

THE PROBLEM METHOD: NO SIMPLE SOLUTION

BY SHIRLEY LUNG†

INTRODUCTION

It is a refreshing development within legal education that greater numbers of law professors creatively experiment with problem-based learning to provide explicit instruction in legal analysis and practice-oriented skills.¹ Even more exciting, this experimentation is not the exclusive province of clinical courses; it occurs increasingly in standard core and elective courses that have been traditionally doctrine-centric.² Further, the ‘problem method’ and other forms of problem-based learning are being introduced sooner in the law school curriculum, including large first-year doctrinal classes.³ As the problem method moves into the mainstream of legal pedagogy, law teachers must anticipate potential problems with it. An awareness of

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1. See generally Arturo López Torres, *MacCrate Goes to Law School: An Annotated Bibliography of Methods for Teaching Lawyering Skills in the Classroom*, 77 NEB. L. REV. 132 (1998) (surveying the legal literature addressing the use of the problem method and other forms of problem-based learning in law school courses).

2. See *id.*

3. See generally Edith R. Warkentine, *Kingsfield Doesn't Teach My Contracts Class: Using Contracts to Teach Contract*, 50 J. LEGAL EDUC. 112 (2000) (problem-based learning in contracts course through reading and drafting contracts); Stephen J. Shapiro, *Teaching First-Year Civil Procedure and Other Introductory Courses by the Problem Method*, 34 CREIGHTON L. REV. 245 (2000) (teaching civil procedure almost exclusively through the problem method); William A. Kaplin, *Problem Solving and Storytelling in Constitutional Law Courses*, 21 SEATTLE U. L. REV. 885 (1998) (reviewing DANIEL A. FARBER ET AL., *CONSTITUTIONAL LAW: THEMES FOR THE CONSTITUTION'S THIRD CENTURY* (1993)) (use of problems and stories to overcome three of the most difficult challenges in teaching constitutional law).

the challenges of the problem method will enable law teachers to develop strategies that maximize its benefits in promoting the skills of transferring knowledge and self-directed learning for a diversity of students. This Article examines the benefits of the problem method as well as its potential for reproducing some of the pitfalls associated with the 'case method,' and offers teaching strategies for fulfilling the promises of the problem method.

While the case method still remains entrenched as the principal method of law school instruction,⁴ the problem method has emerged as the major alternative to the case method.⁵ In a case-based method, students acquire legal knowledge and skills by dissecting the arguments and reasoning in appellate case opinions and responding to questions and comments from the professor that challenge student viewpoints, highlight important points in case opinions, and identify errors made by students.⁶ In a problem-based method, a problem rather than a case opinion constitutes the focus of discussion, and students must determine which part of their legal knowledge base is relevant and use that knowledge appropriately to solve the problem.⁷ Viewed as a pedagogical innovation, the case method was introduced in the late nineteenth century to reform legal education by affording students a more active learning experience than possible under the lecture method, then the prevailing pedagogy.⁸ A vast literature now describes the pitfalls of the case method for teaching analytical skills and its tendency to foster vicarious learning that benefits only a small and exclusive segment of law students.⁹ Vicarious learning refers to

4. Kurt M. Saunders & Linda Levine, *Learning to Think Like a Lawyer*, 29 U.S.F. L. REV. 121, 129 (1994).

5. Craig Anthony Arnold, *How Do Law Students Really Learn? Problem-Solving, Modern Pragmatism, and Property Law*, 22 SEATTLE U. L. REV. 891, 900 (1999) (reviewing EDWARD H. RABIN ET AL., *FUNDAMENTALS OF MODERN REAL PROPERTY LAW* (3d ed. 1992)).

6. See Susan M. Williams, *Putting Case-Based Instruction Into Context: Examples From Legal and Medical Education*, 2 J. LEARNING SCI. 367, 377–379 (1992).

7. See Myron Moskowitz, *Beyond the Case Method: It's Time to Teach with Problems*, 42 J. LEGAL EDUC. 241, 250–51 (1992).

8. See Michael L. Richmond, *Teaching Law to Passive Learners: The Contemporary Dilemma of Legal Education*, 26 CUMB. L. REV. 943, 944–49 (1995–1996) (recounting the advent of the case method in legal education); Moskowitz, *supra* note 7, at 242–43 (describing the efforts of Christopher Columbus Langdell to replace the lecture method with the case method); Cynthia G. Hawkins-León, *The Socratic Method-Problem Method Dichotomy: The Debate Over Teaching Method Continues*, 1998 B.Y.U. EDUC. & L.J. 1, 4–5 (1998) (explaining the relative benefits of the case method over the lecture method).

9. See Michael Hunter Schwartz, *Teaching Law by Design: How Learning Theory and*

the process in which students learn principally by listening to other students engage in a one-on-one dialogue with the teacher.¹⁰ In contrast, growing numbers of legal educators from all doctrinal areas applaud the problem method as more effective than the case method when judged by an array of important criteria. These include motivating students, training students to perform as lawyers, giving students actual practice at legal analysis, engaging students as problem-solvers, developing students as active learners, and helping students to learn the skills of collaboration.¹¹

The trend toward the problem method, and more generally the search for new teaching approaches in legal education, is an outgrowth of three converging developments – one substantive, one demographic, and one professional. First, there is greater acknowledgement within the legal academy that traditional pedagogy such as the case and Socratic methods have been deficient at training students for the work that lawyers do in real life.¹² In its report on the status of legal education, the Carnegie Foundation for the Advancement of Teaching points to the limitations of the case method in “teaching law students how to use legal thinking in the complexity of actual law practice.”¹³ This has lent institutional currency to the need to experiment with pedagogy and curricular development, spurring broader discourse about best practices in teaching methods.

Instructional Design Can Inform and Reform Law Teaching, 38 SAN DIEGO L. REV. 347, 350–58 (2001); Moskowitz, *supra* note 7, at 246; Roy T. Stuckey, *Education for the Practice of Law: The Times They Are A-Changin’*, 75 NEB. L. REV. 648, 667–68 (1996); Warkentine, *supra* note 3, at 118; Hawkins-León, *supra* note 8, at 6–7; Cathaleen A. Roach, *A River Runs Through It: Tapping into the Informational Stream to Move Students from Isolation to Autonomy*, 36 ARIZ. L. REV. 667, 673 (1994); Vernellia R. Randall, *Increasing Retention and Improving Performance: Practical Advice on Using Cooperative Learning in Law Schools*, 16 T.M. COOLEY L. REV. 201, 205–12 (1999); Morrison Torrey, *You Call That Education?*, 19 WIS. WOMEN’S L.J. 93, 100–09 (2004); Janeen Kerper, *Creative Problem Solving vs. The Case Method: A Marvelous Adventure in Which Winnie-the-Pooh Meets Mrs. Palsgraf*, 34 CAL. W. L. REV. 351, 353–59 (1998); Williams, *supra* note 6, at 387–89.

10. See *infra* notes 50–57 and accompanying text.

11. See, e.g., Moskowitz, *supra* note 7, at 249–51; David A. Cruickshank, *Problem-Based Learning in Legal Education*, in *TEACHING LAWYERS’ SKILLS* 187, 199–203 (Julian Webb & Caroline Maughan eds., 1996); Shapiro, *supra* note 3, at 260–65; Kaplin, *supra* note 3, at 886–891; Stuckey, *supra* note 9, at 672.

12. See WILLIAM M. SULLIVAN ET AL., *CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING, EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW* 5–6 (Summary, 2007), available at http://www.carnegiefoundation.org/dynamic/publications/elibrary_pdf_632.pdf; Moskowitz, *supra* note 7, at 245–46; Stuckey, *supra* note 9, at 653–663.

13. SULLIVAN ET AL., *supra* note 12, at 6.

Second, the changing demographic of law student bodies has exposed significant fault lines in legal education. In the last decade and a half, law schools have been enriched by a greater mix of students along lines of race, ethnicity, gender, sexual orientation, and age.¹⁴ Many legal educators observe that the traditional Socratic method privileges white male students to the detriment of women, people of color, and others perceived as “non-traditional students.”¹⁵ These groups of students have not been socialized to succeed in the combative discourse of traditional legal education.¹⁶ While many law students, particularly in the first year, experience the Socratic case method as foreign, exclusion and alienation assume special dimensions for students of color and women.¹⁷ For students of color, the psychological and academic isolation that arises when professors “hide the ball” seriously jeopardizes their academic success.¹⁸ Fewer safety nets are available to them for filling in the gaps left by the Socratic case method because they often lack access to the informal networks that provide critical tips and information about how to survive in law school.¹⁹ Add to this a professor’s lowered expectations of students of color or a racially inhospitable classroom, and the academic consequences of isolation and alienation are apparent.²⁰ For women, rates of classroom participation are lower than for men because the Socratic method “makes them feel strange, alienated, and ‘delegitimized.’”²¹ Women, too, are excluded from law school informal learning networks.²² Although women and men enter law school with similar credentials, on average men receive better

14. See Law School Admissions Council, Total Minority Enrollment, www.lsac.org/pdfs/2007-2008/TotalMinorityEnrollment.pdf (last visited Sept. 26, 2008); Law School Admissions Council, Information for Lesbian, Gay, Bisexual and Transgender Applicants, www.lsac.org/SpecialInterests/information-lesbian-gay-bisexual-applicants.asp (last visited Sept. 27, 2008).

15. See Torrey, *supra* note 9, at 104–05; Roach, *supra* note 9, at 675–77; Cruz Reynoso & Cory Amron, *Diversity in Legal Education: A Broader View, A Deeper Commitment*, 52 J. LEGAL EDUC. 491, 496–97, 503–04 (2002).

16. Lani Guinier et al., *Becoming Gentlemen: Women’s Experiences at One Ivy League Law School*, 143 U. PA. L. REV. 1, 62 (1994).

17. See Roach, *supra* note 9, at 670–75.

18. See *id.* at 675–76.

19. *Id.* at 676.

20. See *id.* at 675.

21. Guinier et al., *supra* note 16, at 4.

22. *Id.* at 71.

grades than women do throughout all three years of law school.²³ Further, the need for effective teaching methods appears especially stark as law students become more diverse across categories of class, education, age, language, culture, and increasingly, immigrant status.²⁴ Different levels of academic preparedness due to socioeconomic status and prior educational and occupational backgrounds punctuate the need for creative teaching methods that ensure the success of all students.

Finally, slowly changing professional norms among law teachers also contribute to a reappraisal of teaching methods. A small but growing group of law teachers, some from the field of academic support, argues that it is important to integrate learning theory into law teaching.²⁵ A key strand of learning theory focuses on the benefits of self-directed learning. Literature outside of the discipline of law documents the long-term improvements in academic success that result from self-directed learning.²⁶ However, much of contemporary education fails to impart the skills of independent learning to students at the undergraduate level so that many law students lack ability to structure, monitor, and adjust learning strategies tailored to their individual needs.²⁷ They often must re-learn how to learn in order to achieve academic success in law school.²⁸

Another important strand of learning theory emphasizes the need

23. *Id.* at 21–24.

24. See Sylvia Hurtado, *How Diversity Affects Teaching and Learning: Climate of Inclusion Has a Positive Effect on Learning Outcomes*, EDUC. RECORD, Fall 1996, at 27, available at http://www.diversityweb.org/research_and_trends/research_evaluation_impact/benefits_of_diversity/sylvia_hurtado.cfm; Reynoso & Amron, *supra* note 15, at 493, 503–04.

25. See Paula Lustbader, *Principle 7: Good Practice Respects Diverse Talents and Ways of Learning*, 49 J. LEGAL EDUC. 448, 454–57 (1999); M.H. Sam Jacobson, *A Primer on Learning Styles: Reaching Every Student*, 25 SEATTLE U. L. REV. 139, 142–143 (2001); Jay Feinman & Marc Feldman, *Pedagogy and Politics*, 73 GEO. L.J. 875, 895–900 (1985); Schwartz, *supra* note 9, at 362–64; Vernellia R. Randall, *The Myers-Briggs Type Indicator, First Year Law Students and Performance*, 26 CUMB. L. REV. 63, 68–74 (1995–96); Paul T. Wangerin, *Law School Academic Support Programs*, 40 HASTINGS L.J. 771, 786–90 (1989); Roach, *supra* note 9, at 679–81; Saunders & Levine, *supra* note 4, at 184–86; Eric A. DeGross & Kathleen A. McKee, *Learning Like Lawyers: Addressing the Differences in Law Student Learning Styles*, 2006 B.Y.U. EDUC. & L.J. 499, 535–37 (2006).

