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The Metacognitive Imperative

Paul D. Callister, *University of Missouri-Kansas City*



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argues, will help students legal skills which are often taught in isolation and have not been fully developed. This legal research curriculum allows students to work with, analyze, evaluate and apply knowledge in a wide range of academic disciplines. It emphasizes the importance of critical thinking and problem solving skills, and requires students to have the law skills taught and demonstrated and after these exams, law schools with centers of pedagogical research are especially well for integrating research because it facilitates the skills coverage the school can provide. Certificates at LL.M. programs are also an excellent place to introduce these courses or programmes are those most likely to recognize the importance of legal research in their approach of increasing an aspect of the practice area. In such programs legal research can become one of series of sequenced courses that are integrated to allow students to build on and apply knowledge and practical skills in a particular discipline across the law.

However, it is important that these demanding three courses either have significant practical components or the user is willing to teach with practical expertise. If no research course cannot be generalized to teach be focused and practice specific, like any other skills course, these courses it must know the law, its expert in the skills they are developing, and must wrap up with how law and legal research is incorporated in the profession. Otherwise, the teacher is likely to compound the disconnect between law school and law practice.¹⁷

Conclusion

The Boulder Statements outline a comprehensive approach to creating a law research pedagogy that fits within an integrated law school education. The Boulder Statements recognize that as a skills class, law research supports mastery learning and problem solving. It is a class that can support doctrinal aspects of the curriculum by building a specific appreciation to doctrinal and related courses. It is a course that can facilitate a culturally relevant mindset that enhances a law student's professional identity.

¹⁷ See David J. Freedland & Steven G. Barnes, *The Practitioners' Guide: Connecting Legal Research Instruction and Current Legal Research Practice*, 33 *Law Libr. J.* 525 (2012).

Chapter 2

The Metacognitive Imperative

Paul D. Callister

In an earlier article adapting Bloom's Taxonomy to legal research instruction, I have opined that leading students through the phases of the taxonomy to metacognition is the crowning teaching activity.¹ There I posit that metacognition is "the ability to assess, not only the result [of a research activity], but the schemata, including the processes, leading to the result."² However, this definition is neither exhaustive nor sufficient to refine pedagogy and underscore metacognition's importance. In terms of importance, metacognition is a critical life skill. Indeed, "An unexamined life is not worth living."³ The failure to examine one's professional life, including regular assessment of one's knowledge base and skills, is unprofessional.

Metacognition's common definition as "thinking about thinking" is also not as useful as it might be for our purposes. To underscore metacognition's significance, I borrow from the field of medical education. It is "the underlying thought process of experts that enables them to learn from experience and ultimately to act on intuition."⁴ Metacognition is about striving to be an expert. It is grounded in experience.

To elucidate why metacognition is a seminal pedagogical principle of legal research instruction and information literacy, I will first flush out the concept by relating it to other concepts and principles applicable to legal education and, using a holistic approach, define the concept in

¹ See Paul D. Callister, *Time to Blossom: An Inquiry into Bloom's Taxonomy as a Hierarchy and Means for Teaching Ordered Legal Research Skills*, 102 LAW LIBR. J 191, 200, 210–12, 217–18 (2010).

² *Id.* at 210.

³ PLATO, APOLOGY 38a.

⁴ MARK QUIRK, INTUITION AND METACOGNITION IN MEDICAL EDUCATION: KEYS TO DEVELOPING EXPERTISE xviii (2006).

detail. I will then explain why getting our students to metacognition is an imperative for our field, by relating metacognition to legal information literacy standards and signature pedagogies currently under development by various groups in law librarianship.⁵ The relationship of the concept to the pedagogical underpinnings and objectives of the Carnegie Report will be highlighted.⁶ Lastly, I will illustrate with sample lesson plans or activities how instructors and librarians can foster the acquisition of metacognition as a skill inside and outside the classroom.

Metacognition as a Concept: A Holistic View

In examining the literature, a host of concepts from various disciplines are associated with metacognition. Understanding those concepts is helpful to both defining metacognition and developing its full potential as a pedagogical tool.

Metacognition in *Educational Psychology: The Encyclopaedic Dictionary of Psychology* defines metacognition:

Generally, thinking about thinking. Metacognition refers to the higher order cognitive thoughts that coordinate proficient information processing. The study of metacognition has largely focused on memory, such as the processes by which we regulate cognition in order to improve our memory. Nelson and Narens (1990) present a framework of metacognition consisting of two flows of information between the object level (the stimulus in the environment) and the meta-level (the mental representation) of the item. These flows are monitoring (where the object level informs the meta-level) and control (where the meta-level modifies the object level). For instance, when studying for an exam, we will have an idealized notion of performance (at the meta-level) and we will have some to-be-learned material (at the object level). We will monitor our learning of the material and control it through allocating more or less study or effort. Thus, through metacognition, we will reflect on

⁵ See the Boulder Statements, *infra* p. 267 *et seq.*

⁶ WILLIAM M. SULLIVAN ET AL., THE CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING, EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW (2007) [“Carnegie Report”].

our performance and modify behavior accordingly, terminating study when monitoring tells us that information is well learnt.⁷

A number of important, related concepts can be extracted from this definition: *information processing*, *mental representation*, *idealized notion of performance*, *self-monitoring of learning*, *reflection*, *behavioral modification*. We also learn from this definition that historically the concept focused on improvement of memory, but that framework expanded to include an internal conversation consisting of an exchange of information between environmental stimulus and *mental representation*. The idea of mental representation is significant. It turns out that it is what is meant by *cognitive*. Indeed, the definition of *mental representation* in the same dictionary notes that the term is often equated with *cognitive map*.⁸ If so, metacognition may be defined as thinking about your own or someone else's mental representations.

