark P. Higgins & Mary P. Tully, Hospital Doctors and Their Schemas about Appropriate Prescribing, 39 MED. EDUC. 184, 185 (2005) (citations omitted).}\)
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\(a\), people may immediately and automatically know that this problem is solved by multiplying out the denominator as the first move. They have an automated schema for this problem that tells them immediately, without conscious processing, how the problem should be solved.\(^9\)

We develop schemas from repeated encounters with similar situations. From those reoccurring experiences, we are able to categorize which characteristics of a given event are relevant, which should be stored for the future, and which should rejected as irrelevant.\(^1\) For complex problem-solving such as that required in law or medicine, the framework around which these categorizations are developed is the basic doctrine of the profession.\(^2\)

In regard to the acquisition of expertise in a profession, researchers theorize that as a result of greater experience in a particular domain, experts use their well-developed schemas to reflexively filter out irrelevant data and focus on relevant information to come to a solution.\(^3\) Experts automatically use their schemas to delve into the deep structure of a situation (its systematic properties) and seek to reformulate it to reach a decision based on domain knowledge and previous experience.

In law, for example, the anchors for schemas are basic legal doctrine (e.g., contract, tort, property, evidence, and agency law, the rules of procedure and professional responsibility). As novice lawyers delve into practice, the doctrinal framework helps them to organize their experiences, and they begin to construct schemas. And as they accumulate experiences, these schemas assist lawyers in handling new and unfamiliar cases more effectively and efficiently. From a cognitive perspective, expert lawyers conducting a client interview in an automobile accident personal injury case are not always consciously considering, for example, each element of a negligence claim and deductively crafting a theory. Rather, their schemas developed from past experiences – and structured around basic legal doctrines – help them to semi-automatically focus their

\(^9\)Sweller et al., supra note 96, at 257.

\(^1\)Id.


\(^3\)Patel et al., Reasoning and Instruction in Medical Curricula, 10 COGNITION & INSTRUCTION 335, 339 (1993).
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inquiry on those elements. Their inquiry, for example, will probably concentrate on issues relating to the actions of the two drivers before the accident rather than the prior relationships between the parties, their financial situations, or their family difficulties. While this process may not be deliberate or conscious, it is as much a cognitive process as the conscious use of an algorithm to solve a problem.\textsuperscript{103}

Schema theory is not identical to Dreyfuses’ holistic similarity recognition model. Under both theories, perception plays an important role. But for the Dreyfuses, it is basis for all expert decision making. To them, experts recognize patterns based simply on the practitioner’s perception of the surface characteristics of a particular situation and her ability to relate those characteristics to the specific context of prior experiences.\textsuperscript{104} Under schema theory, however, the practitioner unconsciously delves beneath these perceived characteristics. She uses her mental representations organized around concepts from her domain knowledge to discover all the relevant facts she encounters in the situation. The Dreyfuses and their followers reject the idea that internal representations guide attention while schema theorists posit that these frameworks are key features of expert practice. While unconscious, this process is cognitive as well as perceptual, requiring the filtering out of irrelevant information and focusing on relevant facts.\textsuperscript{105}

The distinction between the Dreyfuses’ “holistic similarity recognition” and schema theory is not merely semantic. For the Dreyfuses, effective pedagogy in a field requires the use of protocols and techniques to assist students in recognizing surface patterns of

\textsuperscript{103}Just because experts frequently do not consciously solve problems does not mean, as the Dreyfuses assert, that the process is mindless. A central basis for the Dreyfuses’ contention that cognition generally plays no part in expert performance is that artificial intelligence (“AI”) researchers have been unable to develop rules that replicate the conceptual process used by experts in decision making. Hubert L. Dreyfus & Stuart E. Dreyfus, Making a Mind v. Modeling the Brain: Artificial Intelligence Back at a Branchpoint, \textit{DAEDALUS}, Winter 1988, at 15. The fact that AI research has not yet reproduced the expert reasoning process does not mean, however, that such replication is impossible. Nor does it address the insights of schema theory that the use of representational frameworks is at play in unconscious expert decision making. \textit{See generally} Thornton, \textit{supra} note 77, at 290; Patel et al., \textit{supra} note 81, at 424.

\textsuperscript{104}DREYFUS & DREYFUS, \textit{supra} note 68, at 28 (“When we speak of intuition or know-how, we are referring to the understanding that effortlessly occurs upon seeing similarities with previous experiences.”).

\textsuperscript{105}See Gobet & Chassy, \textit{supra} note 67, at 135; Patel et al., \textit{supra} note 102, at 339.
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problems. Schema theory, on the other hand, suggests that the design of effective pedagogies for experiential courses should focus on helping students acquire representational frameworks for decision making in practice.\textsuperscript{106} With these schemas, students can delve – both consciously and unconsciously – beneath the surface of problems to deeply analyze them. To acquire such schemas, students must have a solid doctrinal foundation for the problems they are handling, they must be given sufficient opportunities to engage in practice in similar cases to apply the doctrine in practice, and instructors must provide them with effective feedback so they can begin to develop their own schemas.\textsuperscript{107} This process requires more than repeat performances of different protocols and the learning of common techniques and procedures. Rather, it involves the development of representational frameworks for applying doctrine in practice.

2. Cognitive Flexibility.

Cognitive scientists also assert that the application of knowledge by an expert in handling ill-structured problems requires the simultaneous consideration of multiple concepts that are individually complex – a process called cognitive flexibility.\textsuperscript{108} An ill-structured problem is characterized by some of the following conditions:

\begin{itemize}
\item[(1)] the place to begin to define the problem is usually not clear;
\item[(2)] there often are many contingencies to take into account;
\item[(3)] how to weigh and assess the various interdependent variables is uncertain;
\item[(4)] one has to continuously reframe and reconsider what one is doing in light of new information and shifting calculations; and
\item[(5)] the goals to be sought are frequently subject to debate and refinement and are not usually susceptible to clear measurement.\textsuperscript{109}
\end{itemize}

Legal problems are often ill-structured because they arise under uncertain conditions, in regard, for example, to the client’s interests,

\textsuperscript{106}Gobet & Chassy, \textit{supra} note 67, at 136-37 (recommending that instructional methods be developed to foster the acquisition of schemas).


\textsuperscript{108}Vimla L. Patel et al., \textit{Cognitive and Learning Sciences in Biomedical and Health Instructional Design: A Review with Lessons for Biomedical Informatics Education}, 42 J. BIOMEDICAL INFORMATICS 176, 180 (2009).

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the other party’s intentions, the controlling legal doctrine, and the procedural constraints of the legal system. In an initial interview of a client about a landlord/tenant problem, for example, lawyers frequently encounter problems with different legal doctrines—tort; contract and property theories; evidentiary issues; diverse procedural obstacles; the relationship between the parties; and tricky ethical quandaries. Expert attorneys must consider all these issues at the same time and often cannot easily compartmentalize them. In such situations, “there is not likely to be a set, technical approach to follow to reach a solution nor necessarily a single determinant answer to resolve the matter.”

Given the uncertain nature of ill-structured problems, cognitive flexibility theorists posit, experts do not passively relate situations to prior experiences or retrieve well-developed schemas. Rather, when faced with a problem, they construct meaning about the situation using the given information in conjunction with their prior knowledge and schemas. The prior knowledge that is brought to bear is itself reconstructed on a case-by-case basis rather than merely retrieved from memory. This process requires the flexible use of preexisting knowledge and the ability to use multiple schemas and view a problem from different conceptual perspectives.

In training novices to handle ill-structured problems, then, oversimplification of concepts is not helpful and may actually impede acquiring expertise. Following the Dreyfuses, one might think that instructors should adopt methods that simplify concepts, compartmentalize knowledge, and teach rules and strategies for performing particular skills. In fact, that is the recommendation of the Carnegie Report.