26. See Wangerin, *supra* note 25, at 790–94 (describing studies that indicate that independent learning skills are an important factor in producing long-term grade improvement for students who are in academic difficulty); Randall, *supra* note 25, at 69 (arguing that legal education has failed to systematically assess the impact of teaching methods that incorporate an understanding of learning styles on improving law student performance).

27. See Richmond, *supra* note 8, at 943–44.

28. See *id.* at 944.

to teach in response to diverse learning styles. Yet, as one educator aptly notes, “legal education actually knows very little about self-motivated learning or learning styles.”²⁹ Traditional legal education tends to favor students of certain learning styles,³⁰ usually students who have the same learning styles as their professors, and more research is needed to address differences in learning styles based on culture and cultural identity.³¹ Some law professors, fortunately, are sounding the notion that law professors must approach teaching as an academic discipline as part of their professional responsibilities.³² There is a budding norm that law professors should acquaint themselves with basic learning theory in order to better help their students to become self-directed learners, and to use teaching methods that reach students of all different learning styles.

These three converging developments—substantive, demographic, and professional—lend an air of urgency to the task of reassessing contemporary legal education. Consequently, law professors have begun to show greater willingness to alter the status quo in legal education by incorporating the problem method³³ and

29. Randall, *supra* note 25, at 69.

30. See Schwartz, *supra* note 9, at 362 (arguing that law professors assume all students should be taught in the same way, and thus find the notion that they should tailor their teaching to the needs of diverse student backgrounds to be troubling); Randall, *supra* note 25, at 103 (“[u]nderstanding learning styles can help legal educators understand the thought processes of law students who are quite different from themselves”); Paula Lustbader, *Walk the Talk: Creating Learning Communities to Promote a Pedagogy of Justice*, 4 SEATTLE J. SOC. JUST. 613, 619 (2006) (criticizing the typical Socratic dialogue for privileging extroverts and auditory/verbal learners over introverts and reflection/observer learners). Lustbader also maintains that the traditional Socratic method “only teaches one type of intelligence—mathematical-logical—and ignores other, arguably equally important, types of intelligence such as inter- and intra-personal.” *Id.*

31. See Randall, *supra* note 25, at 69–70. For a brief review of some research examining the effect of cultural differences on learning styles, see Dennis M. McInerney, *The Motivational Roles of Cultural Differences and Cultural Identity in Self-Regulated Learning*, in MOTIVATION AND SELF-REGULATED LEARNING 369, 376–89 (Dale H. Schunk & Barry J. Zimmerman eds., 2008).

32. See Feinman & Feldman, *supra* note 25, at 895 (“Like our theories of law and lawyering, our theory of learning must be more than platitudinous and anecdotal; it must be systematic, conceptual, and rigorous.”); see generally sources cited *supra* note 25; Schwartz, *supra* note 9; Roach, *supra* note 9; Saunders & Levine, *supra* note 4. Additionally, Feinman and Feldman actively criticize legal educators as “anti-intellectual about the area of their primary professional concern: the content and method of legal education.” Feinman & Feldman, *supra* note 17, at 875.

33. I use the term “problem method” to refer to the use of problems in the classroom. Other forms of problem-based learning include simulations or in-role exercises in lawyering seminars, trial advocacy seminars, and clinical courses.

other forms of problem-based learning throughout law school courses.³⁴

Yet the problem method offers no quick and easy fixes. Depending on how teachers utilize the problem method, it may reproduce the pitfalls associated with the case method, including student frustration, student alienation, and the failure to explicitly teach analytical and performance skills. The problem method at its worst application may reinforce a model of vicarious learning that excludes many law students, especially disadvantaging students with lesser-developed academic skills or learning strategies.³⁵ These risks are real if either teacher or student assumes that problem-based learning is self-evident or that problem-based learning need not be structured or that the very use of problems in the curriculum by itself automatically triggers self-directed learning.

Further, the analytical skill of creating transferable knowledge remains a challenge even with the problem method. Teachers cannot assume that students will be able to transfer what they learn from specific problems to other factual contexts. Just as analytical skills should be explicitly taught through the case method, the skill of transferring knowledge from the problem method to new facts and circumstances must also be explicitly taught.³⁶

This Article argues that the problem method does not inherently guarantee successful learning. Indeed, there are substantial obstacles. As a result, law teachers should use teaching strategies that explicitly foster the ability of students to actively construct knowledge from the use of problems. This requires conscious attention to how students learn as well as forethought and planning about how to teach with the problem method. The hope is that teachers develop a pedagogy for the

34. Casebooks, too, have been the subjects of innovation as editors seek to make illustrative problems more central to the doctrine covered and more practice oriented. *See, e.g.*, STEVEN FRIEDLAND ET AL., *EVIDENCE LAW AND PRACTICE* (2d ed. 2004) (text consisting almost exclusively of problems with cases playing a very minor role); CHARLES L. KNAPP ET AL., *PROBLEMS IN CONTRACT LAW: CASES AND MATERIALS* (6th ed. 2007) (inclusion of lengthy, multi-issue problems, comments, and notes to focus on the lawyering perspective and practice-related questions); *see* Arnold, *supra* note 5 (reviewing property casebook that uses the problem method where cases and other materials are used by students to solve one or more legal problems in each chapter).

35. *See infra* Part II.A (discussing the impact of vicarious learning on students with less developed learning strategies); Schwartz, *supra* note 9, at 354 (explaining that vicarious learning and traditional law teaching especially disadvantages students with lesser academic skills and less developed learning strategies).

36. *See infra* Parts III and IV.

problem method that deepens learning for students of diverse backgrounds, academic skills, and learning styles.

Part I of the Article examines the drawbacks of the case method at its worst application as well as the promises of the problem method for teaching analytical skills and advancing self-directed learning. Part II investigates how the problem method may reproduce some of the pitfalls of the case method; it also explores why the problem method offers no simple solution to the challenge of helping students construct knowledge that they can readily transfer to new situations. Part III discusses specific teaching strategies to help students make the transition from novice problem solving to more expert problem solving. These strategies focus on building the ability of students to generalize their learning in order to develop the skill of transferring knowledge, and empowering students to adopt metacognitive³⁷ learning strategies to become self-directed learners.

I. THE CASE METHOD AT ITS WORST, THE PROBLEM METHOD AT ITS BEST

A. *The Case Against the Case Method*

Criticism of the case method is now commonplace in the literature on legal education. While not all those who address the topic uniformly agree the case method should be abandoned,³⁸ there are standard complaints. Most law professors purport to use the case method to impart analytical skills such as case reading, issue spotting, fact analysis, policy analysis, application, theory, and synthesis. Students are also expected to learn how to craft persuasive arguments, assess alternative positions, and exercise clinical judgment from reading and dissecting case opinions. Yet a significant failure of the case method by many accounts is that frequently it is doctrine-centric

37. Metacognition refers to a learner's self-awareness about his or her own thinking and learning process, and involves the ability to control, regulate, and adapt one's learning to meet the specific demands of a particular task performance. Saunders & Levine, *supra* note 4, at 141-42.

38. In fact, a number of my colleagues at CUNY Law creatively utilize the case method to teach legal analysis and practice-oriented skills by combining it with in-role exercises, mock oral arguments, small group work on hypos and problems, and mapping exercises. See Peggy Cooper Davis, *A Dialogue About Socratic Teaching*, 23 N.Y.U. REV. L. & SOC. CHANGE 249 (1997) (discussing whether and how the classic Socratic case method may be reformed to develop legal reasoning skills and metacognitive learning).

rather than skills- or practice-oriented.³⁹

The case method may disempower students in that many of the analytical skills that are tested on exams are not usually explicitly taught.⁴⁰ This view is articulately summarized by one legal educator as follows:

One criticism of the case method centers on its failure to teach analytical skills explicitly as part of doctrinal course work. For example, students are urged to “think precisely,” to draw analogies, and to distinguish or rectify contradictory holdings while learning the rules and doctrines of a body of law. Despite the professed attention to analytical skills as part of doctrinal courses, however, these courses inevitably lead students to emphasize “blackletter” rule memorization over methodology.⁴¹

Thus, important analytical skills often “take a back seat” to doctrine and substance in the case method.⁴² Students overemphasize developing a domain of knowledge,⁴³ when in fact “subject matter knowledge” is only one (and the least complex) learning skill needed for lawyering.⁴⁴ The case method leaves students underdeveloped in

39. See, e.g., Deborah Zalesne & David Nadvorney, *Integrating Academic Skills into First Year Curricula: Using Wood v. Lucy, Lady Duff-Gordon to Teach the Role of Facts in Legal Reasoning*, 28 PACE L. REV. 271, 273–74 (2008) (arguing that through the case method “students are intent on finding rules, doctrine and ‘the law’ in cases, and very often overlook the wealth of information about how the law works contained in the cases”). The authors highlight the need to reorient student learning to de-emphasize doctrine and to strengthen the ability to analyze facts through the case method. *Id.* at 276–78.

40. See Randall, *supra* note 25, at 65–67; Schwartz, *supra* note 9, at 352.

41. Saunders & Levine, *supra* note 4, at 129–30.

42. See Zalesne & Nadvorney, *supra* note 39, at 275–77 (stating that fact analysis gets short shrift in the focus on doctrinal reasoning that is emphasized in most core and elective courses using the case method).

43. See Moskowitz, *supra* note 7, at 244–45 (stating that case method even at its best application may not be effective at training students to think like lawyers because students often “skip the emulation [of good role models] and simply learn the rules”); Paul T. Wangerin, *Skills Training in “Legal Analysis”: A Systematic Approach*, 40 U. MIAMI L. REV. 409, 414–15 (1986) (“although students learn substance, they do not seem to develop adequately, in law school, the skills everyone agrees they will need outside, in the profession”); Hawkins-León, *supra* note 8, at 6 (discussing AALS report finding that “students viewed cases as authoritative solutions to be read and absorbed”); Feinman & Feldman, *supra* note 25, at 882 (“For most law students law is synonymous with doctrine—the formulation of particular sets of rules or principles to govern distinct factual settings.”).

44. See *infra* Part III; Saunders & Levine, *supra* note 4, at 134–35 (explaining Benjamin Bloom’s taxonomy of educational objectives resting on the progressive acquisition of a series of complex cognitive processing skills); Feinman & Feldman, *supra* note 25, at 892–93 (discussing the numerous capacities that thinking like a lawyer requires that go beyond memorization of doctrines and principles).

the skills of issue spotting, application, analysis, synthesis, and evaluation.⁴⁵

Relatedly, another widespread criticism of the case method is that students receive little opportunity to practice developing analytical, advocacy, or problem-solving skills.⁴⁶ The case method at its best provides law students with examples of how lawyers and judges think, advocate, and solve problems.⁴⁷ What students learn explicitly from the case method is how to dissect arguments and reasoning in reported case opinions, which is neither what law students are required to do on exams nor what lawyers spend most of their time doing.⁴⁸ In essence, they learn to understand and critique issues, not to spot issues.⁴⁹ To the extent that students learn problem-solving skills from the case method, they learn them implicitly by “watching” lawyers and judges in appellate case opinions think like lawyers.⁵⁰ This methodology has been likened to teaching someone how to play music or a sport merely by studying how someone else plays without the opportunity to actually perform the activity itself.⁵¹

The case method, which is often combined with the Socratic method, is also roundly lamented as a passive learning experience that alienates students.⁵² The vicariousness of “learning by watching” carries over into classroom dynamics as professors engage in a series of questions and answers with one student at a time.⁵³ Professor Michael Hunter Schwartz explains this method assumes that “somehow the professor’s comments, questions, and corrections of the selected student not only will help the selected student, but will

45. See Moskowitz, *supra* note 7, at 245–46; Saunders & Levine, *supra* note 4, at 125–26, 129; Hawkins-León, *supra* note 8, at 6–7.

46. See Randall, *supra* note 25, at 67; Hawkins-León, *supra* note 8, at 6–7; Moskowitz, *supra* note 8, at 246–47; Keith A. Findley, *Rediscovering the Lawyer School: Curriculum Reform in Wisconsin*, 24 WIS. INT’L L.J. 295, 302–03 (2006).

47. Moskowitz, *supra* note 7, at 244–45.

48. *Id.* at 245–46; Schwartz, *supra* note 9, at 352.

49. Williams, *supra* note 6, at 381 (stating that when reading appellate cases, “the process of identifying the issues in these cases is already completed for students”). Williams concludes that students’ “primary task is to understand issues, not to find them.” *Id.*

50. Moskowitz, *supra* note 7, at 244–46. Moskowitz asserts that “watching is not the same as doing.” *Id.* at 246.

51. *Id.* at 246; Schwartz, *supra* note 9, at 354–55.