Information processing refers to the particular theoretical grounding of the definition in *schema theory*.⁹ Schemata "are the building blocks of cognition ... the fundamental elements upon which all information processing depends."¹⁰ They have three characteristics. They are like plays in that they have "variables that can be associated with different aspects of the environment, just as a play has characters, settings, and actions, and so forth."¹¹ They are like theories in that they "enable us to interpret events and phenomena surrounding us."¹² Furthermore, schemata are not strictly passive like plays or theories.

⁷ Chris Moulin, metacognition, Encyclopaedic Dictionary of Psychology (2006), <http://www.credoreference.com/entry/hodderpsyc/metacognition> (last visited April 23, 2012) (citing T.O. Nelson & L. Narens, *Metamemory: A Theoretical Framework and Some New Findings*, in 26 THE PSYCHOLOGY OF LEARNING MOTIVATION ____ (1990)).

⁸ Chris Moulin, mental representation, Encyclopaedic Dictionary of Psychology (2006), http://www.credoreference.com/entry/hodderpsyc/mental_representation (last visited April 23, 2012).

⁹ See MARCY P. DRISCOLL, PSYCHOLOGY OF LEARNING FOR INSTRUCTION 76, 132 (2nd ed. 2000).

¹⁰ D.E. Rumelhardt, *Schemata: The Building Blocks of Cognition*, in THEORETICAL ISSUES IN READING COMPREHENSION: PERSPECTIVES FROM COGNITIVE PSYCHOLOGY, LINGUISTICS, ARTIFICIAL INTELLIGENCE, AND EDUCATION 33 (Rand J. Spiro, Bertram C. Bruce & William F. Brewer eds., 1980).

¹¹ DRISCOLL, *supra* note 9, at 131.

¹² *Id.*

They can take on the procedural aspects of a computer program or serve as scripts, providing directions.¹³

As a concept, metacognition is compatible with a variety of theories of learning, of which cognitive (as opposed to behavioral) theories currently dominate.¹⁴ However, even one of the less radical forms of behaviorism, which considered the mind, incorporates the concept of *cognitive map*.¹⁵ Cognitive information processing ("CIP"), a theory arriving with the onset of the computer age, is compatible with the "traditional cognitive view," finding the "mind possessing a structure consisting of components of processing (storing, retrieving, transforming, using) information and procedures for using those components," and behavioral view that "learning consists partially of the formation of associations."¹⁶ CIP casts metacognition as a rubric for "enable[ing] the learner to modify information flow within and between components of the memory system."¹⁷ It is the "awareness of thinking and the self-regulatory behavior ... that accompanies this awareness."¹⁸ These "self-regulatory" or "metacognitive abilities are present in mature learners and take on the characteristics of an executive control processor—introduced as an overseer in many current models of memory."¹⁹

¹³ See *id.*

¹⁴ See PATRICIA L. SMITH & TILLMAN J. RAGAN, INSTRUCTIONAL DESIGN 26 (2005). In particular, metacognition is compatible with *cogitative strategies*, one of Gagné types of learning outcomes. *See id.* at 81–82.

The most extreme and earliest form of behaviorism was articulated by B.F. Skinner, who "believed that behavior could be fully understood in terms of environmental cues and results.... What might go on in the mind during learning, then, is immaterial to understanding or describing it." Driscoll, *supra* note 9, at 34–35. Indeed, "Skinner went so far as to argue that theories of learning simply get in the way of collecting empirical data on behavior change." *Id.* at 35.

¹⁵ DRISCOLL, *supra* note 9, at 34.

¹⁶ *Id.* at 76 (quoting Thomas Andre & Gary D. Phye, *Cognition, Learning and Education, in COGNITIVE CLASSROOM LEARNING* 3 (Gary D. Phye & Thomas Andre eds., 1986)).

¹⁷ DRISCOLL, *supra* note 9, at 110.

¹⁸ *Id.* (citation omitted).

¹⁹ Robert M. Gagné & Robert Glaser, *Foundations in Learning Research, in INSTRUCTIONAL TECHNOLOGY: FOUNDATIONS* 49, 75 (Robert M. Gagné ed., 1987). These regulatory performances include: "knowing when or what one knows or does not know; predicting the correctness or outcome of one's perfor-

Cognitive strategies, in Robert M. Gagné's *Taxonomy of Learning Outcomes*, include metacognition.²⁰ "Metacognition involves students' awareness of their own cognitive processes, their ability to control these processes by selecting among cognitive strategies, and their ability to monitor, evaluate, and revise their strategic?? use."²¹ Gagné is a contemporary of Bloom, and is important because he integrates the three domains of Bloom's Taxonomy (cognitive, affective, and psychomotor) into a single taxonomy with *cognitive strategies* serving as one of five major components.²² Gagné's concept includes the "numerous ways by which learners guide their own learning, acting, and feeling."²³ The strategies may be "unique" to the learner. Indeed Gagné emphasizes "independent" and "creative" thinking, originality, problem solving and problem finding.²⁴ Technically speaking, Gagné's notion of *cognitive strategies* can be defined in broader terms than metacognition. Weistein and Mayer categorized five major categories of *cognitive learning*: (1) "rehearsal strategies," (2) "elaboration strategies," (3) "organizational strategies," (4) "comprehension monitoring strategies ... sometimes referred to as metacognition," and (5) "affective strategies."²⁵ However, the awareness of strategies and selection among them is the essence of metacognition. It would appear that metacognition envelops its fellow strategies.