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110 See Id.
112 Id.
113 Id. at 63. See also Patel et al., supra note 108, at 180.
114 See DREYFUS & DREYFUS, supra note 68, at 21-22.
115 Ala the Dreyfuses, the Carnegie Report asserts,

The prime learning task of the novice in the law is to achieve a basic acquaintance with the common techniques of the lawyer’s craft. The novice should not be asked to exercise judgment or interpret a situation as a whole. Instead, the novice must learn to recognize certain well-defined elements, regardless of what else is happening.
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reductivism is only helpful in training novices in well-structured domains in which solution of problems is simple and straightforward.\textsuperscript{116}

Oversimplification of issues does not help learners construct meaning in ill-structured domains because it can result in different types of “reductive biases.”\textsuperscript{117} One such bias is the generally incorrect assumption that parts of a complex process retain their characteristics when integrated into the entire process.\textsuperscript{118} In the lawyering process, this bias can result in minimizing the significance of obtaining evidence from third parties or adversaries. Novice attorneys, for instance, who are trained in the technique of client-centered interviewing might be prone to overemphasize client-reported information in the fact investigation process. Another bias resulting from overcompartmentalization of instruction is the questionable assumption that highly-interrelated elements of a process are independent of each other.\textsuperscript{119} A law student, for example, instructed about the necessity of using the leading form of questioning in cross examination, in isolation from an understanding of the overall theories of the case, might be prone to use that form even when it is detrimental to the proceeding.\textsuperscript{120} These errors of oversimplification, cognitive scientists warn, “can compound each other, building larger scale networks of durable and consequential misconception.”\textsuperscript{121} Quite simply, they give students an artificial sense of the expert practice of law and can have enduring negative effects.\textsuperscript{122}

\textit{See SULLIVAN ET AL, supra} note 18 at 116-17.

\textsuperscript{116}Patel et al., \textit{supra} note 108, at 180 (2009); Spiro et al., \textit{supra} note 111, at 60-61 (comparing the fairly well-structured problems of basic physics with the application of those concepts in “messy” real-world engineering problems).

\textsuperscript{117}Spiro et al., \textit{supra} note 111, at 62.

\textsuperscript{118}See \textit{Id}.

\textsuperscript{119}\textit{Id}.

\textsuperscript{120}By raising questions about the use of these techniques, we are not advocating discarding the teaching of lawyering methods, such as client-centered interviewing or cross-examination drills. Rather, we are only asserting that overemphasizing the use of these techniques, as suggested by the Carnegie Report, may be detrimental to the acquisition of cognitive flexibility by law students. These techniques can have limited use in introducing students to certain discrete skills, but, in terms of overall instruction in lawyering skills, it is more important for them to acquire the cognitive flexibility to use the techniques effectively in handling ill-structured problems.

\textsuperscript{121}Spiro et al., \textit{supra} note 111, at 62.

\textsuperscript{122}As a medical educator observes,
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Rather than compartmentalizing concepts, cognitive flexibility theory focuses on the connection of different concepts and their interaction and variations across contexts.\textsuperscript{123} It suggests that learners in ill-structured domains can only acquire the durable ability to construct understanding in complex situations by “revisiting the same material, at different times, in rearranged contexts, for different purposes, and from different conceptual perspectives.”\textsuperscript{124} In an area like legal practice, any single explanation of a complex concept or case will miss important facets that would have greater or lesser significance in a different context.\textsuperscript{125} Accordingly, as researchers suggest for medical education, cases in law school experiential courses should cover a range of situations and problems that use different pieces of knowledge or the same knowledge in different ways. Also, emphasis should be put on the relations among problem cases and between cases and concepts, showing how knowledge can be reconstructed for novel cases, going through the same cases from multiple perspectives with different goals.\textsuperscript{126}

3. Adaptive Expertise

Finally, in examining the nature of expertise, cognitive scientists posit that experts possess “adaptive expertise” – the ability to function in routine situations, in which practitioners use standard strategies to efficiently solve problems, and novel situations in which they must develop innovative strategies to solve problems.\textsuperscript{127} Without efficient use of schemas, a practitioner’s attention is overwhelmed with details; without some innovation, one cannot handle new problems that often arise in ill-structured domains.\textsuperscript{128} The most effective experts believing that students should only memorize rules has a dark side and can cause deleterious consequences. When rules are available for everything, novices can spare the effort of imagining a different way to solve an [ill-structured] problem. Hence, they would tend to proceed to solve problems in a rather mindless way. 

Peña, supra note 67, at 7.

\textsuperscript{123}Patel et al., supra note 108, at 180.

\textsuperscript{124}Spiro et al., supra note 111, at 65.

\textsuperscript{125}See id. at 65.

\textsuperscript{126}Patel et al., supra note 108, at 180.

\textsuperscript{127}Id. at 188.

\textsuperscript{128}Valerie M. Crawford & Susan Brophy, Adaptive Expertise: Theory, Methods, Findings, and Emerging Issues,
have the metacognition to distinguish between these two types of situations and to judge when to be efficient and when to be innovative.\textsuperscript{129}

Research has indicated that this metacognitive ability reflects a deep, theory-based understanding of the domain.\textsuperscript{130} With that understanding, adaptive experts are able semi-automatically to distinguish between those situations which require only the use of standard schemas and those which demand more deliberate and innovative reasoning. It also helps them to recognize situations in which their knowledge is limited, and consultation those with more expertise in the domain is required. And similarly, this deep understanding assists experts in identifying those problems which require collaboration with other practitioners both within and outside of their domain.

To help students acquire adaptive expertise, much more is required in the instructional process than the Carnegie Report’s recommendation that novices “achieve a basic acquaintance with the common techniques of the lawyer’s craft.”\textsuperscript{131} To foster adaptive expertise, researchers recommend that novices be exposed to a variety of problems with differing complexity but sharing a similar theoretical base. With appropriate feedback during this process, learners can begin to distinguish between routine problems and those that require

\textsuperscript{129}Id. at 13.

\textsuperscript{130}Susan M. Barnett & Barbara Koslowski, Adaptive Expertise: Effects of Experience and the Level of the Theoretical Understanding It Generates, 8 THINKING \& REASONING 237, 252 (2002). In that empirical study, the researchers compared the problem-solving methods and solutions of different subject groups (general business consultants, restaurant managers, and students) in answering questions about typical challenges that a restaurant owner might face in the normal course of business. They found that general business consultants provided answers closer to those of an expert panel, and that the answers of restaurant managers differed only marginally from students. Id. at 243.

\textsuperscript{131}SULLIVAN ET AL, supra note 18, at 117. The Carnegie Report does recommend that students become “metacognitive” about their learning, but, in the context of the entire study, it is unclear what the authors mean by the use of that term. The Report asserts, “[T]he essential goal of professional schools must be to form practitioners who are aware of what it takes to be competent in their chosen domain and to equip them with the reflective capacity and motivation to pursue genuine expertise. They must become ‘metacognitive’ about their own learning.” Id. at 173. Without any further explanation about the nature of this process, this opaque recommendation is far from helpful. It simply seems to suggest generally that students should become reflective about their learning but fails to flesh out a specific description of what this reflective capacity entails.
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more deliberate consideration, consultation with an expert, or collaboration with others. In the law school context, this recommendation suggests that clinical and other experiential courses should be designed to provide students with different experiences in cases of varying complexity in a particular subject matter area. From this experience, novices should achieve an understanding that all cases are neither major federal actions nor simply run-of-the-mill proceedings; that some tasks require close consultation with supervisors while others can be handled independently; and, in some situations, nonlawyers and experts in other fields might be helpful in addressing the client’s problem.