52. See, e.g., Torrey, *supra* note 9, at 103–04; Schwartz, *supra* note 9, at 351; Williams, *supra* note 6, at 388.

53. See Schwartz, *supra* note 9, at 350–52; Torrey, *supra* note 9, at 103.

rub off on all the students in the class.”⁵⁴ Students are expected to “play along” in their heads and to follow, evaluate and assess student responses, while also deciphering the professor’s comments.⁵⁵ This task appears nearly impossible when the professor does not give clear responses or guidance about her or his instructional goals at any given point.⁵⁶ Many students respond by “plodding along” and detaching themselves from the classroom.⁵⁷

In addition to alienation and frustration, students also feel disserved by the case method when it provides them with few accurate clues about whether they have the skills to perform well on exams, whether their study methods are effective, or how to improve their study methods.⁵⁸ For students with strong academic skills, this is largely inconsequential because the quality of their legal education is irrelevant; they will acquire the necessary analytical skills regardless of poor teaching or the teaching methods used.⁵⁹ Students who have less developed study and learning strategies are hurt most by applications of the case method that rely exclusively on vicarious learning and that impart skills implicitly rather than explicitly.⁶⁰ For

54. Schwartz, *supra* note 9, at 351. Schwartz notes that law professors assume that the other students know how to play along and that they learn vicariously what the speaking student is experiencing. Schwartz posits that such dynamics are not exclusive to the case method but apply as well to the problem method whenever law professors structure “one-on-one” classroom interactions. *Id.*

55. *Id.* at 351–52.

56. *Id.*; Feinman & Feldman, *supra* note 25, at 881 (commenting that law professors “should not be surprised when students fail to get the message, because our nonexplicit teaching never told them what the message is”). The authors state that law professors themselves are unclear about their message, given that there could be many purposes to any particular course. *Id.*

57. See Gerald F. Hess, *Listening to Our Students: Obstructing and Enhancing Learning in Law School*, 31 U.S.F. L. REV. 941, 942 (1997) (“[A]dult learners quickly withdraw their participation if they feel that the education is not meeting their needs, does not connect with their past experiences, or is conducted at a level they find incomprehensible.”).

58. See Randall, *supra* note 25, at 67; Roach, *supra* note 9, at 673; Lustbader, *supra* note 30, at 619–20.

59. Schwartz, *supra* note 9, at 354. However, this does not mean that the educational experience of students with stronger academic skills through the case method is a positive one or that the quality of the teaching method does not have consequences in terms of motivation or affect.

60. See *id.* (“[S]tudents who enter law school with lesser skills and less developed learning strategies depend on their instruction to succeed in law school, on the bar exam, and in practice.”); Randall, *supra* note 25, at 65–66 (stating that students’ success in law school depends in part upon their “entering with sufficiently high levels of requisite skills so that the legal education system’s failures minimally affect their success”); Edwin H. Greenebaum,

these students, teaching methods that explicitly deconstruct analytical thinking into cognitive steps can make the difference between failure and success. Unsound pedagogy, on the other hand, may lead to poor performance or failure that could have been avoided.⁶¹

B. The Case for the Problem Method

The defining feature of the problem method is that instruction and learning are anchored in the context of concrete problems.⁶² Outside of this, the problem method takes many forms in structure, scope, or sequencing in the curriculum.⁶³ Hailed as more “effective, efficient, and appealing”⁶⁴ than the case method, the most frequently cited benefits of the problem method fall in three areas. First, the problem method requires performance instead of watching. Legal educators extol the benefits of the problem method in providing students with substantive practice at using analytical skills such as problem identification, case synthesis, rule application, fact analysis, and analogizing or distinguishing cases.⁶⁵

Second, the problem method requires students to utilize and practice these skills by placing them in the context of problem solving, which many argue is the main work of lawyers.⁶⁶ This may require students to go beyond the rule-based reasoning that is stressed by cases. For example, problems can be used to help students grapple with the ambiguity and complexity of facts that lawyers encounter in daily practice⁶⁷ or to require students to strategize in making

Problem Solving in Legal Education, 10 INT’L J. LEGAL PROF. 69, 85 (2003) (the Socratic case method privileges those “with the best aptitude and who are best prepared”).

61. Randall, *supra* note 25, at 66.

62. Cindy E. Hmelo & Dorothy H. Evensen, *Introduction to PROBLEM-BASED LEARNING: A RESEARCH PERSPECTIVE ON LEARNING INTERACTIONS 1*, at 1 (Dorothy H. Evensen & Cindy E. Hmelo eds., 2000) [hereinafter *PROBLEM-BASED LEARNING*].

63. See Moskowitz, *supra* note 7, at 250–51. For instance, problems vary in complexity; they may or may not be accompanied by case readings; they may precede or follow instruction; they may be assigned in class or pre-assigned; they may be combined with outlining, writing, or in-role exercises; and the role of the problem in a class may vary from being ancillary to a discussion of cases to comprising the entire class.

64. See Schwartz, *supra* note 9, at 358 (criticizing traditional law teaching as “neither effective, efficient, nor appealing” and arguing for the need for more reflective approaches to law school instruction).

65. See Moskowitz, *supra* note 7, at 253–55; Kaplin, *supra* note 3, at 888–91; Arnold, *supra* note 5, at 900–02.

66. See Stuckey, *supra* note 9, at 669, 672.

67. See Warkentine, *supra* note 3, at 114–15.

alternative arguments.⁶⁸ Thus, the problem method can shape learning so that it comports with the needs of future practice;⁶⁹ students undertake learning in their role as future lawyers, not only as test-takers.⁷⁰

Third, legal educators maintain that the problem method facilitates self-directed student learning.⁷¹ Self-directed learning is perhaps the most significant pedagogical benefit of the problem method because it develops the skills to go beyond current knowledge to create new knowledge for new situations.⁷² Self-directed learners are better able than passive learners to adapt and apply knowledge to new situations.⁷³ The benefits of the problem method noted earlier are likely to be more fully realized if teachers use the problem method to promote self-directed learning.

Self-directed learning refers to the processes by which students learn to “make their learning relevant to their own educational needs.”⁷⁴ This consists of “defining what should be learned, identifying one’s own learning needs, developing learning objectives, identifying a plan to achieve those objects, successfully implementing the plan, and self-evaluating the effectiveness of the learning.”⁷⁵ In

68. Discussion with Ruthann Robson, Professor of Law and University Distinguished Professor, The City University of New York School of Law, in Flushing, N.Y. (June 12, 2008).

69. See Ann C. Myers Kelson & Linda H. Distlehorst, *Groups in Problem-Based Learning (PBL): Essential Elements in Theory and Practice*, in PROBLEM-BASED LEARNING, *supra* note 62, at 173–74 (discussing how a PBL curriculum shapes learning so that “learning is undertaken in a manner compatible with future practice”).

70. This is not suggesting that the problem method does not serve important test-taking goals or practice for students. Indeed, working on problems helps students to perform more successfully on law school exams.

71. See Warkentine, *supra* note 3, at 118–120; Cruickshank, *supra* note 11, at 202–03; Shapiro, *supra* note 3, at 262–63 (explaining that with the problem method students try to answer problems before they get to class and they are likely to spend more time preparing for class than under the case method).

72. See Cindy E. Hmelo & Xiaodong Lin, *Becoming Self-Directed Learners: Strategy Development in Problem-Based Learning*, in PROBLEM-BASED LEARNING, *supra* note 62, at 227.

73. See Diana H.J.M. Dolmans & Henk G. Schmidt, *What Directs Self-Directed Learning in a Problem-Based Curriculum?*, in PROBLEM-BASED LEARNING, *supra* note 62, at 251–52.

74. *Id.* at 252.

75. Barry J. Zimmerman & Robert B. Lebeau, *A Commentary on Self-Directed Learning*, in PROBLEM-BASED LEARNING, *supra* note 62, at 299, 301–02. The authors categorize the processes as: identifying learning objectives (which entails defining what needs to be learned and formulating one’s learning issues); pursuing learning issues (entails developing, implementing, and monitoring a plan to meet one’s learning issues); and self-

essence, students learn to identify gaps in their knowledge within a particular context, to assess their strengths and weaknesses, and to develop, control and adjust their own learning agendas accordingly.⁷⁶

These skills closely resemble the skills needed by practitioners when they confront new problems. Expert problem solvers “monitor, regulate, and direct [their] own task performance.”⁷⁷ To be effective problem solvers, practitioners must be able to identify what they need to learn in specific contexts, evaluate old and new knowledge, figure out how to get the information that might be of use, and assess how new knowledge may be applied.⁷⁸ Self-directed learning is itself problem solving and enables practitioners to be lifelong learners and problem solvers.⁷⁹

The problem method holds the promise of redirecting students toward self-directed learning. When law professors integrate the use of problems into their classrooms, they have an opportunity to help their students to become more process-oriented, instead of being mainly “doctrine-centric.” For most students, learning centers on reading, briefing, and outlining cases. They are concerned primarily with developing “declarative knowledge”—substantive knowledge within a particular domain, including vocabulary and terms, and rules.⁸⁰ They frequently turn to the use of problems too late in the study process, treating problems either as part of the test-taking process or as the end product of studying, rather than as the crux of learning. All too often, students say they are not ready to work on problems until they have fully learned, memorized, and outlined the rules, and consequently, leave too little time before an exam to incorporate valuable new learning that can be acquired from working on problems.⁸¹

evaluating learning (evaluating your learning). *Id.*

76. See Dolmans & Schmidt, *supra* note 73, at 252.

77. See Saunders & Levine, *supra* note 4, at 141–42.

78. See *id.* at 140; Hmelo & Lin, *supra* note 72, at 227.

79. See Hmelo & Lin, *supra* note 72, at 227 (describing the importance of self-directed learning activities to practitioners in the field of medicine); Saunders & Levine, *supra* note 4, at 141–42 (experts are proficient at metacognition, which enables them to expand their schemas, which in turn “allows them to become more accurate at defining a problem, representing it, judging its difficulty, apportioning time for its solution, and predicting or assessing its solution”).

80. See Saunders & Levine, *supra* note 4, at 141 (defining declarative knowledge and its limits).

81. Memorandum from Allie Robbins to author (June 21, 2008) (on file with author). Robbins, one of my students, has explained that reading cases, taking notes on cases while

Important learning is front-loaded with the problem method, as opposed to back-loaded with the case method. Significant learning can take place even before students get to class.⁸² One student has explained that the problem method “highlighted key areas of confusion for [her] before [she] stepped into the classroom, and well before [she] was studying for an exam.”⁸³ Thus, the problem method can act both as an early warning system and confidence builder as students gain a realistic sense of their strengths and weaknesses. Moreover, a more sophisticated understanding of time management ensues as students become realistic about how much time “legal analysis” entails and how much time their own learning requires. They figure out how to allocate time strategically in relation to their specific learning needs rather than in the abstract. While there is never enough time in law school, students take greater charge of their time when they have a specific learning agenda.

The emphasis on doctrine also shortchanges students if it fails to provide explicit practice at strengthening the skills of structuring and organizing knowledge. Undoubtedly, declarative knowledge is essential to the development of problem-solving skills,⁸⁴ but it is “procedural knowledge” that distinguishes effective problem solving.⁸⁵ Procedural knowledge relates to the development of frameworks or schemas that organize, structure, and integrate information and experiences in a way that allows a problem solver to retrieve and manipulate information.⁸⁶ The key to expert problem

reading and during class, and outlining often left her piecing together crucial information about the rules and their application right before exams. The memo offered Robbins’ perspective on how problem-based learning can be an effective methodology for helping students learn to apply rules. *Id.*

82. See Shapiro, *supra* note 3, at 262–63 (explaining that the problem method encourages students to do work outside of class so that answers given during class are more developed).

83. Robbins, *supra* note 81.

84. Stefan H. Krieger, *Domain Knowledge and the Teaching of Creative Legal Problem Solving*, 11 CLINICAL L. REV. 149, 165–66 (2004).

85. See James F. Voss, *Problem Solving and the Educational Process*, in FOUNDATIONS FOR A PSYCHOLOGY OF EDUCATION 251, 269 (Alan M. Lesgold & Robert Glaser eds., 1989) (knowledge tends to proceed from declarative to procedural, and “highly skilled performance” involves “refinement of procedural knowledge”). Voss discusses a study showing that post novices in the social sciences stored subject matter knowledge but were unable to use that knowledge in a problem context—they had not yet developed the requisite procedural knowledge. *Id.* at 271.