Another modern "cognitive" approach to learning, "constructivism," embraces CIP's definition of "metacognition." Constructivists focus on the *learner's* act of constructing mental structures by adapting or revising their existing mental constructs. However, constructivists go beyond CIP's definition of metacognition with a concept known as *reflexivity*. This concept suggests a critical stance and awareness of the learner's cognitive structures, the ability to invent and explore such structures, and the capacity to build alternatives.²⁶ Once again, many of

mance; planning ahead and efficiently apportioning one's cognitive resources and one's time; and checking and monitoring the outcomes of one's solutions or attempt to learn." *Id.*

²⁰ See SMITH & RAGAN, *supra* note 14, at 81-82.

²¹ *Id.* at 245 (Smith & Tilman's adaptation of Gagné).

²² See DRISCOLL, *supra* note 9, at 350, 354-55.

²³ *Id.* at 354.

²⁴ *See id.*

²⁵ SMITH & RAGAN, *supra* note 14, at 81-82.

²⁶ DRISCOLL, *supra* note 9, at 389-90.

the concepts that modern learning theories designated as similar to *metacognition* are ultimately incorporated in the concept of metacognition. *Reflexivity* should also be included as an element of metacognition.

The point of this tour through various psychological theories of learning is that regardless of the theory and distinctions made among an increasingly technical vocabulary, *metacognition* is essential. Furthermore, each theory adds nuanced meaning and utility to the concept. *Metacognition* is a powerful concept that must be recognized in any serious pedagogy of legal research instruction and learning.

Metacognition in Legal Education

Perhaps the most significant work to challenge the pedagogy of legal education is the Carnegie Report. It employs the term *metacognition* with reference to the concept of *intentional learning*.

What is meant [by *intentional learning*] are educational practices that help students become self-conscious about and self-directed in their own learning. Teaching for intentional learning aims explicitly at enabling students to become aware of what they are doing as they learn law.... [S]tudents learn more effectively when they become ‘metacognitive,’ or aware of what they are trying to accomplish (rather than just trying to pass a test, for example) Such a pedagogy pays direct attention to student learning through devices such as making goals explicit and coaching toward these goals; formative assessment is then linked to them.”²⁷

Rather than spotlighting *mental representations* or *cognitive maps*, what is central to the Carnegie Report’s conception of *metacognition* or *intentional learning* is explicit goals, coaching, and formative assessment and the transfer of responsibility to the student for “self-directing” their own learning.

The Carnegie Report identifies the need to balance and integrate three *apprenticeships* that describe legal education,²⁸ the first and foremost of which is the *cognitive apprenticeship*.^{29 30} This is the

²⁷ Carnegie Report, *supra* note 6, at 179–80 (citation omitted).

²⁸ See *id.* at 28, 34, 145.

²⁹ See *id.* at 28, 179. The remaining two apprenticeships are *practice situations* and *identity* (also described as the “social-ethical”). *Id.*

essence of what the Carnegie Report proposes for reforming legal education. The Carnegie Report borrows the idea of *cognitive apprenticeship* from an influential essay that proposed incorporating some of the elements of a traditional apprenticeship (such as might be taught in a "West African tailoring shop") into an apprenticeship for teaching reading, writing and mathematics.³¹ Notably, in the essay, cognitive apprenticeship calls for metacognition, including "extending techniques to encourage the development of self-correction and -monitoring skills."³² In addition, the essay's concept of cognitive apprenticeship encourages "reflection on the differences between novice and expert performance by alternation between expert and novice efforts" and the alternating among "different cognitive activities while carrying out a complex task."³³ For the "cognitive apprenticeship," the emphasis is placed upon making the expert's "tacit processes" for solving problems explicit so that students may observe and learn.³⁴

In cognitive apprenticeship, one needs to deliberately bring the thinking to the surface, to make it visible, whether it's in reading, writing, problem solving. The teacher's thinking must be made visible to the students and the student's thinking must be made visible to the teacher. That is the most important difference between traditional apprenticeship and cognitive apprenticeship. Cognitive research, through such methods as protocol analysis, has begun to delineate the cognitive and metacognitive processes that comprise expertise. By bringing these tacit processes into the open, students

³⁰ See *id.* at 28 ("Of the three, it [the 'cognitive' apprenticeship] is most at home in the university context because it embodies that institution's great investment in quality of analysis and reasoning, argument, and research.").

³¹ See Allan Collins, John Seely Brown & Susan E. Newman, *Cognitive Apprenticeship: Teaching the Crafts of Reading, Writing, and Mathematics*, in KNOWING, LEARNING, AND INSTRUCTION: ESSAYS IN HONOR OF ROBERT GLASNER 453, 455-58 (Lauren G. Resnick ed., 1989).

³² *Id.* at 458.

³³ *Id.* (the two techniques are also referred to as "abstracted replay" and "producer-critic dialog," respectively).

³⁴ Allan Collins, John Seely Brown & Ann Holm, *Cognitive Apprenticeship: Making Thinking Visible*, 6 AM. EDUCATOR 6, 9 (1991) (a preprint of the article is available at http://elc.fhda.edu/transform/resources/collins_brown_holm_1991.pdf).

can observe, enact, and practice them with help from the teacher and from other students.³⁵

In sum, the pedagogical root of one of the Carnegie Report's central tenets, the "cognitive apprenticeship," is vested in educational psychology and metacognition.

One other approach to metacognition, also from the field of legal education, is awareness of how one learns. "Students become meta-cognitive, or engage in the process of 'thinking about thinking,' when they are aware of how they learn and when the student can control which learning strategies are appropriate for a given course."³⁶ Here, the stress is on the individual student and particular "learning styles."³⁷ This approach bears some relation to intentional learning and self-awareness as articulated by the Carnegie Report, but the latter is more focused on explicit goals and the former considers the individual learner.³⁸

Metacognition in Medical Education

For purposes of legal research education, the most useful insights into metacognition actually come from the field of medical education. This is because the medical academy's interest in metacognition is motivated by a need for medical education to expressly address lifelong learning and information literacy:

For more than a century, educators have exhorted curriculum leaders to adopt lifelong learning as a guiding force in medical education. Although there has been widespread agreement in principle, substantive change in this direction remains elusive. Why? Because the current paradigm for medical education does not support lifelong learning. We continue to focus the curriculum,

³⁵ *Id.*

³⁶ Jocelyn Limmer, *Helping Students Get It: How Law School Instructors Can Use Four Characteristics of Successful Second-Language Acquisition Pedagogy to Create Successful Law Students* 23 (March 31, 2012), <http://ssrn.com/abstract=2033279>.