III. Outcome Assessment in Law School Experiential Courses

A. Carnegie Report’s Recommendations on Assessing Lawyering Skills

To assess students in lawyering skills courses, the Carnegie Report urges the use of methods that evaluate the learner’s development of expertise. While we do not disagree with this approach to measuring outcome assessment, our differences with Carnegie arise from its conception of expertise. As discussed in the prior section, for Carnegie with its Dreyfus lenses, since cognitive processes play only a secondary role in expert practice, performance should be the focus of outcome assessment in experiential courses. We believe, following the research described in the prior section, that cognitive competence is an essential element of expertise. Accordingly, we contend that assessment must consider not only learners’ performance but also the cognitive processes used during that performance.

Following Dreyfus, Carnegie envisions law schools where

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132 See Crawford & Brophy, supra note 128, at 17-18. These authors observe that, “Much learning in the professions occur by tacit acquisition. It is important to consider how to engineer learning experiences in the context of practice to encourage people to become adaptive through their learning.” Id. at 17. Accordingly, adaptive expertise is not necessarily taught by pedantic lessons in the virtue of this ability but rather through experiences that help novices tacitly acquire it.

133 SULLIVAN ET AL., supra note 18, at 171-73. The authors of the Report obviously do not posit that law schools can prepare students in three years to become expert practitioners but only that students, upon graduation, should have been begun to acquire some of the attributes of expertise. With this proposition, we concur. Most recent cognitive science studies show that it takes people at least ten years of intense involvement with a skill or profession to acquire expertise. Ericsson, Deliberate Practice, supra note 84, at S72; K. Anders Ericsson et al., The Role of Deliberate Practice in the Acquisition of Expert Performance, 100 PSYCHOL. REV. 363, 366 (1993).
students “acquire[] mature skill by moving from a distanced manipulation of clearly delineated elements of a situation according to formal rules toward involved behavior based on an accumulation of concrete experience.”\textsuperscript{134} Focusing on this development by students of “involved behavior,” the Report asserts that, “[s]ound assessment [of lawyering skills] must include an evaluation of students actually performing.”\textsuperscript{135}

When outcomes are framed in terms of students’ ability to utilize particular protocols or techniques, assessment is likely to focus on how well the student adhered to the protocol or applied the technique: Did the student, for example, start with open questions and gradually narrow her questioning? Did she use the T-funnel technique designed for this particular situation? Did the student effectively follow the PrOACT protocol by identifying problems, setting objectives, developing alternatives, evaluating consequences and structuring tradeoffs?

One example of this type of performance-focused assessment is \textit{Best Practices}’s technique for evaluating effective lawyer-client communication skills. \textit{Best Practices} recommends that instructors use eight explicit criteria to evaluate student proficiency at interviewing:

1. Were the greeting and introduction appropriate?
2. Did the lawyer listen to the client?
3. Did the lawyer use a helpful approach to questioning?
4. Did the lawyer accurately summarize the client’s situation?
5. Did the client understand what the lawyer was saying?
6. Did the client feel comfortable with the lawyer?
7. Would the client feel comfortable having the lawyer deal with her situation?
8. Would the client come back to this lawyer if she had a new legal problem?\textsuperscript{136}

For each of these eight elements, \textit{Best Practices} recommends that proficiency be assessed on a highly specific scale and given a score between 1 and 5. For example, criterion six, relating to client comfort with the lawyer, is broken down as follows:

\textsuperscript{134}\textit{SULLIVAN ET AL}, \textit{supra} note 18, at 172.
\textsuperscript{135}\textit{Id.} at 174.
\textsuperscript{136}\textit{STUCKEY ET AL}, \textit{supra} note 21, at 246-7.
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1 point: Lawyer was bored, uninterested, rude, unpleasant, cold or obviously insincere
2 points: Lawyer was mechanical, distracted, nervous, insincere, or used inappropriate remarks
3 points: Lawyer was courteous to the client and encouraged the client to confide in her.
4 points: Lawyer was generally attentive to and interested in the client. The client felt confident to confide in her.
5 points: Lawyer showed a genuine and sincere interest in the client. There was a sense of connection between the client and the lawyer.137

The assessment is based entirely on elements of student performance that do not require any evaluation of the student’s reasoning. Using this set of clear and observable criteria, a student interview can be given a precise score from 8 to 40. Best Practices concludes that this is an excellent example of ways that law schools can “measure success”138 in practical legal education.

The appeal of a checklist approach to assessment for teachers is not insignificant. It is relatively straightforward and unambiguous in its application, with clear goals and clear criteria for evaluation.139 However, by focusing on whether the student adequately follows a checklist of performance elements, this type of assessment diminishes the importance of the student’s reasoning process as she engages with the lawyering problem.

Carnegie concurs with this approach, pointing to assessment methods in medical education. Carnegie notes approvingly that in the early years of medical school, students are evaluated on their ability to take medical histories and perform physical examination on actors playing the role of “standardized patients;” later, they are observed by supervisors in their interactions with actual patients; and still later, they are assessed in their residencies on a wide range of other “technical and interpersonal skill.”140 The Report recommends the use of a similar approach of ongoing performance assessment in law school

137Id. at 247.
138Id.
139Students are also likely to embrace performance-based assessment. They will be assessed favorably if they simply select and apply the proper tool from their toolkit of lawyering techniques.
140SULLIVAN ET AL, supra note 18 at 175.
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Besides its reference to assessment in medical school, the Report cites no support demonstrating a correlation between assessment of performance and accurate evaluation of development of expertise in lawyering skills. Indeed, it does not even cite any empirical evidence supporting performance-based assessment in medical training. The authors of the Report simply argue, relying on the Dreyfus model, that since expertise is exhibited by particular types of behavior, performance should be the focus of assessment of lawyering skills.

But there is empirical research on this subject, and it raises serious doubt about Carnegie’s unsupported claims about the benefits of performance assessment of students’ learning of lawyering skills. While Carnegie is correct that performance assessment has become quite the rage in medical education, very little empirical research exists on whether such methods are valid measures of clinical competence. One major study in the medical field, however, suggests cognitive competence may be just as important as, if not more significant than, performance in assessing clinical ability.

In that study, the researchers examined the relationship between performance on the Canadian medical licensing exam and patient complaints about the nature of their care to medical regulatory authorities after the physicians were in practice. They studied all 3,424 physicians who took the licensing exam between 1993 and 1996 who were licensed to practice in Ontario and/or Quebec. They then compiled data on complaints filed with provincial regulatory authorities between 1993 and 2005 which were found to be valid after investigation. They then determined a complaint rate for each physician for different types of complaints (e.g., about communication or quality of care), derived by dividing the number of valid complaints by years of practice time. Finally, the researchers compared the complaint rates with each physician’s performance on the various

141Id.