86. See John D. Bransford et al., *Learning Skills and the Acquisition of Knowledge*, in FOUNDATIONS FOR A PSYCHOLOGY OF EDUCATION, *supra* note 85, at 199, 208–09 (explaining schemas as organized bodies of knowledge that serve a number of critical cognitive functions).

solving lies in how knowledge is organized, not the quantity of declarative knowledge acquired.⁸⁷ When a framework or schema richly spells out interrelationships between concepts and ideas, the information can be put to greater uses.⁸⁸

The problem method affords students riper opportunities for building procedural knowledge. With the case method, students focus on memorizing rules and amassing subject matter knowledge. With the problem method, students may progress from “knowing” to “knowing how.”⁸⁹ When students engage in analyzing a problem, they must go beyond memorizing and stating rules, relatively the simplest steps in legal analysis. They must implicitly, if not explicitly, identify the “procedures” for an analysis if they are to develop transferable knowledge.⁹⁰ This includes grappling with the structure of rules and their interrelationships, as well as learning to recognize “multiple uses of a single rule or how a single rule operates under different circumstances.”⁹¹ Equally significant, students are confronted with sorting out the categorizations, characterizations, paths, and choices that arise at each stage of an analysis.

The “procedures” of problem solving also refer to all mental and cognitive steps, and their sequencing, that are necessary for analyzing a particular problem.⁹² Some liken this to an information-processing script,⁹³ stressing that expert reasoning relies on easy access to

Bransford maintains that comprehending, remembering, inferencing, and problem solving are influenced by how knowledge is organized. *Id.* at 200; see John B. Mitchell, *Current Theories on Expert and Novice Thinking: A Full Faculty Considers the Implications for Legal Education*, 39 J. LEGAL EDUC. 275, 277 (1989) (schemas “are interpretative frameworks, built out of past knowledge and experience, that allow us to make sense out of the bits and pieces of information presented to us in given situations”); Saunders & Levine, *supra* note 4, at 141 (referring to schemas as “interpretative frameworks” that “integrate and structure knowledge and experience”); Krieger, *supra* note 84, at 167 (noting the importance of problem-solving scripts or schemas to expert reasoning).

87. Krieger, *supra* note 84, at 167.

88. See Dolmans & Schmidt, *supra* note 73, at 251.

89. See Voss, *supra* note 85, at 269.

90. See Schwartz, *supra* note 9, at 396–98 (discussing procedural steps and information-processing analyses); Voss, *supra* note 85, at 276 (research suggests that a common characteristic of effective problem solving within all domains is the development of “increasingly rich abstract knowledge structures”).

91. Robbins, *supra* note 81, at 1.

92. Schwartz, *supra* note 9, at 398 (discussing the value of procedural learning, noting that “procedures tell the learner the steps the learner should follow in a particular circumstance”). Schwartz argues that the design of law school instruction should seek to “identify and sequence all the mental steps involved in achieving a learning goal.” *Id.*

93. See Schwartz, *supra* note 9, at 398–401 (providing an example of an information-

problem-solving scripts.⁹⁴ The problem method offers the promise of helping students gain both deeper comprehension of the intricacies of rules in action, and more conscious “know-how” of the mental processes and attendant skills that fall under the generic label of “legal analysis.”

II. PROBLEMS WITH THE PROBLEM METHOD

A. *The Problem of Vicarious Learning*

Fulfilling the promises of the problem method is no simple endeavor. Understandable challenges and frustrations exist on both sides of the educational process. When problems are used in the classroom to give students practice at analysis, law professors still bemoan that students have trouble spotting or analyzing issues on exams or readily applying their knowledge appropriately to new problems. Professors are especially baffled when students appear to quickly forget how to analyze a problem that was identical to one already reviewed and analyzed in class.

At the same time, students welcome the problem method as a refreshing change from the case method but may complain that they remain unsure about what they should have “gotten out” of a problem or that the analysis seemed like a “mush.”⁹⁵ After doing a problem once, and confronted with a similar new problem, students may report that they are still at a loss about where to begin the analysis or how to prioritize important information. Sometimes the main conclusion that students draw from a problem is that arguments can go either way. While this might be viewed as an insight about the realities of law practice, this comment may also signal that some students were unable to construct procedural knowledge from the problem.

Clearly, use of problems by itself does not guarantee successful problem-based learning. Chief among the potential dangers is the assumption that the very use of problems by itself automatically enhances student learning. If teachers leave students to learn how to analyze problems principally by hearing and watching other students argue in favor of or against a certain outcome without structuring that

processing analysis of the contract principle of illusory promise issues).

94. See Krieger, *supra* note 84, at 167.

95. The references to student comments upon the problem method in this paragraph are based on my discussions with students in my academic support classes.

discourse with an articulated framework, the pitfalls associated with the case method are likely to be reproduced.⁹⁶

In fact, without an explicit framework, the problem method may magnify the difficulties of vicarious learning. The case method discourse is at least predictable; the kinds of questions that teachers ask about facts, rules, holdings, and reasoning are usually well established or become so in the first semester. In addition, the reasoning of a case narrows the discourse. With the problem method, the discourse has the potential for much greater open-endedness and indeterminateness, especially because problems usually ask students to explore gray areas of facts, law, or policy. Even for students with stronger academic skills, it is a daunting task to learn concrete skills by listening to a freewheeling conversation in which called-on students give alternative arguments back and forth without guidance or structure from the teacher. It is difficult to manage the information flow of such a discourse; an unstructured discourse also does not give students tools to pinpoint or name where they are lost. The resultant danger is students will have trouble in spotting issues, give “fuzzy” analysis, incorrectly jump too far ahead or miss a step in an analysis, fail to recognize when previously learned rules apply to a new problem, or simply reduce the lesson to “the argument can go either way.”

B. The Problem of Spontaneity

1. Transfer of Knowledge Does Not Occur Spontaneously

Just as the case method has been faulted for failure to explicitly teach analytical skills, the same is true for the problem method. Law professors must help students learn to create transferable knowledge⁹⁷ from the use of problems so that they can apply what they have learned to new situations. How to apply a rule to a problem is not self-evident; the skills of application, prediction, interpretation, inference, induction, and deduction must be explicitly named and taught.⁹⁸ Moreover, just because a student has learned how to apply a

96. See Schwartz, *supra* note 9, at 350 (stating that most classroom instruction is structured as one-on-one dialogues, whether with the case method or problem method, which rest on vicarious learning).

97. See Bransford et al., *supra* note 86, at 212 (discussing studies relating to students' ability to “activate relevant knowledge in new contexts”).

98. See Saunders & Levine, *supra* note 4, at 126 (“[C]ontemporary legal education has

rule once to a problem does not mean she will be able to do the same problem again at a later point in time, no less recognize when to apply that same rule to a new problem without prompting.⁹⁹ The essential dilemma of constructing transferable knowledge challenges law students as test-takers and future practitioners.

Law professors vastly underestimate the difficulty of creating transferable knowledge from the problem method. One law student has suggested that law professors and law students operate within “separate cultures”¹⁰⁰ rendering it difficult to see the “other,” although each continually seeks to understand the other’s mind-set.¹⁰¹ Our judgment in gauging from a student’s perspective the level of difficulty in deciding why and how certain rules apply to a particular problem is inevitably distorted. We are often the architects of the problems or hypos that form the basis of exams, exercises, or simulations. In constructing a problem, we start with a problem structure in mind, that is, we determine which set(s) of rules to implicate and then we build the essential facts to support the problem structure. Our closeness to the problem structure makes it hard to understand the problem from a student’s perspective.

Further, even when another law professor is the architect of a problem, we may nevertheless be able to ascertain the structure of the problem and to apply our learning from that problem to new facts. Through time, experience, and repetition, we as law teachers have actively constructed a broad base of domain and procedural knowledge that enables us to ascertain the structure of a problem that lies within our subject matter expertise.¹⁰² We have certain “cultural

largely failed to provide adequate instruction in such aspects of the legal thinking process as prediction, interpretation, inference, induction, and deduction.”)

99. See Voss, *supra* note 85, at 269 (citing study suggesting that learning by analogy may be difficult because “students seem to quickly forget how to solve specific problems”); see *infra* notes 105–117 and accompanying text (discussing inert knowledge and the problem of transferring knowledge to new problems).

100. Memorandum from Alissa Hull to author (July 24, 2008) (on file with author). Hull, a CUNY law student, explains that law students and law professors have hugely different knowledge bases that form different cultures. Hull refers to Jerome Bruner’s work on the role of culture in making meaning by “provid[ing] the tools for organizing and understanding the world in communicable ways.” JEROME BRUNER, *THE CULTURE OF EDUCATION* 3 (1996).

101. BRUNER, *supra* note 100, at 46–47 (discussing the classic philosophical concept of “Other Minds” and noting its applicability to teaching). Bruner explains that teachers develop notions about the nature of the learner’s mind to determine how to reach their students. *Id.* at 45–46. Similarly, students have notions about their teacher’s mindsets in trying to figure out what their teachers are “trying to get at.” *Id.* at 45, 47.

102. See Mitchell, *supra* note 86, at 278–79 (legal experts possess a wealth of domain

tools” at our disposal that our students do not yet have. Our “cultural setting”¹⁰³ may in fact lead us to the unconscious assumption that transferable knowledge is a “natural” by-product of the problem method that occurs spontaneously rather than something that is actively and laboriously constructed.¹⁰⁴

The considerable challenges that law students face in constructing transferable knowledge should be appreciated, particularly when placed in a larger context. The difficulty of creating transferable knowledge through the problem method is widely encountered across all educational domains. Psychologists and cognitive theorists have documented that it is common for students to be unable to apply knowledge that they have previously learned to new situations when they are not given explicit cues or prompts.¹⁰⁵ The dangers of “inert knowledge”¹⁰⁶—knowledge that cannot be accessed or activated even though it is relevant to a particular circumstance—are well established.¹⁰⁷

Studies consistently show that students fail to recognize when knowledge learned in the context of solving one problem is applicable in solving another problem, even if the problems are essentially the

knowledge matched by knowledge about “‘moves’ in reasoning,” doctrinal relationships, procedures for processing problems, conventions of discourse, and schemas).

103. BRUNER, *supra* note 100, at 4. Bruner emphasizes that:

[L]earning and thinking are always *situated* in a cultural setting and always dependent upon the utilization of cultural resources. Even individual variation in the nature and use of mind can be attributed to the varied opportunities that different cultural settings provide, though these are not the only source of variation in mental functioning.

Id.

104. See Dorothy H. Evensen, *Observing Self-Directed Learners in a Problem-Based Learning Context: Two Case Studies*, in PROBLEM-BASED LEARNING, *supra* note 62, at 263, 290 (“self-directed learning ‘takes more careful planning and structure to support the enhancement and expansion of the learner[’s] control over his or her learning development efforts’” than does passive learning) (quoting Adele Chene, *The Concept of Autonomy in Adult Education: A Philosophical Discussion*, 34 ADULT EDUC. Q. 38 (1983)).

105. See Bransford et al., *supra* note 86, at 211–13 (describing multiple studies showing the failure of students to activate relevant knowledge that they had previously acquired when analyzing new problems unless they were prompted or cued to do so); Voss, *supra* note 85, at 281 (discussing several studies suggesting “that positive transfer is not readily obtained in problem solving” when subjects were asked to “solve . . . the same problem . . . in a different context”).

106. See Bransford et al., *supra* note 86, at 211. Bransford defines inert knowledge as “knowledge that is accessed only in a restricted set of contexts even though it is applicable to a wide variety of domains.” *Id.*

107. See *id.* at 211–13.

same problems “dressed up” in different facts.¹⁰⁸ Students did not spontaneously see the transferability of the solution principles unless the specific relationship between the problems was identified to them;¹⁰⁹ the information remained inert for students who were not given a prompt.¹¹⁰

One cognitive learning theorist explains, “[F]or transfer to occur, the solver must be able to determine that a second problem is equivalent to the first with respect to its class membership.”¹¹¹ He notes, “[S]tudents, especially when first learning how to solve a particular problem, often do not realize that two problems belong to the same class when the ‘givens’ and the ‘unknown’ are varied.”¹¹² In other words, students frequently fail to recognize on their own when two problems constitute “two views of the same basic relationship.”¹¹³

Additional studies further illustrate the magnitude of inert knowledge, providing vigorous evidence that transferability is not something that law teachers can expect to occur easily among law students. Studies show that when students are given a clue that bears an obvious relationship to the solution of a problem but are not explicitly prompted to use the clue to solve the problem, they perform no better in solving the problem than students who do not receive the clue.¹¹⁴ Further, learning a particular associative relationship between

108. *See id.* For example, Bransford refers to a study in which college students were given information about a military problem; they were asked and given an opportunity to memorize and recall the military problem and its solution. *Id.* at 211. In the problem, a general wanted to capture a fortress but could not mount a full-scale attack because the roads were mined; a large force would risk detonating the mines. *Id.* The solution was to dispatch smaller groups of soldiers over different roads so that they converged on the fortress at the same time. *Id.* The students were then given a radiation problem that could be solved with an approach similar to the one used in the military problem. *Id.* at 211–12. The radiation problem concerned a doctor who was treating a patient who had a tumor; the use of high intensity radiation would destroy the tumor but also risked destroying healthy tissue. *Id.* at 211. The solution was to use many sources of less intense radiation to converge on the tumor. *Id.* at 212. The researchers found that 90% of the students who were given a clue that the military solution was applicable to the radiation problem used the information appropriately to solve the radiation problem. *Id.* Of the students who did not receive such a clue, however, only 20% applied the military solution on their own to solve the radiation problem. *Id.*

109. Voss, *supra* note 85, at 281.

110. *See* Bransford et al., *supra* note 86, at 212.