³⁷ See *id.* ("Instructors can help students identify, understand, and appreciate the learning style that will be most helpful to them in order for them to flourish academically."). Limmer then goes on to identify different learning styles. See *id.* at 23–32.

³⁸ See *supra* note 27 and accompanying text.

teaching, and evaluation on the "here and now," on conveying and measuring the dissemination of current knowledge to the learner. Because of the ephemeral nature of this knowledge base, the traditional paradigm no longer prepares the physician for a lifetime of medical practice.³⁹

The problem is medicine's rapidly changing knowledge base. The solution to the problem focuses on the development of experts.

The need for change is greatly enhanced by the growing "knowledge dilemma"—there's too much, it's changing rapidly, and some is of little use. The new paradigm directs medical schools to focus on the preparation of medical experts. Experts carefully and systematically monitor and regulate their experience but also act quickly and intuitively when necessary. Metacognition is the underlying thought process of experts that enables them to learn from experience and ultimately to act on intuition.⁴⁰

It is "systemic monitoring" and "regulating experience" that is the essence of metacognition. The "knowledge dilemma" in medicine parallels the problem in law with its rapidly changing information environment and the "scaling up" of the universe of legal authority and commentary.

Metacognition's elements are described in the following heuristic to describe monitoring and self-regulating behavior:

Specifically, medical students must develop the abilities to (a) define and prioritize their goals, (b) anticipate and assess their specific needs in relation to the goals, (c) organize (and reorganize) their experiences to meet their unique needs, (d) define their own and recognize differences in others' perspectives, and (e) continuously monitor their knowledge base, problem solving, and interactions with others.⁴¹

This heuristic can be directly applied to legal education and legal research.⁴² Such a model could be a standard for professionalism and is a commitment to lifelong learning—a value that works well in the Carnegie Report's integrated model—the last element of which concerns professional values. Finally, the focus on experience reminds us

³⁹ QUIRK, *supra* note 4, at xvii.

⁴⁰ *Id.* at xvii–xviii.

⁴¹ *Id.* at 4.

⁴² See, e.g., Exercise 4. Planning and Interruption, *infra* p. 74.

that the "life of the law ... has been experience" and that it is not a static system.⁴³ Competency in knowledge of the law at graduation from law school is insufficient. What is needed is the capability and commitment to constantly learn in evolving systems of legal authority and information environment. If the effort is made to satisfy rigorous pedagogy, legal research instruction can at last be a core element of legal education.

Integrating Concepts of Metacognition

Regardless of knowledge domain or education philosophy, the above approaches to metacognition share two important characteristics—self-awareness and self-regulation, the former of which is cognition and the latter of which being discussed in terms of "behavioral modification,"⁴⁴ "modification of information flow,"⁴⁵ "self-correction,"⁴⁶ "formative assessment,"⁴⁷ and "regulating experience."⁴⁸

The comparisons having been made among the theories, the conceptual development of metacognition differs among the disciplines in subtle but important respects. While the Carnegie Report stresses *intentional learning* (self-direction, awareness of learning objectives, coaching, and formative assessment), *constructivism* emphasizes self-awareness of mental constructs and activities which invent, explore and consider alternatives to those constructs. The constructivist approach to metacognition may, in some instances, lead the learner to acknowledge his or her own failure to apply a particular problem-solving schema or, in other instances, to recognize that a particular schema is inadequate and needs to be modified. On the other hand, a behaviorist approach would emphasize the learner's failure to interrupt research problem solving to ask why it is not going well or whether a different strategy might work better. To see these two concepts in action, see Exercise 3 and 4 at the end of the chapter.

⁴³ OLIVER WENDELL HOLMES, JR., THE COMMON LAW 1 (Little, Brown & Co. 49th prtg. 1923) (1891).

⁴⁴ See *supra* notes 9 and 15–18 and accompanying text.

⁴⁵ See *supra* note 32 and accompanying text.

⁴⁶ See *supra* note 32 and accompanying text.

⁴⁷ See *supra* note 27 and accompanying text.

⁴⁸ See *supra* notes 40–41 and accompanying text.

Other work from legal education emphasizes self-awareness of one's particular learning style. For medical education, at least as suggested in one important work,⁴⁹ metacognition relates to expertise and learning from experience, including social interactions and to the development of intuition. In addition, the connection of metacognition in medical education to information literacy and lifelong learning should resonate with librarians and accords with recent efforts to introduce information literacy standards into legal education.⁵⁰

There are some contradictions in the various conceptions of metacognition discussed above. Among them is the problem that the Carnegie's "trichotomous" approach to apprenticeships (cognitive, practical, and social-ethical)⁵¹ is incongruous with the original conception of apprenticeship by Collins, Brown and Newman, which (in the context of formal education) is cognitive and singular in nature.⁵² Yet, the Carnegie Report's inclusion of research in the "practice and skills" apprenticeship would seem to divorce metacognition from research skills.⁵³ In contrast, in *Intuition and Metacognition in Medical Education*, emphasis on metacognition is motivated by the need for information literacy and lifelong learning, without any distinctions based upon an apprenticeship model.⁵⁴ While the three apprenticeships of the Carnegie Report—at least as a result of their nomenclature—would separate legal research instruction from metacognition, *Intuition and Metacognition in Medical Education* argues that metacognition is a means to expertise and includes information literacy and lifelong learning as part of learn-

⁴⁹ See QUIRK, *supra* note 4.