143Robyn Tamblyn, Physician Scores on a National Clinical Skills Examination as Predictors of Complaints to Medical Regulatory Authorities, 298 J. AM. MED. ASSN 993 (2007). Interestingly, in the Carnegie Foundation’s recently-published study of medical education, the authors (different from those in the study of legal education) acknowledge that “Much work remains to be done to establish the reliability and validity ... of performance assessment” of complex clinical skills. MOLLY COOKE ET AL., EDUCATING PHYSICIANS: A CALL FOR REFORM OF MEDICAL SCHOOL AND RESIDENCY 107 (2010). The Carnegie Report on educating lawyers contains none of this cautionary language about performance assessment.
components of the licensing exam.\textsuperscript{144}

One part of the licensing exam assessed medical knowledge using approximately 450 multiple-choice questions in regard to medicine, surgery, obstetrics-gynecology, pediatrics, and preventive medicine.\textsuperscript{145} A second component assessed clinical decision-making skills asking the test-takers to respond to critical aspects of diagnosis or management in 36 to 40 clinical problems using write-in or menu-selection response formats. The grading of this section was not based on a single correct answer but on the relative quality of the responses in making critical decisions in which errors could have an effect on patient outcome.\textsuperscript{146} Essentially this part tested the candidate’s cognitive ability to problem solve in practice. The final part of the examination was a performance-based standardized-patient exam in which candidates interacted with simulated patients for five to ten minutes. Candidates were assessed by trained physician observers in a number of areas, including data collection (history and physical examination) and communication skills: e.g., whether the test-taker used condescending, offensive, or judgmental behaviors or ignored patient responses. In this part of the exam, problem-solving skills were assessed by post-encounter questions on diagnosis, investigation, interpretation of test results, and management. Responses were scored by physician examiners using an answer key.\textsuperscript{147}

After examining the data, the researchers found that the best predictor of quality-of-care complaints was the clinical decision-making component of the licensing exam which focused on the cognitive ability of candidates to solve problems. In other words, the better the test-taker’s score on that part of the exam, the lower the complaint rate for that physician. The score on the communications component of the performance exam was not as good a predictor of quality-of-care complaint rates, but the researchers did find a statistically significant correlation between that measure and such rates.\textsuperscript{148} In regard to communication complaints by patients, the researchers found that the

\textsuperscript{144}Robyn Tamblyn, supra note 143, at 994-95.

\textsuperscript{145}Id. at 995.

\textsuperscript{146}Id.

\textsuperscript{147}Id. at 995. By measuring problem-solving skills using an answer key, the licensing body was not assessing the cognitive processes used by the test-takers as much as their “correct” performance on a post-examination quiz.

\textsuperscript{148}Id. at 999. The researchers found no statistically-significant relationship between complaint rates and the scores on the multiple-choice part of the exam or the data acquisition and problem-solving components of the performance exam.
scores on both the communication part of the performance exam and on the clinical-decision-making exam served nearly as well as predictors of complaints to regulatory agencies.\textsuperscript{149} And in regard to overall complaints by patients, the researchers found a statistically-significant relationship between complaint rate and scores on the multiple-choice and clinical-decision-making exams and on the communication component of the performance exam.\textsuperscript{150}

It appears, then, that, contrary to the assumption implicit in the Carnegie Report’s recommendations, performance assessment may not be the best measure of student long-term lawyering ability. This study, in the very domain relied on by the Report for its prescriptions about outcome assessment, indicates that the scores on exams testing cognitive processes may be a better predictor of ability in practice than scores on standardized-patient exams. In regard to quality-of-care complaints, the scores on the clinical decision-making component of the licensing exam were better predictors of complaint rates than any other component of the exam. In regard to overall complaint rates, the clinical decision-making scores fared just as well as predictors of complaints as the communications component of the exam. Moreover, even in terms of complaints from actual patients about communication problems, the scores on the clinical decision-making exam were comparable to those of the communications exam as a predictor of complaints. And surprisingly, even the score on the multiple-choice medical knowledge component of the exam was a statistically-significant predictor of overall complaint rate.\textsuperscript{151}

While this is only one study, it calls into question any headlong rush to adopt Carnegie’s recommendations to use performance as the primary assessment tool for measuring lawyering skills. Admittedly, there are limitations to the conclusions that can be drawn from this study. The research was conducted in an area other than the legal profession; it is open to question whether or not the number of complaints to regulatory authorities reflects a practitioner’s actual

\textsuperscript{149}Id. Again, no statistically-significant associations were found between communication complaints and the scores on the multiple-choice part of the exam or the data acquisition and problem-solving components of the performance exam.

\textsuperscript{150}Id. The best predictors of any complaint were the scores on the clinical-decision-making and communications exams. No statistically-significant relationship was found between overall complaint rates and the data acquisition and problem-solving components of the licensing exam.

\textsuperscript{151}Indeed, a major researcher in the area of medical education asserts that multiple-choice tests appear to consistently outperform performance tests in terms of measured validity. Norman, \textit{supra} note 142, at 19-20.
expertise; and the different experiences of the subjects after graduation were not considered in the analysis of the data. But even with these limitations, given that the sample size of the study was quite large, and the researchers tracked licensing exam scores and complaints for a 12-year period, it certainly provides stronger support for its conclusions than the Carnegie Report’s uncritical support for standardized-patient performance assessment in medical education. At the very least, this study raises serious questions about the focus of Carnegie – and the Dreyfuses – on performance as a primary measure of lawyering ability in practice. It appears that assessment of the clinical reasoning may be a better measure – or at least as good a measure – of acquisition of expertise than assessment of performance.

B. Assessment of Cognitive Competence

If the Canadian study is correct that assessment of clinical reasoning ability is a significant factor in measuring a learner’s acquisition of expertise, the issue arises as to the best methods for evaluating the development of such competence. As described in Part II, cognitive science research has demonstrated that expert reasoning has a number of attributes: the use of schemas, cognitive flexibility, and adaptive expertise. While it is easy to assess a test-taker’s performance with a standardized patient, it is much more difficult to determine whether the reasoning of a test-taker demonstrates any of these attributes. Quite simply, it is impossible to peer into someone’s head; “thinking cannot be observed by other people.”

To address this problem, one of the methods now being used experimentally by medical educators to assess cognitive competence is the use of the “think-aloud” interviewing methods employed in cognitive science studies of the reasoning process. The purpose of using this method is to replicate as closely as possible the actual cognitive process of the subjects. Under the “think-aloud protocol, researchers ask subjects during the interview to verbalize their thoughts spontaneously as they emerge in attention. Even though use of this method does not provide a perfect match between subjects’

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153 Telephone interview with Vimla Patel, Professor of Biomedical Informatics, School of Health Information Sciences, University of Texas Health Sciences Center, Houston, TX (Mar. 28, 2010).

154 Researchers have also found that if subjects are asked to recall their reasoning process after a long delay, the completeness and accuracy of recall is impaired, and subjects are prone to infer their thoughts as opposed to correctly recall them from memory. Ericsson, supra note 152, at 429, 430.
thoughts and reports, researchers have found consistently strong evidence that this method results in a strong correlation between the two.\textsuperscript{155}

In the experimental medical education studies, interviewers provide medical residents with scenarios of patient problems describing a patient’s history, symptoms, and the proposed case management. The residents are asked to think aloud as they read, to summarize the case history, and to evaluate the proposed case management. The interviews are recorded and transcribed. The researchers then review the transcripts to assess the reasoning used by the residents in practice.\textsuperscript{156}

IV. Use of Think-Aloud Interviews with Law Students

Using the medical field’s “think aloud” technique as inspiration, we have designed an experimental assessment method intended to identify the different kinds of cognitive processes used by students as they solve a problem in practice. Specifically, we give students in a clinical program a hypothetical problem that is representative of work they have experienced in a clinical program, and record them as we ask them to talk it through. Our hypothesis is that by prodding students to just talk about a problem without a filter, we will understand, as well as possible, what they are thinking “in practice.”

A. Methodology for Think-Aloud Assessments

1. Creating Hypothetical Scenarios for the Think-Aloud Assessments

The goal of our experiment is to give us some insight into the development of specific cognitive processes used by our students in practice. Specifically, we are trying to observe their schemas for representation of problems, their cognitive flexibility, and their development of adaptive expertise as a means of assessing their progress toward expert practice. With these objectives in mind, we designed our hypothetical scenarios with several goals:

a. Lead students to access the schemas that they have created for addressing particular issues that commonly arise in representation. We developed the hypotheticals within the context of a clinic-specific problem, to allow our students to draw on doctrinal knowledge and mental models that they should

\textsuperscript{155}Id. at 430.