111. Voss, *supra* note 85, at 281.

112. *Id.*

113. *See id.*

114. Bransford et al., *supra* note 86, at 212. College students were asked what was the secret to a psychic’s ability to “tell you the score of any baseball game *before* the game starts.”

concepts on a prior occasion does not guarantee that the same information can be relearned efficiently at a later time.¹¹⁵ In fact, it may take as much time to relearn that relationship as it takes to learn an altogether new relationship unless the student recognizes that the information had been previously learned.¹¹⁶ Yet more than a majority of students may not recognize that they have previously learned a particular relationship between two concepts.¹¹⁷ For these reasons, educators must address the underlying obstacles that impede the spontaneous transfer of knowledge to new situations.

2. *Inability to Generalize Makes Transfer Difficult*

Before proposing teaching solutions that enhance the skill of law students to transfer knowledge, it is necessary to address how novices and experts “represent problems” in radically different ways,¹¹⁸ and

Id. Before being asked this question, some students were given a hint with obvious applicability to the problem: they were told, “[b]efore it starts the score of any game is 0 to 0.” *Id.* These students were then asked the question and prompted to use the clue to help them answer the question; their performance was excellent. *Id.* Other students were given the clue, presented with the question but were not prompted to use the clue. *Id.* These students performed no better than students who received no clue information at all. *Id.*

115. *See id.* at 213.

116. *See id.*

117. *See id.*

118. Saunders & Levine, *supra* note 4, at 141 (arguing that novices and experts approach problem solving in radically different ways, and that they thus “represent” problems very differently); *see also* Voss, *supra* note 85, at 263 (explaining that experts in physics attempt to classify and categorize problems whereas novices focus on particular variables in problems). Consequently, novices have a much weaker representation of problems than do experts. *See also* Ian Weinstein, *Lawyering in the State of Nature: Instinct and Automaticity in Legal Problem Solving*, 23 VT. L. REV. 1 (1998) (examining differences between how novice and expert lawyers cognitively process and represent a problem relating to client’s eligibility for social security disability benefits); Mitchell, *supra* note 86, at 280–83 (workshop indicating that law professors who were experts in a particular doctrinal area approached a problem in that area by constructing a “coherent whole that was triggered by and transcended the facts” while law professors who were non-experts “tended to focus on the more concrete, surface features of the problem”); Dorothy H. Deegan, *Exploring Individual Differences Among Novices Reading in a Specific Domain: The Case of Law*, 30 READING RES. Q. 154, 160–62, 164–66 (1995) (high performing readers process legal text by problematizing the text through questioning, hypothesizing, predicting, and planning whereas low performing readers process legal text by using default strategies consisting of paraphrasing or summarizing); James F. Stratman, *When Law Students Read Cases: Exploring Relations Between Professional Legal Reasoning Roles and Problem Detection*, 34 DISCOURSE PROCESSES 57, 59 (2002) (examining the role of schemas in how readers process legal text); Mary A. Lundeberg, *Metacognitive Aspects of Reading Comprehension: Studying Understanding in Legal Case Analysis*, 22 READING RES. Q. 407 (1987) (comparing differences in reading and processing of legal texts among novice law students at different points in law school).

how these differences translate to the law school context. Foremost, novices define a problem by its “surface structure,”¹¹⁹ whereas experts expend substantial time in figuring out the “deep structure” of a problem.¹²⁰ The surface structure of a problem relates to “the tangible and the given”¹²¹ or the “immediate, concrete, unique properties”¹²² of the problem, such as the given facts, explicitly stated variables, or other concrete information clearly spelled out in the problem. The deep structure of a problem relates to its “systematic properties”¹²³ that enable one to classify the problem.

Novices tend to approach thinking about a problem in a fragmentary fashion and around concrete bits of information, and do not easily sort and categorize information at a deeper level.¹²⁴ Experts, on the other hand, draw “inferences and abstractions beyond” the tangibles in a problem, seeking to relate the problem to principles and procedures;¹²⁵ they try to ascertain the deep structure of a problem in order to classify the problem.¹²⁶

How someone represents a problem is heavily influenced by his or her schemas, i.e., the nature of the organization and structure of their knowledge.¹²⁷ Failure to actively utilize relevant knowledge results from weak schemas in which there are problems in the way knowledge is organized.¹²⁸ Significantly, weakly structured or

119. Krieger, *supra* note 84, at 168. It may be argued that “surface structure” is not “structure” at all because when students focus mainly on the “surface” of a problem, they are mistaking superficiality for structure.

120. *See id.* at 167–68; Mitchell, *supra* note 86, at 284; see also Voss, *supra* note 85, at 263–64, for a description of how novices and experts proceed differently based on surface structure and deep structure in the context of mathematics and physics; see generally Paula Lustbader, *Construction Sites, Building Types, and Bridging Gaps: A Cognitive Theory of the Learning Progression of Law Students*, 33 WILLAMETTE L. REV. 315, 326–27 (1997).

121. *See* Saunders & Levine, *supra* note 4, at 141.

122. Krieger, *supra* note 84, at 168.

123. *Id.*

124. *See* Voss, *supra* note 85, at 263–64.

125. *See* Saunders & Levine, *supra* note 4, at 141.

126. *See* Voss, *supra* note 85, at 263.

127. *See* Saunders & Levine, *supra* note 4, at 141 (stating that “problem-solving skills depend upon the nature of the schemas a person possesses”); Voss, *supra* note 85, at 269 (citing to a study that posited that problem solving “produces a higher level schema for classes of problems”); see also Stratman, *supra* note 118, at 59 (explaining that schemas play a critical role in how lawyers cognitively process the reading of unfamiliar legal texts). Stratman states that legal text comprehension occurs easily when a reader’s schemas match the text’s schema. *Id.* at 59; see *supra* pp. 13–14, 22, and notes 73, 80.

128. Bransford et al., *supra* note 86, at 220–22; Hess, *supra* note 57, at 943 (“Adults learn new concepts, skills, and attitudes by assigning meaning to them and evaluating them in

organized knowledge is likely to impair skills such as comprehending unfamiliar legal texts,¹²⁹ assimilating information, drawing inferences, screening and prioritizing information, elaborating on concepts, and filling information gaps.¹³⁰

Knowledge remains inert because of a combination of three factors in organization: (1) knowledge cannot be accessed efficiently; (2) knowledge lacks significance; or (3) knowledge becomes overly contextualized.¹³¹ Overcontextualization particularly impedes transfer because it interferes with the ability to generalize learning from specific sets of facts.¹³² Law students may not know where to begin analyzing a problem, or may not see how a rule learned in one context is triggered by another context, when they are unable to move past surface structure, and instead focus primarily on the tangibles in a problem. Facts and the unique properties of a problem serve merely a descriptive function, not a structural function. As a result, knowledge gained from one problem becomes overly contextualized and fails to carry over to other problems.¹³³ Students, particularly in their first year, often approach a case, problem, or hypo as a discrete universe. An analysis from a particular case or problem is bound to its particular factual context; a rule is perceived as case specific or an analysis as problem specific.

In order to transfer knowledge from one case to another, or from one problem to another, students must grapple with generalizing their learning by focusing on deep structure. As one student has insightfully concluded, it is necessary to “learn how to see the

the context of their previous experience.”); MARYELLEN WEIMER, LEARNER-CENTERED TEACHING: FIVE KEY CHANGES TO PRACTICE 11 (2002) (study concluding that students engaged in deep learning when they “related new information to what they already knew and had experienced, and worked to organize and structure the content”).

129. See Stratman, *supra* note 118, at 59 (explaining that schemas play a critical role in how lawyers process unfamiliar legal texts).

130. See Bransford et al., *supra* note 86, at 200, 209.

131. See Bransford et al., *supra* note 86, at 214–19 (containing a discussion of these three factors contributing to students’ inability to activate knowledge).

132. See *id.* at 214 (defining overly contextualized knowledge as “acquiring concepts in a restricted context and hence [causing] fail[ure] to understand their applicability to a wider variety of domains”).

133. See *id.* at 217–18 (summarizing studies indicating that students who learned new information in the same context could not transfer learning to new contexts); Greenebaum, *supra* note 60, at 86 (arguing that because problem solving is specific, students need “a bridge to carry their learning about problem solving in legal education for application in the diverse legal practices in which they will engage”).

problem for more than the facts presented.”¹³⁴ She adds that with problem-based learning, she “was forced to analyze the bigger picture of why the problem was assigned with a particular rule and think about other scenarios in which the rule might be used.”¹³⁵ Another student similarly observes that she had to learn to “look at the shape of what the professor was getting at with the problem besides its facts,” and suggested that perhaps the facts were really secondary to what was being asked.¹³⁶ In their own ways, each of these students describes something about what it means to ascertain the deep structure of a problem.

The inherent tension between abstraction and contextualization presents mutual challenges to law teachers and law students.¹³⁷ How does one teach or learn the skills of paying close attention to detail (particularity, contextualization, facts, “the trees”) without compromising the skills of abstraction (generalization, structure, strategies, the “forest”)? Perhaps a problem approach that emphasizes facts to the exclusion of deep problem structure, arguably more difficult to teach,¹³⁸ may contribute to overly contextualized knowledge that becomes inert. When problems are overcontextualized by facts, the task of sorting and categorizing facts without an organizing principle becomes rather arbitrary. This is especially so when the facts of one situation differ greatly from another set of facts.

According to some cognitive theorists, learning by analogy is “superficial” because students are likely to draw analogies based on apparent similarities rather than on solution procedures;¹³⁹ as long as a problem superficially resembles another in some respect, students may be misled to apply an irrelevant analysis or solution.¹⁴⁰ Without learning to recognize the deep structure of a problem, students may identify false analogies, allow themselves to be easily sidetracked by irrelevant facts, prioritize information inappropriately, or use

134. Robbins, *supra* note 81, at 2.

135. *Id.*

136. Discussion with Alissa Hull, CUNY Law student, in N.Y., N.Y. (June 25, 2008).

137. See Greenebaum, *supra* note 60, at 83 (discussing the various kinds of tensions that law teachers experience in teaching problem solving—“routine (habit)” versus “exploration (improvisation)” and “generalization (abstraction)” versus “particularity (contextualization)”).

138. See Bransford et al., *supra* note 86, at 229 (stating that current educational practices emphasize content over process or strategies, which may in part be attributable to the fact that the latter may be extremely difficult to teach).

139. Voss, *supra* note 85, at 269, 281.

140. See *id.* at 269.

knowledge that is extraneous to the problem.¹⁴¹ Thus, they can benefit immensely from teaching methods that explicitly tackle the problem of superficial learning.

III. FULFILLING THE PROMISES OF THE PROBLEM METHOD

The transition for law students from novice to expert problem solving is a journey for which neither clear-cut rules nor shortcuts exist.¹⁴² No magic formulas can be revealed to teachers or students for how to teach or learn new information so that it can be readily activated. Yet it is clear that students need to acquire experience in learning to structure knowledge in ways that support their ability to comprehend and recall information, draw inferences, screen information, and ultimately, to transfer what they have learned to new situations.¹⁴³ Law teachers should experiment with teaching strategies that facilitate students' abilities to structure, store, and transfer knowledge from the problem method.

My suggestions to teachers for helping students to profit from the problem method are: (A) guide students toward deep problem structure by focusing them on "getting started," "getting oriented in the right direction," "identifying the main connections and intersections," and "mapping the route;" and (B) prompt students to learn through metacognitive strategies by prompting them to internalize habits of self-questioning, prompting them with writing and visual representations, prompting them with a sequence of problems, and prompting and re-prompting them with feedback.

A. Guiding Students Toward Deep Structure

1. Getting Started

To help law students build a "bridge to carry their learning"¹⁴⁴

141. Krieger, *supra* note 84, at 177.

142. See Voss, *supra* note 85, at 275 ("[T]here are no rules or short-cuts that enable a person to become an effective problem solver.").