⁵⁰ See *infra* sections entitled, *The Boulder Statements' Signature Pedagogy* and *Metacognition and AALL Information Literacy Standards*.

⁵¹ Carnegie Report, *supra* note 6, at 179.

⁵² See generally Collins, Brown & Newman, *supra* note 31. Collins, Brown and Newman do contrast the "traditional apprenticeship" with the cognitive by noting that for the traditional apprenticeship "the process of carrying out a task to be learned is usually easily observable," but reading, writing and problem solving, all in the cognitive domain, require the teacher to make his or her "thinking visible." *Id.* If this distinction is to be maintained for legal research education, then all but the most mundane tasks would fall into the cognitive domain.

⁵³ The notion of breaking up the apprenticeship just seems to be at odds with the Collins, Brown and Newman model of apprenticeship, which although permitting the breakdown of tasks, seems singular in nature. *See id.*

⁵⁴ Apprenticeship is not discussed in *Intuition and Metacognition in Medical Education*. See generally QUIRK, *supra* note 4.

ning from experience. This latter approach is seemingly incompatible with a division of apprenticeships into *cognitive, practice and values*. True, the Carnegie Report calls for integration of the apprenticeships,⁵⁵ but the division may undermine recognition of the cognitive nature of problem-solving in legal research, and most importantly, that metacognition is important to all of the apprenticeships. Hopefully, interpretation of the Carnegie Report's nomenclature will not diminish the attention to the metacognitive aspects of problem solving and legal research.

I conclude this section by returning to metacognition's definition. In doing so, I utilize a useful tool, a construct represented below in Table 1. The construct is used for systemically defining concepts and was initially developed by Chauncey Riddle, a philosophy of language professor at Brigham Young University.⁵⁶ I have found it helpful to refine my own "holistic" conception of metacognition with respect to legal research instruction and the literature discussed above. Although laid out as a table, concept formulation in Riddle's methodology is a disciplined activity, which in this instance ultimately leads to an exhaustive definition of metacognition in the table's final row.

⁵⁵ See Carnegie Report, *supra* note 6, at 28, 179.

⁵⁶ See Chauncy Riddle, Lesson 5: Concepts, *in* Syllabus for Introduction to Philosophy (at Brigham Young University, 1980), on file with the author (forthcoming 2014 *in* THINK WITH POWER).

Concept: Metacognition							
Domain/Context	Legal Education/Legal Research Instruction						
Genus	Capability						
Similar	Self-awareness, self-assessment, self-regulation, information processing, planning, learning styles, performance prediction, behavior modification, cognition, time management, reflection, intentional learning, lifelong learning, learning, learning strategies						
Perfection	Expert learning and problem solving						
	<table border="1"> <thead> <tr> <th>Constituent Elements</th> </tr> </thead> <tbody> <tr> <td>disciplined self-assessment, progressive iteration, and modification of problem-solving behavior and thinking</td></tr> </tbody> </table>	Constituent Elements	disciplined self-assessment, progressive iteration, and modification of problem-solving behavior and thinking				
Constituent Elements							
disciplined self-assessment, progressive iteration, and modification of problem-solving behavior and thinking							
Prerequisites cognition, self-awareness, discrimination among thought processes, problem solving or learning activity	<table border="1"> <thead> <tr> <th>Complement</th> </tr> </thead> <tbody> <tr> <td>"spinning your wheels"</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Opponent</th> </tr> </thead> <tbody> <tr> <td>impatience, non-commitment, "shadow pedagogies", extreme behaviorism</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Consequences</th> </tr> </thead> <tbody> <tr> <td>expertise, efficiency, thoroughness, understanding</td></tr> </tbody> </table>	Complement	"spinning your wheels"	Opponent	impatience, non-commitment, "shadow pedagogies", extreme behaviorism	Consequences	expertise, efficiency, thoroughness, understanding
Complement							
"spinning your wheels"							
Opponent							
impatience, non-commitment, "shadow pedagogies", extreme behaviorism							
Consequences							
expertise, efficiency, thoroughness, understanding							
Opposite	Obliviousness						
Contrary	Routine performance, disengaged, bored, unprofessional, static, inexperience						
Etymology	"Use of meta- in the sense 'situated behind' ... is chiefly restricted to scientific and technical terms ..."; ⁵⁷ "Latin <i>cognitōnem</i> a getting to know, acquaintance, notion, knowledge, etc., n. of action" ⁵⁸						

⁵⁷ "meta-, prefix". OED Online. June 2012. Oxford University Press. <http://www.oed.com.ezproxy.mnl.umkc.edu/view/Entry/117150> (accessed Aug. 01, 2012).

⁵⁸ "cognition, n.". OED Online. June 2012. Oxford University Press. <http://www.oed.com.ezproxy.mnl.umkc.edu/view/Entry/35876> (accessed Aug. 01, 2012).