\textsuperscript{156}E-mail from Vimla Patel, Professor of Biomedical Informatics, School of Health Information Sciences, University of Texas Health Sciences Center, Houston, TX (Mar. 31, 2010 8:23 p.m. EDT) (on file with authors).
have developed through their clinical work.\textsuperscript{157} We wanted to see how they approached a reasonably familiar problem as a way to identify and evaluate the mental models that they had already constructed through their clinic work. Placing students in completely unfamiliar environments would not likely reveal schemas that had been developed through their clinic work.

b. \textit{Require the students to attend to multiple issues simultaneously.} We created hypotheticals with multiple, complex and interrelated elements to assess our students’ ability to handle several elements at the same time, balance them, and understand how their consideration of these elements changed when students perceived their interaction.

c. \textit{Present novel problems.} To test our students’ adaptive expertise, we presented them with problems that did not fit within routine schemas we expected them to have developed in the clinic, to observe their ability to recognize and respond to these novel situations. In addition, we included elements that we considered too advanced for clinic students to test their ability to recognize the limits of their own expertise and the need to consult with those with more expertise.

2. Conducting the Think-Aloud Interviews

We invited several clinic students to participate in the project, emphasizing that they would not be graded. We then asked a colleague—one with whom the students did not have a relationship—to conduct on-camera interviews with the students. We used an independent interviewer to prevent any undue influence from our own pre-existing relationships with the students. We feared that the students might be intimidated by our presence or feel compelled to give responses we expected. We also wanted to avoid the possibility that we might influence the students’ responses with our questions or reactions to their comments.

In the actual interviews, the interviewer simply gave a written hypothetical to the students and asked them to think aloud through their responses as they reviewed the problem. The interviewer followed-up with open-ended questions as needed to help the students express their thoughts, to make sure they continued to think aloud, and to encourage them to explore as fully as possible their reasoning processes as they were happening. The entire process lasted approximately 15 minutes for each student. After the recordings were made, we viewed and transcribed each interview to identify the cognitive processes used by students in responding to the problem.

\textsuperscript{157} See Appendix A.
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3. Assessing Student Reasoning in Practice Using the Interviews

To assess the interviews, we considered the goals of the clinic in which the student was enrolled, then analyzed the transcript to identify how well the students had met the course goals for development of cognitive processes. In this section, we will describe how the process worked with two students from a single clinic by describing the clinic’s goals, presenting annotated transcripts of student interviews, and describing practical application for the information developed from these interviews.

B. The Think-Aloud Interview Process

1. The Hofstra Community and Economic Development Clinic

The Hofstra Community and Economic Development Clinic (the “CED” or the “Clinic”) is a one-semester, non-litigation clinic that mainly represents small community-based organizations and very small businesses owned by aspiring entrepreneurs. While there is wide variety in the work of the Clinic, a core element is helping inchoate not-for-profit and for-profit organizations choose a corporate form and then assisting them to create an LLC, partnership, C-corporation or S-Corporation, or other entity. During the semester, students have the opportunity to counsel several clients about the particular set of issues that arise in the early stages in the development of a small entity.

The CED has general lawyering as well as domain-specific pedagogical goals that drive course design, teaching, and client selection. The CED is designed to cultivate in students the following cognitive processes:

a. Schemas: Students should develop mental models that serve as a framework for understanding and dealing with lawyering problems. In the CED, these schemas should include:

i. A schema for helping a client choose the form of and create a corporate entity, including how to create the entity;

ii. Because all of the Clinic’s clients are groups or entities, a schema for asking and answering the question “Who is the client?” as well as identifying and addressing other ethical issues relating to non-individual client representation;

iii. A schema to understand the attorney-client relationship and the role of the attorney in representation, including applying ethical rules to representation; and

iv. A schema for identifying and understanding client goals and priorities.
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b. Cognitive Flexibility: Students should be able to identify and keep track of several different factors simultaneously. In the CED, these factors frequently include:
   i. Activities of the organization (especially as they relate to qualification as a New York not-for-profit corporation and/or a 501(c)(3) exempt organization;
   ii. Involvement in lobbying and political campaigns;
   iii. Sources of finance;
   iv. Taxes;
   v. Corporate governance and control;
   vi. Liability; and
   vii. Other, client-specific goals.

c. Adaptive Expertise
   i. Students should learn to distinguish between “routine” and novel situations; and
   ii. Students should understand when a situation is beyond their ability to handle, and when they need to consult with those with more expertise.

This list is, obviously, ambitious. In practice, students are unlikely to master all of these cognitive processes over the course of a four-month semester. The goal of the CED is to help students start to develop their ability to reason in practice through their work with clients.

2. Think-Aloud Interviews

In this section, we share the transcripts from two of our student interviews, coded for the students’ reasoning process.\(^{158}\) Each interview was conducted at the end of the subject’s semester in the CED.

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<tr>
<th>David Luscious Landscaping Scenario Appendix “A”</th>
<th>Commentary</th>
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<td>In terms of immigration status, I’d – We need to look further into that. Well they feel that they don’t want to be in the position of asking for or providing immigration about their immigration – information about their immigration status. So I would obviously look -- If they were my clients, I would represent</td>
<td>Cognitive Flexibility: David takes note of immigration issues as a potential factor in client decision. However, this is the last time he mentions it in this exercise. Adaptive Expertise: David is aware</td>
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\(^{158}\) Videos can be viewed at: [URL]
their interests and do what possible to limit the type of information that they may need to give while complying with our regulations as imposed by the law. I would do further research into seeing if that in fact creates a conflict by withholding their immigration status or not. If it’s not a problem then I don’t assume we need to go further into it but if there are some policy issues, then definitely. So that’s where I would start – that’s pretty much where I would start.

I would certainly ask the clients – or prospective clients – what their immediate needs are and where these needs rank – whether they’re interested in creating a business or in working to develop the community and stand up for unskilled Latino laborers or Latino laborers in general...

And in doing so, I would – Obviously I would use that information to decide whether I’d like to – I would suggest using – creating a non-for-profit corporation or a general corporation. They say they want to form a corporation but I don’t necessarily know if they know the difference and the intricacies of corporations and non-for-profits or even creating LLCs while still limiting their liability but not having to pay different taxes ... So I would, you know, create – I would make a long list of options for these clients, choice-of-entity decisions for them initially.

But I would also – I would like to, you know, list exactly where their needs stand which, you know – What are their primary needs versus what are their

| their interests and do what possible to limit the type of information that they may need to give while complying with our regulations as imposed by the law. I would do further research into seeing if that in fact creates a conflict by withholding their immigration status or not. If it’s not a problem then I don’t assume we need to go further into it but if there are some policy issues, then definitely. So that’s where I would start – that’s pretty much where I would start. | that the immigration issue is beyond his expertise, and that he needs to conduct research to learn more. |
| I would certainly ask the clients – or prospective clients – what their immediate needs are and where these needs rank – whether they’re interested in creating a business or in working to develop the community and stand up for unskilled Latino laborers or Latino laborers in general... | Schema: David has a framework for understanding the lawyer’s role at this stage; he also shows that he has a model for identifying client goals and helping the clients prioritize among them. |
| And in doing so, I would – Obviously I would use that information to decide whether I’d like to – I would suggest using – creating a non-for-profit corporation or a general corporation. They say they want to form a corporation but I don’t necessarily know if they know the difference and the intricacies of corporations and non-for-profits or even creating LLCs while still limiting their liability but not having to pay different taxes ... So I would, you know, create – I would make a long list of options for these clients, choice-of-entity decisions for them initially. | Schema: The framework that David is using for identifying client goals suggests that just because a client says they want something, it doesn’t mean that that is what is best going to meet their needs. He wants to dig a little deeper. |
| But I would also – I would like to, you know, list exactly where their needs stand which, you know – What are their primary needs versus what are their | Schema: David comes back to the importance of the lawyer knowing how important each client goal is relative to the others. |
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|secondary. | Schema: David has developed a schema that emphasizes the importance of understanding who the individuals are and their relationship to “the client.”
Adaptive Expertise: David recognizes that this is not an area that he has a framework for understanding, so he comes up with a plan to get more information and seek out guidance from others to help him explore this situation. |
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<td>I would... First of all, I’d like to know exactly who’s involved. If, you know, it says they’re representing a group of 5 men so – but they have ideas of representing all of Latino laborers so I would have to inform this person that I’m speaking to and following up with that I would be representing their corporation and not just them and that my representation extends to everybody that’s involved with the corporation – all the directors and officers that represent the corporation and that my legal representation would be towards the corporation that they created, not just them. So I would find out what their needs are in terms of the corporation as a whole. And also other information as to who else I can speak to because I wouldn’t be representing this one person, I’d be representing the corporation. Umm... I would – again, I would do some research into current organizations in the area to see if –</td>
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<td>Schema: David is demonstrating a model for the formative stages of any corporate entity in New York.</td>
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<td>I mean, obviously I would check the name availability. They sound like they have a name—“Luscious Landscaping”—that they’d like to use so if that’s not available, I’d have to inform them that that’s not possible.</td>
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<td>But also I would, you know, I would see what other corporations are – or organizations are around in the community and are they succeeded in what their style and structure is.</td>
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|I would certainly call up the – I know certain regulations have changed in terms of the purposes that the Department of State is looking for in order to create non-for-profit corporations so I would look for some guidance by the Department of State as | Schema: David shows that he has a robust schema for nonprofit formation.
Adaptive Expertise: David seems very locked in to the nonprofit schema—he appears to be having difficulty |
Performance Isn’t Everything