143. See Weinstein, *supra* note 118, at 50 (emphasizing that law students will learn to think like lawyers in solving problems not by learning rules in the abstract, but by "gain[ing] experience with doing something with those ideas"). Weinstein details critical differences between how novice and expert lawyers cognitively process problems in terms of recall of information, problem representation, establishing goals for using information, and testing hypotheses. *See id.* at 24-40.

144. See Greenebaum, *supra* note 60, at 86.

from one problem to the next, teachers need to guide students against the impulse of overcontextualizing what they learn from a problem as unique to that single problem. Further, an initial framework will assist students to structure their self-directed learning.¹⁴⁵ Thus, a critical first step for teachers in using the problem method is to consider a series of preliminary self-questioning strategies that students can use consistently as an “entry point” for planning how to process information for a particular class of problems. Ensuring that every student has some place to enter the “problem space,” the preliminary self-questioning strategies promote inclusiveness, engagement, confidence, and motivation. At the same time, these self-questioning strategies provide the teacher a consistent and collective framework for structuring class discussions as students trade arguments in favor of or against a particular result.

I will give two examples of preliminary self-questioning strategies based on the teaching methods of my colleagues at CUNY Law. When assigned a problem in a constitutional law course addressing separation of powers and federalism,¹⁴⁶ a student might consistently ask which branch of government claims power? What is the power claimed? Who else claims power? Whose power is at stake in the problem? Which textual provisions may be relevant in deciding the “power” issue? In an evidence course¹⁴⁷ students are encouraged to identify the following as an entry point to every problem: what is the evidence at issue? What proposition is it intended to prove? What inferences does the proponent want the jury to draw? Why is that proposition useful? Which evidentiary rules may be relevant?

Of course, the self-questioning strategies may vary based on the particular doctrine and/or class of problems or problem type. Teachers should think consciously about problems in terms of different classes

145. See Mitchell, *supra* note 86, at 284. Among Mitchell’s suggestions to law teachers for assisting law students in making the transition from novice to expert thinking is the provision of “a series of tentative structures.” *Id.* He explains that professors could help students create their own templates or structures for processing information in legal problem solving by “initially providing a very simple provisional structure” that can be refined and replaced with more sophisticated frameworks or structures later on. *Id.*

146. These self-questioning strategies were developed by Professor Ruthann Robson for her Constitutional Structures course. Because students often find the doctrine relating to separation of powers and federalism dense and difficult, these questions have been extremely useful for helping students to deconstruct not only problems but also cases.

147. These self-questioning strategies represent the kinds of questions students are encouraged by Professors Beryl Blaustone, John Cicero, and Susan Bryant to ask in order to set themselves up for deeper analysis of the application of evidentiary rules.

or types of problems within a doctrinal or subject area. A teacher may provide these preliminary questions or enlist students to jointly develop them. Good reasons may underlie either choice, and the process of generating and using these questions is dynamic. A teacher may decide to give the questions to the students for a particular class of problems within a doctrinal area that is conceptually complex. On the other hand, a teacher may decide to use an entire class session in tasking students to generate a list of self-questioning strategies; this would actively engage students in both synthesizing a particular subject area and constructing a collective framework. The key is that the questions are a consistent preliminary starting point that is continually reinforced by the teacher; every student always has at least an initial structure from which to proceed to gain entry into the problem.¹⁴⁸

2. *Getting Oriented in the Right Direction*

Since weak organization of knowledge contributes significantly to the problem of inert and overly contextualized knowledge, teachers need strategies to help students go beyond the tangibles in a problem to recognize the deep structure of a problem class or type. Proper orientation of students is critical. If students orient their learning to recognize the structure of different classes of problems within a doctrinal area, they are better positioned to classify a new problem as belonging to that class or a different class.¹⁴⁹ When a student can appropriately classify a problem, she can more easily determine which part of her knowledge base is relevant to solving that problem.

To orient students toward comprehending, labeling, and recognizing classes of problems, law teachers should encourage students to think of problem structure as relating to *why* and *when* various rules or solution strategies are triggered. These questions lie at the core of issue spotting. If students understand *why* and *when* to use particular strategies or rules, they are more likely to appropriately apply them to relevant new circumstances than when they are just told about those strategies.¹⁵⁰ Consequently, in the course of reviewing an

148. Mitchell, *supra* note 86, at 284.

149. See Voss, *supra* note 85, at 275 (explaining that the process of problem solving requires the solver to be able to understand the language of the problem so as to be able to classify the problem). Once the problem is classified, the problem solver “needs to know what to do with the classification . . .” *Id.*

150. Bransford et al., *supra* note 86, at 233; see Voss, *supra* note 85, at 279 (stating that an important component of teaching problem solving “is to teach under what conditions the

assigned problem, a teacher might ask students to articulate *why* certain rules are used, and especially important, *how do they know when to use those rules*. Though *how do you know when* is difficult to answer, wrestling with this question may force students to understand the kinds of essential facts that trigger a rule or issue, and thus, the odds will be greater that she will figure out how to structure information to enable her to recognize when to use that particular rule. Getting students to identify core or essential facts helps them to counter the tendency of overcontextualization in which facts serve mainly a descriptive rather than structural function.

Another teaching strategy for helping students to ascertain *why* and *when* is to ask them to explain at what point in the text of the problem did they know that certain rules were triggered, and to compare and discuss the different points identified by students. This enables students to share strategies for identifying structural cues in the way facts are presented or in distilling classes of problems to their core structural facts. Students may learn from this process that they must decode the narrative structure of facts that create particular issues. If as law teachers we construct problems or hypos with a rule or set of intertwined rules in mind and we build facts “out of” that structure, our challenge is to help students to discover the problem structure. Issue (or problem) recognition and transfer of knowledge depend on a structuring of knowledge that integrates fact and law at a much deeper level than merely matching facts to elements or factors.¹⁵¹

To address *how do you know when*, a teacher might also choose to guide students by explicitly giving them examples of cues. For instance, a teacher might instruct students that when they see certain kinds of interactions in the “story” or narrative of a problem, they should consider certain rules or problem strategies. Several students in my academic support classes state that they find it enormously helpful in learning how to spot issues within a particular doctrinal area when teachers provide tips in the form of “when you see . . . it

particular solution processes may be applied”).

151. See Weinstein, *supra* note 118, at 48–50 (describing how experienced problem solvers can go back and forth between defining the “problem space” as shaped by law or fact). Weinstein observes that novice legal problem solvers tend to treat “problem spaces” discretely as one of law or facts but not both. *Id.* at 42. In contrast, for experienced problem solvers, law and fact spaces are “alternate expressions of the same information.” *Id.* at 47. He states that experts structure their knowledge by integrating law and fact, and “each is structured in light of the other.” *Id.* at 48.

makes sense to consider” This kind of instruction helps them to think about the connections between one set of facts that trigger a rule and another set of facts that trigger the same rule. Honing the skill of thinking about facts and problems abstractly is key to problem solving.

3. *Identifying the Main Connections and Intersections*

In teaching deep problem structure, law teachers should consider how to encourage students to think about problems abstractly by making connections to higher principles. If students develop abstract frames to view concrete sets of facts, they may better activate what they learn from problems¹⁵² because the concepts that each problem represents then fit within a schema of organized knowledge.¹⁵³ This will help guard against being misled by superficial similarities between problems. Accordingly, it would be useful for teachers to introduce or summarize an assigned problem by emphasizing the specific principles that the problem illustrates, or to otherwise encourage students to articulate those principles for each problem.¹⁵⁴ Further, a teacher might provide additional problems that illustrate the same principles for reinforcement.¹⁵⁵ Instruction that explicitly links problems to principles or rules, and reinforces those links, enables students to build stronger schemas for organizing and structuring what they learn from the use of problems.

I will demonstrate how problems can be presented in more abstract frames, using an example drawn from the constitutional law of standing.¹⁵⁶ In order to establish standing to sue, a plaintiff must demonstrate that she suffered a palpable injury that was caused by the defendant’s alleged wrongful conduct, and that the requested relief is

152. See Bransford et al., *supra* note 86, at 220–21 (discussing suggestions for how to provide an abstract frame for viewing a particular problem as an illustration of a more general class of problems). Bransford states that abstract frames for “viewing particular sets of information as examples of more general principles” can help people to activate knowledge. *Id.* at 221.

153. See *id.* at 221 (noting the importance of schemas to problem solving, and studies that suggest teachers may help students to develop richer schemas by presenting problems in more abstract frames).

154. See *id.*

155. See *id.*

156. For this discussion I extend my thanks to my colleague Professor Stephen Loffredo at CUNY Law. My suggestions here are based on observations of how Professor Loffredo structures doctrinal material on standing and reviews class problems in his Constitutional Structures course.

likely to redress the injury. To focus on just one element of standing as an illustration, there are various classes of causation problems. One problem type addresses whether the presence of third parties attenuates the link between plaintiff's injury and defendant's conduct; another problem type addresses whether causation is satisfied depending on how the injury is defined or characterized.¹⁵⁷ There are numerous other causation problem types.

What might it mean to help students to use an abstract frame for approaching causation problems? First, it is useful for the teacher to consciously think about causation problems in terms of "problem types" so that he is explicit in teaching problems as "problem types." Second, it is useful to ensure that students view, categorize, and articulate an assigned causation problem as one about third parties or as about how the injury should be defined, and that they know how to recognize each problem type. These abstract frames help students to structure what they learn so that a problem can be classified as one relating to the causation element of standing, and within that, relating to a specific class of causation problems. The student develops a more potent frame for understanding a concrete set of facts than merely that the assigned problem was about standing or that it was about causation.

Anything that a teacher does to get students to sort, label, classify, name, or categorize problems will strengthen the skills of abstract thinking and organization of knowledge. Explicitly linking problems to rules, elements, and problem types within elements also helps to counteract the student inclination to see problems as distinct sets of facts that are only descriptive.¹⁵⁸ If teachers continually prompt students to utilize problems to understand the structures of rules, interrelationships within and between rules, and problem types or classes, students will be positioned to actually use these rules in new situations.

Finally, it is invaluable for teachers to exploit whatever opportunities are available to gain insight into how students understand, organize, and structure what they learn from the use of

157. Specifically, whether causation is satisfied may hinge on whether the injury is defined as the denial of equal opportunity to compete for a benefit or as the denial of the benefit itself.

158. As an example, my colleague Professor Susan Bryant at CUNY Law asks students in her Evidence course to outline each federal rule of evidence. In reviewing assigned problems, she consistently asks students, as a starting point for their analysis, to locate where the problem sits by linking each problem to a specific point in their statutory outline.

problems. Teachers can better help students to make the transition from novice to expert thinking if they understand the schemata that students use.¹⁵⁹ Questions that focus on “why,” “what led you down that path,” and “what made you think that,” and techniques such as student journals, reflection memos, and “minute papers”¹⁶⁰ are immensely useful tools for deconstructing student thought processes.¹⁶¹ When teachers understand the gaps in how students process information, they are in a strengthened position not only to help students adjust their learning, but to adjust their own teaching as well.¹⁶²

4. *Mapping the Route*

Once a student determines that a problem belongs to a particular class of problems she must know what to do with it.¹⁶³ For this stage students must possess the requisite “procedural knowledge”¹⁶⁴ in order to know how to analyze the problem. General instructions to “apply law to facts” do not capture the sequence of mental and cognitive steps that in actuality constitute “analyzing” a problem. Teachers should guide students toward developing information-processing scripts that make these steps explicit. In this way, students may comprehend at a structural level what it means to “analyze” a problem, and they can then better monitor their own progress in performing “analysis.”

Applying law to fact entails numerous “decision points”¹⁶⁵ in the thinking process where students must make choices that affect successive steps in the analysis. There is an order or sequence in

159. See Mitchell, *supra* note 86, at 283–84.

160. See THOMAS A. ANGELO & K. PATRICIA CROSS, CLASSROOM ASSESSMENT TECHNIQUES, 148–158 (2d ed. 1993) for a description of the “minute paper” as an efficient and useful assessment to gauge how both learning and teaching is progressing within a class. The minute paper involves asking students to take a few minutes to answer a prompt given by the teacher, such as identifying the most significant points of a particular class or identifying the most pressing questions they have about a particular topic. It is basically a mini-feedback device for the teacher.

161. See Mitchell, *supra* note 86, at 284.

162. See ANGELO & CROSS, *supra* note 160, at 379–80 (maintaining that classroom assessment techniques promote the professional development of teachers by providing useful feedback for self-evaluation to improve teaching and learning).