Dictionary Definitions	Oxford English Dictionary—"1. Awareness and understanding of one's own thought processes, esp. regarded as having a role in directing those processes." ⁵⁹ Encyclopaedic Dictionary of Psychology—"the higher order cognitive thoughts that coordinate proficient information processing" ⁶⁰
Historical Usage From Oxford English Dictionary	1972 L. R. Gleitman et al. in Cognition 1 161 The lower-order process often proceeds without any meta-cognition.... Examples of meta-cognition in memory are recollection ... and intentional learning. 1977 Child Devel. 48 1/1 Metacognition refers to the individual's knowledge concerning his own cognitive processes, and the development of such self-awareness in children has become a topic of considerable interest. 1981 Monogr. Soc. Res. Child Devel. 46 No. 5. (serial no. 192) 3 Metacognition means knowledge and cognitive activity that takes cognitive phenomena as its object. 1999 Korean Jnl. Thinking & Problem-solving 9 85 Theoretical perspectives from different areas of psychological studies...are presented, to demonstrate the construct utility of metacognition. ⁶¹
Positive Example	"Why did my approach to the problem fail?" "Does my schema work for this problem?" "Do I need to modify it?"
Negative or Non Example	"If you follow the steps, it will always work." "What was the result of your research?" "What resources did you use?"
Concept Definition	The capacity and discipline of expert problem solvers (1) to predict what they may need to add to their initial knowledge base or schemata as a precondition to problem resolution and what learning and problem-solving skills, methods and strategies will be most effective, (2) to interrupt thinking processes and activities to assess current performance and to determine the adequacy of their achieved knowledge base, schemata, problem-solving skills, methods, and strategies, and (3) to then expand their achieved knowledge base, acquire new skills, engage in progressive research iterations, and modify their future behavior, thinking, and schemata to meet the problem at hand and similar problems in the future.

Table 1

The final product of this concept formulation emphasizes the mental state prior to and during research, refining the earlier broad definition, which slightly emphasizes post-research assessment: "the ability to

⁵⁹ *Metacognition*, n. OXFORD ENGLISH DICTIONARY (3d 2001), <http://www.oed.com/view/Entry/245252>.

⁶⁰ Moulin, *supra* note 7.

⁶¹ *Metacognition*, *supra* note 59.

assess, not only the result [of a research activity], but the schemata, including the processes, leading to the result.”⁶²

The Time Is Ripe—Metacognition, Signature Pedagogy, and Legal Information Literacy

Making explicit legal research’s pedagogy or pedagogies—their technical terminologies and theories—is essential to establishing the *bona fides* of the profession. Professor Lee Shulman, President of the Carnegie Foundation for the Advancement of Teaching and co-author of the Carnegie Report, made this clear in a speech before the Math Science Partnerships in 2005: “Signature pedagogies have become essential to general pedagogy of an entire profession as elements of instruction and of socialization.”⁶³ A signature pedagogy will lay the foundation of legitimacy of our field. Consequently, this section will correlate the concept of metacognition to other essential work in pedagogy—namely, the work of the Boulder Conferences⁶⁴ which incorporate the Carnegie Report’s articulation of a signature pedagogy, and advances by members of the American Association of Law Libraries (AALL) on legal information literacy standards.⁶⁵

⁶² Callister, *supra* note 1, at 210.

⁶³ Lee Shulman, President, Carnegie Foundation for Advancement of Teaching, *The Signature Pedagogies of the Professions of Law, Medicine, Engineering, and the Clergy: Potential Lessons for the Education of Teachers*, Address before Math Science Partnerships (MSP) Workshop, 9 (Feb. 6–8, 2005) (transcript of remarks edited by author), <http://hub.mspnet.org/index.cfm/11172> (audio file of address also available).

⁶⁴ BOULDER STATEMENT ON LEGAL RESEARCH EDUCATION, Appendix A, *infra* p. 255; BOULDER STATEMENT ON LEGAL RESEARCH EDUCATION: SIGNATURE PEDAGOGY, Appendix B, *infra* p. 261, and the BOULDER STATEMENT ON LEGAL RESEARCH EDUCATION: COACH TEMPLATE, Appendix C, *infra* p. 267 (“Boulder Statements”).

⁶⁵ See Dennis Kim-Prieto, *The Road Not Yet Taken: How Law Student Information Literacy Standards Address Issues in Legal Research Education and Training*, 103 LAW LIBR. J. 605, 619 (2011).

Metacognition and the Signature Pedagogy of Legal Research Education (the Boulder Statement)

Each year the Boulder Conference not only provides opportunities for librarians to present scholarly papers, but to work collaboratively on statements about pedagogy. In 2010, the conference assiduously followed the Carnegie Report's methodology for reforming legal education by describing *pedagogy* for legal research instruction.⁶⁶ Borrowing from linguistics,⁶⁷ the Carnegie Report's *signature pedagogy* consists of a behavior or "kind of language" distinctive to the profession and which has four "dimensions":

- (1) its observable behavioral features—the *surface structure*;
- (2) the underlying intentions, rationale, or theory that the behavior models—the *deep structure*;
- (3) the values and dispositions that the behavior implicitly models—the *tacit structure*; and
- (4) its complement, the absent pedagogy that is not, or is only weakly engaged—the *shadow structure*.⁶⁸

As shall be shown below, the Carnegie Report's employment of this heuristic is problematic for legal research instruction.

Why the Carnegie Report's Analysis Misses Legal Research

The odd result of the Carnegie Report is that for legal education, legal research instruction is all shadow pedagogy. Moreover, legal research instruction is not only missing from the Carnegie Report's description of surface, deep and tacit structures, it does not even merit honorable

⁶⁶ Compare the Carnegie Report, *supra* note 6, at 24, 50–59 with BOULDER STATEMENT ON LEGAL RESEARCH EDUCATION, Appendix A, *infra* p. 255; BOULDER STATEMENT ON LEGAL RESEARCH EDUCATION: SIGNATURE PEDAGOGY, Appendix B, *infra* p. 261, and the BOULDER STATEMENT ON LEGAL RESEARCH EDUCATION: COACH TEMPLATE, Appendix C, *infra* p. 267 ["Boulder Statements"].

⁶⁷ See Carnegie Report, *supra* note 6, at 24, "The concept of signature pedagogy is an analogue to an idea common in modern linguistics—that there is a distinction between the observable linguistic performance of speakers of a language and the deep structure of grammatical and syntactical knowledge that these speakers are presumed to have in order to be able to speak with competence."