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<th>to if I were trying to create this type of organization exactly how to word the type of purposes or exempt purposes that the non-for-profit corporation would be looking for in order to, you know, speed up the incorporation process.</th>
<th>identifying this as a case that does not comfortably fit within his existing schemas and that will require some innovation.</th>
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<td>And I would also, you know, I would ask around, I would find out – ask my colleagues and ask other people in the clinic who are in the process of incorporating their clients and find out exactly how they’ve complied with the State’s requirements and use all resources that the clinic has that I could find.</td>
<td>Adaptive Expertise: David realizes that this is not an area that he has enough expertise to handle alone, and that he will need some help from his colleagues. However, he is still thinking about procedural issues that are specific to the formation of nonprofit organizations. He seems to having trouble accepting that this problem may not fit within his non-profit framework.</td>
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<td>I would investigate further who else is involved in the project. If it’s just this one person who I’m speaking to, I would like some other contact information for who else would be involved or who else would be a director of the corporation. It sounds like an interesting client. I’d like to help them.</td>
<td>Schemas: He is back to his former concern about who is the client, who is the person he will be interacting with, etc. We are getting a good picture of how robust this schema is with this student.</td>
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<td>No, I would certainly – I’d like to go and do some of my own personal research on the Latino laborers and the Latino community in the area and determine some of the, you know, needs of those laborers. You know, determine myself and be able to bring some information to the table that might either be different from what my client may bring up or, you know, create conversation.</td>
<td>Adaptive Expertise: David realizes that this is a novel problem and that he will probably be able to represent the client better by understanding the community that they want to help.</td>
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<td>I know that they are looking to reduce their tax liability, so I would certainly suggest that if they were interested in creating a corporation that they might create an LLC so that they’re not doubly taxed like a corporation.</td>
<td>Cognitive Flexibility: He has identified reducing taxes as a factor in helping the clients with their goals. He does not, however, resolve—or even identify—the tension between this and other client goals.</td>
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<td><strong>Performance Isn’t Everything</strong></td>
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<tr>
<td><strong>Now if they’re a non-for-profit corporation and they’re interested in, you know, helping the Latino community versus making a profit then, you know, I would have to address all the IRS regulations of taking recognition of tax exempt status and such.</strong></td>
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<tr>
<td><strong>Cognitive Flexibility</strong>: David addresses the for-profit/not-for-profit dichotomy and the tension inherent in the client’s stated goals. He does not seem to make much progress toward understanding the tension or how it impacts his client’s goals.</td>
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<tr>
<td><strong>I don’t know if I would necessarily go along the lines of, you know, if I would go with a non-for-profit corporation. It does seem like this is a business venture for them and one of the side points is that they, you know, in turn would like to help the Latino community. But if it is in fact a business venture then I think we’re focusing on corporations versus LLCs or C-Corps and different entities – profit making entities. So, but in reducing tax liability then obviously the LLC would be more favorable than creating a C-Corp. Let’s see if I missed any –</strong></td>
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<tr>
<td><strong>Cognitive Flexibility</strong>: David is struggling with the tension between the group’s charitable aims and its business aims. He never resolves this issue and ignores other elements, such as outside sources of funding.</td>
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<td><strong>Schema</strong>: David’s use of “I” indicates that he has a framework for his role in the decision making process that puts him at the forefront.</td>
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<td><strong>Adaptive Expertise</strong>: David has escaped from his purely nonprofit schema. Now, however, he is locked into an either-or scenario: a nonprofit or a for-profit. He does not seem to think that this situation requires more innovation, such as exploring the idea of two side-by-side organizations, a joint venture, no organization at all, or other possible innovative solutions.</td>
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<th><strong>Mary Rivertown Redevelopment Appendix “A”</strong></th>
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<td><strong>Okay – So I see that it’s not a good neighborhood and they want to do economic revitalization so I’m thinking maybe non-profit.</strong></td>
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<tr>
<td><strong>Schema</strong>: Mary has developed a representational framework for nonprofit organizations, and she is seeing how well her client fits that schema.</td>
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<td><strong>Training – So I’m thinking we’re going to have to get consent from the</strong></td>
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<tr>
<td><strong>Schema</strong>: This is a routine step in incorporation of NY nonprofit</td>
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Department of Education. organizations—Mary has a schema for how this process goes.

| Okay, so then … Since the 3 of them want to work together, I would talk to them about the different types of corporations that they want to set up. If they want to, they could do, like, a partnership but then they would have personal liabilities ... So then, otherwise, they could do a corporation or a limited liability company – It depends how much they have for start-up costs – Which it seems like they do have their own funds so they might want to do that. Cognitive Flexibility: Mary sees that there is some tension here: partnerships would entail personal liability but are cheap; LLCs limit liability but are expensive to set up. After some mental calculus, she realizes that they probably have funds to do the LLC and that it would probably be an appealing option. Adaptive Expertise: Mary does not seem to consider that there might be other options than the very few she lays out here. |
| And then I would also think about doing a non-profit – especially because they want donations and government grants. So a 501(c)(3). So then, how to proceed for that. Well, first they’d have to incorporate under New York and make a certificate of incorporation and then send it to the Department of State and say that they want to use – They’re going to building up the town – So they’d have to meet non-profit goals. Schema: Mary has developed a model for how to form an organization in New York. She also shows that she has created a mental model of the nonprofit that includes organizations looking for grants and donations. |
| And I think that the grocery – Well, the grocery store would make a profit, so ... make a profit… so then, I think they would still be fine – maybe if they added something to help the people? Well, that’s just the initial phase, also. Cognitive Flexibility: She identifies and is trying to deal with the tension between some of their stated goals—in this case the tension between making a profit and having charitable purposes. |
| So then, umm, maybe they’d want to do two different corporations then? Maybe one to – For the first part of the stuff wanted to do like provide employment and local youth and decrease crimes and then maybe they’d want to do a separate corporation that would just run the grocery store because it can make a profit… and so then, I think they would still be fine – maybe if they added something to help the people? Well, that’s just the initial phase, also. Adaptive Expertise: Mary has concluded that this situation does not fit well within the schemas she has developed; she stops trying to fit the client into the non-profit or the for-profit schemas and instead begins to innovate; her solution of multiple organizations working in tandem is |
### Performance Isn’t Everything