163. Voss, *supra* note 85, at 275.

164. See discussion *supra* pp. 15–17.

165. See Schwartz, *supra* note 9, at 398 (noting that deconstructing the mental steps that an expert must undertake to solve a problem includes listing all cognitive steps and decision points in the thinking process).

which each choice usually must be made. An information-processing script would list or describe each sequential step in the thinking process, including naming the decision points and the consequences of each decision point.¹⁶⁶

As an illustration of the kind of information that an information-processing script might contain, students must (1) recognize the structural cues that help to classify a problem; (2) understand what kinds of characterizations of facts are legally significant for a particular class of problems within a doctrinal area; (3) comprehend how or why the characterizations are legally significant; (4) choose how to characterize or label certain facts; (5) justify the characterization; (6) recognize that the characterization dictates which path or branch of analysis (i.e. which rules or parts of rules) applies; (7) perform the next set of steps in the analysis as set forth by the rule that their characterization triggers; (8) recognize the next sequence of choices (including further characterizations of facts that affect successive steps) that they must make in accordance with their rule selection; (9) choose appropriately what information to make explicit in a written analysis and what information is already implicitly understood;¹⁶⁷ and (10) determine the level of specificity to use in communicating the various steps in an analysis.

Hence, applying law to fact necessitates the activation of cognitive and mental processes that require students to do much more than matching facts to elements. Yet, much of this cognitive processing is usually invisible. If the development of procedural knowledge promotes transfer of knowledge, as cognitive theorists suggest,¹⁶⁸ it is critical to employ teaching strategies that assist students in developing information-processing scripts that make explicit the cognitive and mental steps that must be taken in analyzing a particular class of problems.¹⁶⁹ An information-processing script

166. See *id.* at 399–401 (containing a sample information-processing script for a contract problem relating to illusory promises).

167. See Lustbader, *supra* note 120, at 327. Lustbader states that experts internalize the conventions of a particular discourse, which has important ramifications for the content and structure of the discourse. *Id.* Novices will have trouble effectively using their substantive knowledge if they lack relevant procedural knowledge about the conventions of the discourse, including what information to emphasize and in what order, as well as what information must be made explicit. *Id.*

168. See discussion *supra* pp. 724–724.

169. See Schwartz, *supra* note 9, at 398–99 (discussing the importance of an information-processing analysis that breaks learning goals into the mental steps that are involved in achieving those goals); ANGELO & CROSS, *supra* note 160, at 222 (explaining that

gets students to pay conscious attention to process, rather than just the correct answer.¹⁷⁰ Equally important, encouraging students to keep track of the mental steps needed for a particular kind of analysis “promotes the development of discipline-specific metacognitive skills.”¹⁷¹ Students gain greater awareness and control over their problem solving¹⁷² if they can see, pinpoint, label, and articulate where in the process they fall short.¹⁷³ As a result, a stronger foothold for self-directed learning takes root.

Teachers may use several techniques to help students develop information-processing scripts. For example, students can be asked to write down all the mental steps they take in trying to solve an assigned problem; the emphasis is to document the step-by-step procedures they use.¹⁷⁴ If students are at a loss about how to analyze a problem, they should note their questions or confusions along the way; one value of the scripts is that they are a tool to help students diagnose what they do not know in terms of substance and process.¹⁷⁵ Students may also be cast in the role of a teacher who must develop a script in order to teach someone else how to perform an analysis of a particular problem type.¹⁷⁶

The opportunities for using the scripts are rich even if a teacher never reviews the scripts. A teacher might pair students to compare scripts so that students can obtain insight into the problem solving processes of others; during class discussion, the teacher can facilitate a discussion of what students learned from the comparison. A teacher might ask a student to lead a class through an analysis of a problem by applying her script.¹⁷⁷ Alternatively, without putting any single student on the spot, a teacher may engage the class in generating a

for students to become proficient problem solvers, they must pay conscious attention to the steps they take in solving a problem).

170. ANGELO & CROSS, *supra* note 160, at 225.

171. *Id.*

172. *See id.* (explaining that one of the benefits of students documenting their thinking processes is that it fosters “awareness and control over problem solving processes”).

173. *See* discussion *infra* pp. 724–724.

174. *See* ANGELO & CROSS, *supra* note 160, at 222–23.

175. I have observed from my work in academic support with both first- and second-year students that often students are not aware of what they do not know until they engage in some form of writing that requires them to document their thinking process.

176. *See* Lundeberg, *supra* note 118, at 409. Lundeberg posits that putting students in the role of teacher places them in a position of control and requires “conscious thinking” about how one does something in order to teach others how to do it. *Id.*

177. *See* ANGELO & CROSS, *supra* note 160, at 224.

collective information-processing script, based on input from what students have done individually. A teacher might also use study groups to facilitate the development of different portions of a script. If a teacher or teaching assistant reviews the scripts, she can summarize trouble spots in the solution processes to provide feedback to the class¹⁷⁸ or to modify her teaching methods.

An alternate script-building technique is the think-aloud or verbal protocol that researchers use to study how readers cognitively process texts as they read.¹⁷⁹ These are techniques in which a person provides a “running commentary” about what they are consciously thinking and doing as they perform a particular task.¹⁸⁰ Students can be asked to think aloud as they analyze an assigned problem.¹⁸¹ Some students might find it easier to verbalize their thinking process than to document it in writing. Also, verbalizing might be a useful precursor to a written script. A teacher may pair students to work together, with one student doing the think-aloud while the other records in writing the think-aloud; the students can then discuss and analyze the think-aloud.

Students might initially experience the written scripts or think-alouds as onerous and laborious; these are not skills that most students have developed. Also, many students are unused to making explicit their problem-solving processes.¹⁸² For these reasons, it might be helpful for teachers to provide an example of their own script for analyzing a particular kind of problem so that students can view the thinking process of an expert.¹⁸³ This may be an arduous task for law teachers as well because of the “loss-of-awareness phenomenon” in which experts engage in certain thought processes so automatically,

178. *See id.*

179. *See* Deegan, *supra* note 118, at 157; Lundeberg, *supra* note 118; Stratman, *supra* note 118 (examples of how think aloud techniques are used to reveal the different cognitive and processing strategies that novices and experts use in reading legal texts).

180. Deegan, *supra* note 118, at 157.

181. *See* Weinstein, *supra* note 118, at 18–19 for a description of the use of “concurrent verbal protocols” where lawyers in a study were asked to think aloud while trying to analyze a problem involving a client’s eligibility for social security disability benefits.

182. *See* ANGELO & CROSS, *supra* note 160, at 225. The authors caution that most students are not used to reflecting on their problem-solving processes. *Id.* Further, documented problem solutions are difficult and laborious. *Id.*

183. *See* Mitchell, *supra* note 86, at 285 (offering that one suggestion for helping students move from novice to expert thinking is for a law teacher to do a sample analysis for students that sets forth all the elements of the teacher’s knowledge base that are needed for solving a problem). Mitchell explains that it is constructive for students “to ‘see’ what an expert analysis looks like.” *Id.*

without conscious attention, that they are unaware of the process.¹⁸⁴ Fortunately, teachers can resort to resources such as teacher's manuals, study guides, CALI¹⁸⁵ lessons, and even bar preparation study materials.¹⁸⁶ It is valuable for law teachers to attempt to break their analytical processes and instructional goals into cognitive steps.¹⁸⁷ By doing so they acquire greater insight into what a particular analytical task requires of students. This information will help them to design instructional plans that are appropriate to the tasks that they want students to perform.

B. Prompting Students to Learn Through Metacognitive Strategies

As professors guide students toward deep problem structure and procedural knowledge, opportunities abound for emphasizing metacognitive strategies that empower students as self-directed learners. When students deconstruct structure, interrelationships, and the information-processing scripts necessitated by a particular kind of analysis, they can start to label these processes and their own learning. This information enables students to diagnose their strengths and weaknesses with greater particularity. They may better pinpoint and articulate their gaps, i.e., is it a declarative knowledge gap? A gap about structural relationships between or within rules? A gap about characterization of facts? A gap about jumping over steps in an analysis? A gap about drawing inferences? With greater self-awareness, students are situated to actively generate strategies to close their gaps, monitor their progress, and assess whether they need to change strategies.¹⁸⁸

If students possess a foundation to assert greater control over their own learning, and approach their own learning as an instance of

184. See Lundeberg, *supra* note 118, at 409.

185. The Center for Computer-Assisted Legal Instruction (CALI) develops computer-mediated legal instruction for law students in diverse subject areas.

186. I have found that bar preparation materials often contain useful maps, flow charts, and diagrams for a schematic organization of doctrine and procedures.

187. See Schwartz, *supra* note 9, at 398; See generally GRANT WIGGINS & JAY MCTIGHE, UNDERSTANDING BY DESIGN (2d ed. 2005).

188. See Evensen, *supra* note 104, at 291 (explaining that "self-directed learning is self-generative"). The more self-directed a learner becomes, the more likely s/he will "invent new methods of self-direction." *Id.*

problem solving, their capacity to create transferable knowledge from the problem method is richly enhanced. Self-directed learning, however, requires more in-depth planning and support from teachers than does passive learning.¹⁸⁹ A variety of instructional practices can lead students to adopt a metacognitive approach to the problem method. These include: prompting students to internalize habits of self-questioning; prompting students with writing and visual representations; prompting students with a sequence of problems to support learning at different stages; and prompting and re-prompting students with feedback.

1. Prompting Students to Internalize Habits of Self-Questioning

A key component of self-directed learning is the skill of monitoring one's own learning by assessing what one does not know but needs to know in order to perform a task. Yet many students arrive in law school without experience in self-monitoring learning activities.¹⁹⁰ Law teachers should prompt students to internalize habits of self-questioning by continually encouraging students to name and label areas of weaknesses in relation to assigned problems. A teacher might stress that for each assigned problem students must list the most important areas of weaknesses or confusion that remain, and that each student must have a plan for addressing these areas. A teacher might also regularly use the "minute paper" technique to ask students to spend a minute in class to list the skill areas that they most need to improve in analyzing particular problems.

Students are motivated to internalize habits of self-questioning if a teacher uses the information to let them know what she and they can do to improve learning.¹⁹¹ Therefore, a teacher might help students propose strategies to address trouble spots. She might provide a sample answer or information-processing script to address common weaknesses. The important point is that the teacher uses the self-questioning process to create further learning opportunities.

To facilitate students' abilities to diagnose their weaknesses, a teacher may provide a checklist of skill areas to help students name their trouble spots. Such a checklist might include skills such as recall

189. *See id.* at 290.

190. *See* discussion *supra* p. 724.

191. *See* ANGELO & CROSS, *supra* note 160, at 372. This source contains an excellent discussion of the benefits of classroom assessment techniques (such as the "minute paper") in promoting active learning, metacognition, and student satisfaction. *Id.* at 372-76.

of rules, phrasing of rules, comprehension of rules (or facts), problem (issue) recognition and classification, fact characterization, missing steps in the analysis, jumping too far ahead in the analysis, relationships within rules, interrelationships between rules, drawing too many inferences, or not drawing enough inferences.

Finally, teachers should include post-problem reflection as a component of the problem method.¹⁹² Students need to synthesize and summarize their learning from problems.¹⁹³ For each group of assigned problems, a teacher should ask students to identify in writing the different classes of problems or problem types¹⁹⁴ and recurrent fact patterns.¹⁹⁵ One of my students has suggested student reflection memos on problems so that teachers can gauge how students understand assigned problems. Meta-analysis of problems reinforces deep problem structure and boosts the potential for transfer of knowledge to new situations.

2. *Prompting Students with Writing and Visual Representations*

Students exhibit diverse learning styles for absorbing and processing information.¹⁹⁶ As a result, teachers must vary their teaching methods to ensure that all students realize their learning potential.¹⁹⁷ Writing and visual representations such as maps, diagrams, and charts are critical metacognitive tools that allow students to gauge what they do not understand or do not know how to do. Verbal and visual modes of organizing information are a necessary supplement regardless of whether a student is a verbal, oral, tactile, aural, or kinesthetic learner.¹⁹⁸

Until students verbalize an analysis of a problem through text or represent their analysis in some visual form, their analysis remains invisible. Assessment and reflection is difficult when an analysis is

192. See Davis, *supra* note 38, at 274–75 (fostering meta-analysis about problem solving).

193. See Schwartz, *supra* note 9, at 418 (discussing the importance of summary and review in consolidating new knowledge).