⁶⁸ *Id.* at 51 (emphasis added).

mention as part of the shadow structure. Others have also noticed the omission.⁶⁹

The most important contributions of the Carnegie Report are its use of signature pedagogy as a descriptive analytical framework that ultimately not only describes the current state of affairs in legal education, but what is missing, or the shadow pedagogy—in this case, “experience with clients” and “ethical substance.”⁷⁰ As a prescriptive remedy, the Carnegie Report calls for greater integration of three apprenticeships⁷¹—intellectual or cognitive, expert practice, and identity and purposes—and for greater emphasis of the latter two.⁷² These last two apprenticeships nicely address the omissions recognized in the shadow pedagogy. Yet, the section of the report discussing shadow pedagogy makes no mention of research or the frequent criticisms of the substandard research skills of law school graduates.

To illustrate the oversight, the Carnegie Report, by my count, mentions the term *library* a scant five times (all in descriptive contexts)

⁶⁹ Richard Leiter reaches a similar conclusion. See Richard A. Leiter, *The Missing Lawyering Skill: New Book on Legal Education Demonstrates the Lack of Attention Paid to Legal Research Training*, 22 AALL SPECTRUM, July 2008, at 22. See also Mark Yates, *The Carnegie Effect: Elevating Practical Training over Liberal Education in Curricular Reform*, *LEGAL WRITING J.* *LEGAL WRITING INST.* 233 (2011).

⁷⁰ See *id.* at 56–57.

⁷¹ See *id.* at 28, 179.

⁷² See *id.* at 29. Per the Carnegie Report, the problem is that not all of the apprenticeships are fully developed:

As we shall see, today's legal education is sometimes able to marshal the three kinds of apprenticeship in support of the larger goal of training competent and committed practitioners. As we also note, however, in other ways the current system undermines that aim by failing to do justice to the full range of apprenticeship necessary to orient students to the full dimensions of the legal profession.

Id. at 29. In the immediately preceding passage, the Carnegie Report points out that the first apprenticeship—the cognitive or the intellectual—is the most familiar to and valued by traditional academics.

Of the three, it is most at home in the university context because it embodies that institution's great investment in quality of analytical reasoning, argument, and research. In professional schools, the intellectual training is focused on the academic knowledge base of the domain, including the habits of mind that the faculty judge most important for the profession.

Id. at 28.

and *librarian* not at all.⁷³ The word *research* does appear, but of the eighty five references, just eight mention legal research in the context of a skill to be taught to students.⁷⁴ In half of those references, the Carnegie Report's authors present legal research in the context of Langdell's model,⁷⁵ without any indication of how modern legal research instruction occurs in law schools or how it might contribute to pedagogical objectives. Indeed the description is quaint:

Students taught from Langdell's casebooks were being introduced by their professors to legal research, much as a laboratory or seminar professor in the arts and sciences of those days would have led students to grasp the principles of organizing the particular domain.... Then the school would train future lawyers the way

⁷³ *Id.* at 6 (see quote *infra* note 74), 36 ("library-conference" room), 56 ("Indeed, Langdell's employer and Harvard President, Charles Eliot, explicitly analogized the law library as the pedagogical equivalent of patients in the medical school's teaching hospital"), 69 (describes capacities students may have developed prior to law school in libraries), and 90 (ambitious schools "increase the library's holdings").

⁷⁴ Of the 85 references to *research*, 47 refer to the research in education literature and studies that support the Carnegie Report's conclusion. *Id.* at ix, 8, 9 (twice), 14, 15 (three times), 17, 18, 22, 25 (twice), 26, 48, 52, 95, 96, 97, 107, 108, 109, 110, 111, 115, 119, 130 (three times), 133, 134 (three times), 135 (twice), 156, 160, 170, 171 (three times), 179, 180, 185 (twice), 198, and 199.

Fifteen of the 85 references to *research* refer to the names of research centers, titles of authors or experts, the Carnegie Report's research team, or "research universities." *Id.* at ix, x, 4, 8, 15 (three times), 46, 51, 76 (twice), 77, 167, 179, and 186.

Four references to *research* are related to the law school but are ancillary to my purposes. The latter being the case because the usage of *research* is outside of the context of legal research as a practice skill—there is one reference for law reviews (*id.* at 3), one helps to explain why the "intellectual or cognitive" apprenticeship is dominant in law schools (*see id.* at 28), and two concern "doctrinal" courses and upper level paper requirements. *See id.* at 156 (mentions an advanced legal ethics course that requires a research project) and 174 (discussion of use of student portfolios that include research papers).

Of the remaining 19 references, two refer to *research* as part of clinical education (*id.* at 37 and 202), four describe or refer to legal research or "lawyering" courses (*id.* at 87, 99, 104 and 186), and five concern faculty research (*id.* at 7 [twice], 15 [twice], and 181).

⁷⁵ Four of the remaining eight references refer to research as a skill but describe it in relation to Langdell's method (*id.* at 6 [three times], 11).

scientists are trained, teaching them to do legal research amid actual cases in the library, stimulated by Socratic dialogue in the classroom, and coached in written research and oral argument outside class.”⁷⁶

Tragically, this is the only instance in which the Carnegie Report mentions legal research in connection with the library. Of the last four references to research, one concerns a student survey, but the remaining three concede that legal research is a fundamental skill.⁷⁷ Hurray!