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<th>profit. And then they could work together?</th>
<th>creative and consistent with client goals.</th>
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<tr>
<td>And so, for the first one, I would tell them to do a non-profit 501(c)(3) and that would decrease crime and increase local incomes and provide training for the local work force. So then they could think of a name and reserve that or – and then send in the certificate of incorporation and apply – fill out a [IRS Form] 1023 to get 501(c)(3) status so they can get donations and investments in government grants.</td>
<td>Schema: “I would tell them” suggests a schema relating to the lawyer’s role in representation that gives importance to what the lawyer, rather than the client, wants. It is not clear from this exercise whether Mary is wedded to this particular representation schema.</td>
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<td>And then maybe another corporation so that they could set up the grocery store - - And so that way they could make a profit with that and help the town in that way also. Umm, I think that’s it.</td>
<td>Adaptive Expertise: Mary returns to her innovation of multiple organizations working together to achieve the clients’ stated goals of helping the community by succeeding</td>
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3. Using Think-aloud Interviews for Student Feedback and Course Design

The think-aloud interview, like other types of assessment “offers two insights: one into the students, and one into the instruction.”\(^\text{159}\) Neither of these insights is an end in itself; rather they are means to the end of helping students achieve competence in practice. Insights about students can be used to give meaningful feedback. Insights into the effectiveness of instruction can inform course design. In this section, we describe how think-aloud interviews can be used to guide student feedback and assist in course design in ways that help students develop their reasoning abilities and progress toward competency in skills.

a. Student Feedback

Think-aloud interviews can help instructors monitor student learning in order to provide useful feedback to students about their development of reasoning processes. By watching the videos with the student and relating them to the work that students are doing in the course, the instructor can help them develop their cognitive

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frameworks. The purpose of these discussions should not be to tell students “you did this right” or “you did that wrong” but rather to help them identify and reflect on their own reasoning processes.

One element of a post-interview discussion with David, for example, might focus on his continued efforts to make the client’s needs fit neatly into the schema he had developed for forming and representing nonprofit corporations. Although much of David’s work in the Clinic was with nonprofit organizations, the clients in the Luscious Landscaping hypothetical are not likely to benefit from such a structure. However, rather than address whether David’s was the “correct” approach, a discussion of his reasoning process would focus on understanding why David was reluctant to abandon his pre-conceived notions, and ways that he might be more aware of his use of these notions in the future.

A post-interview discussion with Mary would include discussion of her suggestion that her clients might best be served by creating multiple entities. Her clients would probably be well-served by such a structure. Like David, Mary’s Clinic work largely consisted of representing small nonprofits, and none of her clients required multiple entities to achieve their goals, so the Rivertown Redevelopment & Revitalization scenario was a novel situation for which she had not developed a schema. However, discussion of Mary’s reasoning processes would not focus on whether she came up with the “right” answer but rather aspects of adaptive expertise, such as what she was thinking as she identified the novelty of the situation, how she came up with her proposed solution on the fly, and what consideration she gave to consulting someone with greater expertise. Such a discussion would help Mary and her instructor better understand the cognitive processes involved in her representation of clients.

b. Course Design

Think-aloud interviews can also be used to assess the ability of course design to meet goals for student learning outcomes. We believe that development of cognitive processes is largely a function of course design. Students unconsciously develop their own schemas and cognitive strategies in response to their opportunities to practice with expert feedback.160

Contrary to Carnegie’s suggestion, there is no standard “toolkit” of protocols and procedures possessed by all experts and that can simply be taught to novices.161 Rather, novices, through their

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160 See Krieger & Martinez, supra note 107, at 127-34.

161 See supra notes 40 to 62 and accompanying text.
experiences in practice and effective feedback, construct their own schemas for solving problems. The goal of course design should be to create the environment and feedback mechanisms to nurture the construction of these schemas. The assessment of think-aloud interviews can help instructors identify areas in which they have assisted students in developing cognitive frameworks and those in which they have not been effective.

For example, the interviews with Mary and David suggest that the Clinic could be more effective in helping students develop cognitive flexibility. David and Mary each seemed to struggle with balancing and consideration of multiple factors. To help them develop a framework for cognitive flexibility, the Clinic might be redesigned to provide more opportunities for students to practice in situations that require keeping track of and considering multiple, complex factors simultaneously. This change might take the form of in-class exercises and simulations and, in the case of the Clinic, selecting clients with problems that will require students to understand the interactions of multiple factors and contingencies as an aid to developing cognitive flexibility.

V. Assessment of Competency and the ABA’s Proposed Standards

The ABA’s Proposed Standards would require law schools to regularly and continuously assess “student competency” in the learning outcomes.\footnote{Draft Report, supra note 11, at Standard 305.} We support such a requirement. As we discussed in the previous section, assessment can be a valuable tool for guiding student attainment of competency when it is used to give feedback to students or to shape course design. However, assessment is only useful for guiding students to competency if it accurately measures their abilities. There is a marked difference in the nature—and value—of what can be learned about competency in skills between assessment of performance and evaluation of reasoning in practice.

For example, a typical subject for assessment in experiential legal education is the initial interview with a client, in which the lawyer meets the client for the first time to begin the representation. An assessment based on performance would evaluate elements such as: the student’s greeting of the client; whether the student made the client feel comfortable; how effectively the student applied the T-funnel technique of asking open-ended questions and then narrowing them down; how the interview was organized; the appropriateness of the greeting and “small talk” phase of the meeting; the cultural awareness and sensitivity of the student; the apparent comfort of the client; the
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degree to which client and lawyer know what happens next, when the next meeting is; or the discovery of any important deadlines.163

In contrast, an assessment of the same interview focused on the student’s reasoning would look at very different elements, such as: What were the student’s goals in the interview? Why did the student ask a particular question at a particular time? What was the student thinking when the client said “I just want justice”? How did the student attend to multiple competing, interdependent factors such as the client’s goals, the relevant law, and the interests and resources of the other party in the case? What legal theories was the student considering while talking to the client? How did the student conceive of her role in the attorney-client relationship that was developing?

From the performance-based evaluation, we can certainly learn a great deal about the student’s ability to conduct a coherent interview or to behave appropriately with a client. And, indeed, skills such as these are not insignificant elements of practice. The lawyer who is not able to respond to cultural differences in a client interview, for example, is bound to have problems with clients. The lawyer who cannot interview a client in an organized manner will inevitably miss important information. We have no problem with teaching students to use techniques such as the T-funnel interview. In fact, we both teach the T-funnel to our students.

However, an evaluation of a student’s ability to conduct a T-funnel interview is of limited value in assessing whether the student is progressing toward expertise, and it should not be used as the sole or primary measure of competency in interviewing. The fact that a student follows perfect T-funnel protocol does not indicate that she has acquired the underlying schemas to understand the legal claims of the client, that she has started to consider the multiple variables at play in the case, or that she has any insights into any novel issues that are raised. Performance-based assessments capture only the surface elements of practice, rather than the deeper reasoning processes that are central to expert practice.

From an assessment of student reasoning, we can understand the student’s thinking as she works with the lawyering problem. By focusing on the reasoning process, instructors can see whether the student is developing and applying schemas, demonstrating cognitive flexibility or exhibiting the ability to identify novel situations. These are more significant elements of competency in practice than simple performance skills. To assess competency in practical skills, therefore,

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163 See supra notes 136-51 and accompanying text.
law schools must implement assessment methods that target students’ ability to reason in practice, not just their ability to perform.