194. See *id.*

195. See *id.* at 413 (stressing the importance of “pattern recognition instruction” for issue spotting purposes).

196. See Randall, *supra* note 25, at 70–74; Jacobson, *supra* note 25, at 150–51.

197. See Randall, *supra* note 25, at 103.

198. See Jacobson, *supra* note 25, at 151–56, for a discussion of each of these learning styles: verbal (reading or writing text); oral (speaking); tactile (touching); aural (listening); and kinesthetic (movement). Based on my work in academic support, I have found that for students of all learning styles, verbal and visual representations reinforce the processing of information.

confined in one's head.¹⁹⁹ In addition to "talking out" a problem (oral learners) or listening to an analysis (aural learners), students must "see" their thinking process on paper in order to diagnose with specificity their strengths and shortfalls. Students may understand information but until they are required to do something actively with that information, they cannot be sure that they possess the substance or procedures needed for analyzing a problem.

While writing may include shorter exercises,²⁰⁰ teachers should emphasize the importance of larger writing exercises, such as problems, hypotheticals, exam questions, and information-processing scripts. These forms of writing have great diagnostic value even if a teacher does not provide individual feedback²⁰¹ because they force students to piece together substance, structure, relationships, and processes; students must integrate declarative and procedural knowledge. When students outline an answer to a problem, their outlines tend to focus on substantive law rather than process, structure, and connections.

Students gain more detailed diagnostic information from the process of writing an answer than from outlining one. For instance, they can identify whether they have trouble stating a rule, characterizing facts, or performing any of the required steps in an analysis. Along with their written answers, students may also be asked to identify the most important questions that surfaced during the writing process or the skill areas that they would like most to improve. Students might also be asked to encode their written answers in different colors to indicate (1) what they clearly know and are certain is correct, (2) what they think may be correct but are uncertain, and (3) what they clearly do not know is correct or incorrect.²⁰² This engages them in consciously assessing what they know and do not know.

Similar to writing, visual representations of information through maps, diagrams, grids, or flow charts help students to translate

199. See Mitchell, *supra* note 86, at 295 (stating that "writing allows the students to see their thinking 'in front of them,' where they can examine and reflect on it, rather than doing it only 'in their heads'").

200. See Paula Lustbader, *Teach in Context: Responding to Diverse Student Voices Helps All Students Learn*, 48 J. LEGAL EDUC. 402, 413–14 (1998) for an excellent description of the different kinds of writing that can help students to monitor their learning. Shorter writing exercises include outlines, minute papers, and paraphrasing of rules.

201. *Id.* at 414.

202. This is a technique that my colleague Professor Mary Lu Bilek discussed at a CUNY Law faculty workshop.

content into process. These visual tools require students to wrestle with abstracting relationships, structure, process, and procedures. Students may be asked to chart, diagram, or map single rules, a doctrinal area, or either a piece of or an entire analysis. For instance, a teacher might assist the class in using either a written answer to a problem or an information-processing script to map or diagram an analysis.²⁰³ When students are tasked to map or diagram, it is crucial that they identify the areas of confusion that arise in performing these tasks. The process of mapping, charting, and diagramming strengthens schema-building skills by enabling students to “see” their schemas and to locate problem zones in their schemas. It also solidifies the progression of learning.

3. *Prompting Students with a Sequence of Problems*

Neither teachers nor law students should underestimate the amount of practice, repetition, and feedback it takes to move from novice to more expert problem solving. Some estimate that the transition takes thousands of hours of practice.²⁰⁴ Learning legal analysis entails stages of developmental progression in which each successive stage requires students to master specific cognitive and processing skills that build upon skills developed from previous stages.²⁰⁵ The ability of students to create transferable knowledge from the problem method should be viewed through the prism of developmental progression.

While more is usually better than less, practice should also be strategic. The amount of practice it takes to transfer learning from the problem method is a function of both diversity and reinforcement. Thus, the kinds of problems assigned should be sequenced to target specific learning needs at different stages.²⁰⁶ In addition, repetitive practice of similar problems reinforces initial learning before students

203. See Mitchell, *supra* note 86, at 285 (discussing gridding or mapping all “moves” in an analysis so that students can “see” a developed schema).

204. Schwartz, *supra* note 9, at 415.

205. See generally Lustbader, *supra* note 120. This article provides an excellent discussion of the progressive stages of development in learning legal analysis. Lustbader posits that the learning progression consists of twelve stages across the sites of “Technician, Drafter, Designer, and Creator.” *Id.* at 322. She argues that knowledge of the stages of progression may enable teachers to “construct examples, learning exercises, and exam questions that match students’ developmental levels.” *Id.* at 354. See also Saunders & Levine, *supra* note 4, at 180–82 (examining the evolutionary process and dynamics of what it means to think like a lawyer as student subjects progressed through their first year of law school).

206. Lustbader, *supra* note 120, at 321; see also Williams, *supra* note 6, at 372, 416.

tackle harder problems or different problem types.

Enhancing the ability to “spot” the applicability of particular rules in new factual contexts is a prime goal of the problem method.²⁰⁷ Yet what promotes initial learning may not facilitate transfer of knowledge.²⁰⁸ Consequently, teachers should use problems to specifically target each of these two distinct stages of learning.²⁰⁹ Initial learning consists of acquiring a basic understanding of concepts, principles and rules; organizing that knowledge in a preliminary way;²¹⁰ recognizing the applicability of those rules in situations that are familiar and closely resemble one another;²¹¹ and applying the rules in a basic manner.²¹² In the early stages of learning a particular set of rules, students often have a hard time transferring their knowledge “to a problem that has slight variations from previous ones because they have not developed the underlying principles or schemata sufficiently.”²¹³

“Similarity” plays a crucial role in initial learning.²¹⁴ Accordingly, the use of multiple problems that are grounded in the same or highly similar factual contexts reinforces acquisition of rules, basic schema building, and provides opportunity to practice one’s initial learning at similar tasks. Studies indicate that “same context” examples allow students to familiarize themselves with key concepts without becoming confused.²¹⁵ In contrast, examples from different

207. See Bransford et al., *supra* note 86, at 218 (providing an example of overly contextualized knowledge that interfered with a student subject’s ability to problem solve without chapter cues in a textbook). Bransford states, “In order to perform effectively, the student needed to learn to recognize the applicability of various principles in a variety of contexts.” *Id.*

208. *Id.*

209. See *id.* (noting research suggesting “that the idea of developing instructional procedures that facilitate both acquisition and transfer is an important one to pursue”).

210. See Lustbader, *supra* note 120, at 335. Lustbader states that students at the “technician” stage are at first often unable to “generalize because they do not understand fully the underlying principles that unite the pieces [of information] or the interrelationships of the pieces.” *Id.* at 335–36. Students must adjust and modify their schema to refine their understanding to conform to legally conventional schemas. *Id.* at 336.

211. See *id.* at 331 (“Technicians mechanically apply basic concepts and methods to familiar problems.”).

212. See *id.*

213. *Id.*

214. See Williams, *supra* note 6, at 372 (explaining that in sequencing lessons, “[i]nitial tasks are selected so that students acquire an overview before learning details”). Williams also notes, “[i]nitial tasks are similar in order to provide an opportunity for practice.” *Id.* See also Bransford et al., *supra* note 86, at 217–18 (discussing studies indicating that at the initial stages of learning students learn better by examples from the same context).

215. Bransford et al., *supra* note 86, at 218.

contexts tend to confuse students during the initial learning phase.²¹⁶

Once initial learning has occurred problems should be sequenced to provide diversity of contexts.²¹⁷ Just as similarity is crucial to initial learning, diversity is vital to transfer of learning. Recognizing the multiple uses of a rule in circumstances and contexts that vary significantly at the surface level is a skill that requires targeted development and practice.²¹⁸ Similarly, students must learn how to recognize when different pieces of a rule are triggered by different facts. Initial learning is rendered inert unless students learn to see how rules are applicable in a variety of contexts.²¹⁹

The further the facts are from the contexts of initial learning, the more difficult the transfer and the greater the need for targeted practice.²²⁰ Teachers should progress toward problems that illustrate rules in factual contexts of increasing levels of diversity from the initial contexts in which rules were learned and practiced.

Some guiding principles for sequencing the problem method to support students at various stages of learning include: (1) design or select problems with either the goal of initial learning or transfer of knowledge in mind; (2) sequence problems according to difficulty and diversity; (3) provide opportunities for practice and repetition to reinforce all stages of learning, whether initial learning or transfer of learning; (4) provide cues or prompts to promote initial learning, and remove those cues and prompts as learning progresses; (5) afford students sufficient opportunities to practice problems that match the level of difficulty and diversity of exam problems;²²¹ and (6) build a

216. *Id.*

217. See Williams, *supra* note 6, at 416 (“Diversity is employed to overcome the lack of generalization that is often a problem with case-based approaches.”).

218. See Bransford et al., *supra* note 86, at 217–18 (describing research finding that students who received training with different-context examples “were therefore able to apply their knowledge in a wider variety of domains” than students who were trained with same-context examples).

219. See *id.*

220. See Schwartz, *supra* note 9, at 419–20 for an excellent discussion of “near” and “far” transfer. Schwarz defines near transfer as applying learning to “new contexts relatively similar to the contexts in which the learner learned the information.” *Id.* at 419. Far transfer, on the other hand, involves application of learning “in very different situations and in very different ways than those in which the learning was acquired.” *Id.* He suggests that these different kinds of transfer are facilitated by different kinds of instruction. See *id.*

221. Robbins, *supra* note 81, at 2. Robbins explains that a danger arises with problem-based learning when in-class problems do not approximate the level of difficulty of exam questions. She observes that the task of answering one-rule problems in a textbook with headings that provide cues differs vastly from issue-spotting on a complex multi-issue fact pattern; there is a huge leap between the two tasks.

bank of problems over time of varying levels of difficulty and diversity that students can practice on their own.²²² As problems are sequenced appropriately, feedback can be used to fortify learning.

4. Prompting and Re-Prompting Students with Feedback

Feedback is an important ingredient that supports and motivates students to become self-directed learners. There are many opportunities to provide different kinds of feedback at various stages of the problem method. Teachers can provide feedback to students on written answers, information-processing scripts, maps, diagrams, charts, post-problem reflections, self-questioning strategies, abstract frames or one-minute papers, or in the process of “walking” a class through an analysis of a problem. Thus, there are frequent opportunities to fortify learning.

While individual feedback on written answers can potentially provide “tailor-made” guidance to students, not all feedback has to be labor intensive in order to be instructive. Teachers may use sample answers or processing scripts and checklists. In addition, teachers can foster peer feedback through structuring group work on specific tasks. Teachers may also ask students to critique their own work, and then give feedback on the students’ own feedback.

Regardless of form, feedback requires forethought. To generate opportunities for feedback, teachers must engage students in different kinds of concrete tasks and thus, the tasks must be identified and planned. The key to feedback is that students must be tasked through activity in order to yield information that enables both teacher and student to assess how learning is progressing.²²³ The information that is generated from students “doing” also forms the basis for improving teaching. Finally, it is important to remember that the content of feedback should reinforce structure, procedural knowledge, and relationships at the same time that it helps students to label and name their learning.

IV. CONCLUSION

The transition from novice to more expert problem solving is a complex journey that each law student must actively navigate for

222. Given there is insufficient class time to do all the kinds of practice that facilitate student learning at the various stages of developmental progression, a bank of practice problems gives students the opportunity to practice on their own and to monitor their progress.

223. See Williams, *supra* note 6, at 375–76.

herself. Learning to transfer knowledge to new situations and problems is an “internal and highly individualized process;”²²⁴ it is neither easily taught nor imparted. Still, there is much that we as law teachers can do to create the conditions for our students to learn to transfer knowledge and to become self-directed learners. Time, thought, and planning about how to support and structure learning from the use of problems are necessary in order to realize the promises of the problem method. Yet the suggestions in this Article for teaching strategies, practices, and methods are not onerous to implement; they can be adapted to fit within a teacher’s curricular and time constraints.

How central problem-based learning is in a curriculum depends not only on the amount of class time devoted to problems, but also on the process used in the classroom to review problems.²²⁵ A teacher’s conscious orientation to the problem method is a critical determinant of successful problem-based learning of any kind. Whether we use hypos or problems occasionally or all the time, we can situate students to build transfer of knowledge and to adopt metacognitive learning strategies by keeping a few basic principles in mind. We should attend to deep problem structure, think of learning as progressive, help students develop a vocabulary to pinpoint and name their strengths and weaknesses, and encourage students to develop learning strategies tailored to their individual needs. As we create opportunities for our students to perform concrete tasks with what they learn, they will be in a stronger position to understand their thinking processes. This will yield valuable information that students can use to adjust and regulate their own learning, and that we can use to improve our teaching methods, strategies, and approaches. In this way, the problem method may deepen learning for a diversity of students.

224. Weinstein, *supra* note 118, at 57. Weinstein argues that the process of problem solving and learning to think like a lawyer cannot be acquired through instruction or modeling but by personal experience. *Id.*

225. *See supra* note 63.