We fear, however, that the ABA and schools moving to focus on learning outcomes will rely too heavily on performance-based assessment in experiential education, given its relative ease of administration and the growing number of voices that support performance assessments. As discussed previously, Carnegie, for example, suggests that assessment of competency in lawyering skills should focus on performance elements. Moreover, the small amount of scholarship concerning assessment in response to the ABA’s proposal for outcomes-based legal education system also focuses on performance. For example, one suggested tool for assessing student competency in the skill of drafting a deed is to assign students to actually draft a deed, which would then be assessed using a “scored checklist” to evaluate student learning. Another scholar suggests the use of “oral evaluations” in clinical assessments, in which students are given fact patterns and then “asked questions designed to determine whether they exhibit the skills and the behavioral and attitudinal attributes necessary to successfully handle the given situation.” Students would then be evaluated based on an assessment “rubric” based largely in performance elements. Neither of these suggested assessment methods addresses student reasoning. Although the amount of this scholarship is limited, it appears that a performance-based approach to assessment of competency in skills is gaining traction among legal scholars.

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164 SULLIVAN ET AL., supra note 18, at 174.
165 Fisher, supra note 26, at 239.
166 Id.
168 Id. at 45. While the rubric does cover knowledge of substantive law and ability to apply law to the facts, it does not address the more complex reasoning processes discussed in this article. Moreover, it focuses on performance skills, such as ability to communicate, to interview (“ability to manage [sic] and organization [sic] facts”), and to act professionally (“ability to communicate the ethical dilemma or to take the appropriate steps to act in an ethical manner”). Finally, it assumes that assessment of complex legal decision making can be boiled down to a simple scoring system from 1 (“failure to meet minimum expected standards”) to 5 (“Great skills training in every area of professional development”).
Performance Isn’t Everything

There is no doubt that performance-focused assessment methods such as the Best Practices communication skills checklist or the standardized patient method endorsed by Carnegie have undeniable appeal for educators: checklist assessments can be easily administered and scored in a uniform, straightforward fashion that minimizes subjective judgment. Assessing student reasoning, in contrast, is likely to be more challenging and time-consuming to implement than a checklist-type assessment. In the think-aloud interviews, for example, student thinking tends to be non-linear, looping back on itself repeatedly and peppered with fillers and non-sequiturs. Questions are raised and then not revisited until much later—if at all. That, of course, is the nature of cognition. Student reasoning, like all human thinking, is messy—it resists easy decomposition into discrete component parts. Instead, it must be analyzed as a whole to identify various reasoning processes glimpsed piecemeal throughout each interview. The analysis requires a deep understanding of the domain as well as a firm grasp of expert reasoning in practice in that domain.

The challenges of using assessment methods that focus on student reasoning, however, should not deter the ABA or law schools from using this type of method. Only by focusing on essential elements of expertise, such as reasoning in practice, can assessments reveal students’ progress toward becoming experts themselves, and not merely their ability to imitate experts. Because they target true indicators of competency in practice, educators and the ABA alike should embrace assessments focused on student reasoning. They should reject the notion that skilled performance is the sole acceptable hallmark of competency in skills. Instead, they should understand that meaningful assessment of student learning in experiential education must focus on students’ ability to reason in practice.

Conclusion

This is a seminal moment for experiential legal education. The chorus calling for reform is swelling, and the ABA stands on the verge of requiring law schools to prepare every student to be competent in skills when they graduate. It is an opportunity for law schools to give careful consideration to what sort of practical education they will give their students.

With the loud voice of the Carnegie Report describing expertise primarily in the form of performance and the ability to follow protocols

\(^{169}\)STUCKEY ET AL., supra note 21, at 246-7. See supra notes 136 to 138 and accompanying text.

\(^{170}\)SULLIVAN ET AL., supra note 18, at 174. See supra notes 140 to 141 and accompanying text.
or imitate expert techniques, it would be easy to simply follow its recommendations for teaching and assessing students in experiential education. However, current scientific research disputes Carnegie’s view of expertise, instead offering important, empirically validated, insights into how to best prepare law students to become expert practitioners.

Cognitive science research into the nature of expertise demonstrates that reasoning, not arational application of “tool kit” techniques to familiar situations, is the hallmark of expert practice. Focusing on performance misses the mark. The implications for experiential education are significant: course design must give students opportunities to develop the ability to reason in practice, and not simply to learn different expert techniques.

Moreover, this research demonstrates that useful feedback to students requires assessment methods that similarly focus on student reasoning. To properly assess this process, evaluation must try to get into the heads of students in practice. We do not pretend that the think-aloud interview method we have proposed is the last word in assessment of student reasoning, but the information we have been able to extract from our interviews thus far suggests that this type of assessment can be valuable to assess students’ acquisition of expertise. The results so far invite further research to refine the think-aloud methodology and develop additional methods for assessing reasoning.

It is unlikely that any of our law students will ever be called on to land a full plane on a river in mid-winter, but they will be called on to serve clients in complex, challenging situations without precedent. While we all hope that our students will respond to difficult client problems with the same expertise that Captain Sullenberger showed, such a result is only possible if we accurately understand the nature of expertise and gear our teaching to developing that expertise in our students.
Appendix A: Hypothetical Scenarios

Community & Economic Development Scenario

Luscious Landscaping

You represent a group of five men who do landscaping work locally. You are helping them to start a business venture together. You just met with three of the five men at your office where one of them, Esteban, started off by telling you “We want to form a Corporation—what do we need to do?”

Although each of them has been successfully doing small-scale work for some time now, they want to work together to allow them to do larger-scale projects, develop a recognizable brand name and reduce the cost of supplies by buying in bulk. Another reason for entering into this venture together is to try to fight the exploitation that each of them, as Latino men, has seen within the landscaping world—they will make sure that Latino laborers are paid decent wages, provide decent employment opportunities for unskilled laborers and they also hope to set a good example of the value of hard work for the increasingly disaffected youth of their Latino community.

They all want to run the business jointly, and they intend to use their own funds as an initial investment. In the future, they want to recruit more members (as long as they can assure that the quality of the work will not suffer) and also to look for outside financing. Profit margins being what they are in this market, they want to keep their initial costs down as much as possible while still reducing tax liability. In addition, they feel that they do not want to be in the position of asking for (or providing) information about immigration status. They have told you that they want to use the name “Luscious Landscaping,” and they are looking to get this done immediately.

What will you do now?
Community & Economic Development Scenario
Rivertown Redevelopment & Revitalization

You represent a group of three successful entrepreneurs who grew up in the community of Rivertown, one of the poorest and most run down areas of the county, with a high unemployment rate and terrible housing options. You are helping them to start a project together to revitalize the business and economic climate of Rivertown. You just met with members of the group at your office.

Each of them has been successful with individual and joint business ventures around the area, and now they want to take their talents back to the community of Rivertown. Decades ago, Rivertown was a thriving working-class neighborhood, with a bustling and modern Main Street that was home to locally-owned small businesses, employing hundreds of local residents and bringing lots of capital into the area. Now, there’s just an abandoned main street with a couple liquor stores and a barely surviving small hardware shop, surrounded by dilapidated housing and a lot of unemployed residents.

The group wants to create a project that will improve the economic climate in Rivertown and attract more new businesses. The ultimate goal is to provide employment for local residents, increase local incomes, set a positive example for local youth, decrease crime, improve the area’s political power and help restore Rivertown to its glory days. To begin, they envision doing things like providing training for the local workforce, developing a unified façade for the storefronts, installing streetlights, creating a pedestrian zone with sidewalk cafes and improving security.

As part of the initial phase of this initiative, the group wants to lease one of the empty storefronts to open a grocery store that will sell healthy and affordable food—Rivertown has no grocery stores, just a few delis and a bunch of fast food chains. They believe that a successful grocery will show other retailers that Rivertown is a good place to do business and will help speed the project along.

They all want to control the project jointly. They intend to use their own funds as an initial investment, but they think know they will need donations, outside investors and/or government grants to make their vision a reality. They have big dreams for the place they came
Performance Isn’t Everything

from, but no experience in this area, so they came to you for counsel on how to proceed.

What will you do now?