Returning to Langdell, the Carnegie Report deftly identifies the strength and weakness of his method in that it “enabled students to analyze and *research* judicial decision making, thereby learning how to ‘think like a judge.’”⁷⁸ However, Langdell’s “approach broke apart older forms of induction into the profession, thus establishing a new method of training in legal knowledge—a method separate from *learning to practice*. Over the long term, these two aims of induction into the profession (the academic and the more practical) would prove difficult to reunify.”⁷⁹ Reunification of legal knowledge and learning to practice is at the heart of the Carnegie Report’s recommendations. Indeed, the two domains correlate to the first and second apprenticeships—cognitive and expert practice.⁸⁰ The odd thing is the Carnegie Report has associated research with the cognitive—part of “thinking like a

⁷⁶ *Id.* at 6 (emphasis added).

⁷⁷ See *id.* at 76 (“The majority of students reported having learned between ‘quite a bit’ or ‘very much’ about thinking critically and analytically, developing legal research skill, and writing clearly and effectively . . .” (citing Center for Post Secondary Research, *The Law School Years: Probing Questions, Actionable Data—Law School Survey of Student Engagement 2005*), 101 (“it is likewise possible to articulate the conceptual models involved in the important skills that define effective lawyering: in developing evidence, interviewing, counseling, drafting documents, conducting research, and negotiating.”), 114 (“That ‘science’ consists in the three basic areas of knowing the law, finding the law (legal research), and arguing the law.”), and 174 (“It [the 1992 MacCrate Report] delineates in some detail the fundamental lawyering skills that characterize the day-to-day practice of law: problem solving, legal analysis and reasoning, legal research, factual investigation, oral and written communication, client counseling, negotiation, litigation and dispute resolution, and organization and management of legal work.”).

⁷⁸ *Id.* at 11 (emphasis added).

⁷⁹ *Id.* at 6.

⁸⁰ See *supra* notes 71–72 and accompanying text.

judge—and by implication it is part of what is amply present in legal education. This may explain why the Carnegie Report fails to recognize the need for improving legal research skills.

More egregiously, chapter 3, entitled *Bridges to Practice: From "Thinking Like a Lawyer" to Lawyering*—which is written to address the deficient shadow structure—only refers to “research” in a descriptive manner, but without identifying the historical and current problems in law student and graduate research skills.⁸¹ Neither does the chapter prescribe any remedy for research deficiencies. If anything, the Carnegie Report associates libraries and legal research with the Langdellian method, where the library was a surrogate for practicing on clients (as medical students practice on real patients).⁸² In such a role, the library is an inferior institution to the clinic. Chapter 3 does recognize that there are “lawyering courses” that address a “wide range” of skills including “research and writing in the first year, through trial advocacy and practice negotiation to clinical experience with actual clients.”⁸³ However, the chapter calls for increased emphasis on lawyering skills *other than* research in these classes: “teachers of legal practice in several areas such as negotiation, writing, and clinical-legal education have begun to put these ideas [use of iteration and procedural and conceptual models] to effective use.”⁸⁴ Other suggestions include integra-

⁸¹ In a *Law Library Journal* article in 2003, I summarized the twentieth-century failures and criticisms of attorneys and law students’ research skills. See *Beyond Training: Law Librarianship’s Quest for the Pedagogy of Legal Research Education*, 95 LAW LIBR. J. 9–11 (2003). In 2005, Thomson West presented the results of its own surveys on the legal research skills of new attorneys and students. Fifty percent of law firm librarians thought the research skills of new attorneys in print was poor, 32.1% thought the skills were basic, 17.9% moderate and 0% thought they were high. Percentages were calculated from Anne Ellis, Attorney and Student Research Skills: Ideal vs. Reality, slide 13 (PowerPoint prepared for Thomson West Town Hall Meeting at AALL), <http://west.thomson.com/pdf/librarian/AttorneyResearchSkills.pdf> (last visited Oct. 1, 2012). See generally Patrick Meyer, *Law Firm Legal Research Requirements for New Attorneys*, 101 LAW LIBR. J. 3 (2009). Apparently, research skills are still deficient for many law school graduates.

⁸² See Carnegie Report, *supra* note 6, at 56 (“Indeed, Langdell’s employer and Harvard President, Charles Eliot, explicitly analogized the law library as the pedagogical equivalent of patients in the medical school’s teaching hospital.”).

⁸³ *Id.* at 87.

⁸⁴ *Id.* at 100.

tion of apprenticeships through the legal writing program,⁸⁵ "Legal Writing as Simulated Practice,"⁸⁶ the use of composition theory,⁸⁷ teaching negotiations,⁸⁸ and "The Potential of Clinical-Legal Education."⁸⁹ Perhaps most telling is the section entitled *The Pedagogy of Legal Writing*, which fails to mention legal research.⁹⁰ At the heart of the chapter is the repeated call for increased integration of other apprenticeships, with a special emphasis on clinical courses.

It is worth emphasizing that the development of capacities for legal judgment that can be observed in successful clinical courses is deeply consonant with the larger purposes of legal education. Moreover, the iterative movement among the three apprenticeships that the best clinical instruction provides is isomorphic with the practice of law in virtually all its forms. That is, the threefold movement between law as doctrine and precedent (the focus of the case-dialogue classroom) to attention to performance skills (the aim of the apprenticeship of practice) and then to responsible engagement with solving clients' legal problems-a back-and-forth cycle of action and reflection-also characterizes most legal practice. The separation of these phases into distinct areas of the curriculum, or as separate apprenticeships, is always an artificial "decomposition" of practice. The pedagogical cycle is not completed unless these segregated domains are reconnected.⁹¹

Not surprisingly, legal research as a skill, its potential impact on each of the integrated apprenticeships, and its place in the shadow pedagogy

⁸⁵ See *id.* at 104–06 (an example using an ADR memo).

⁸⁶ See *id.* at 106–08.

⁸⁷ Composition theory studies how writers "organize[] and shape[] knowledge to suit various purposes and conventions of discourse" and "knowledge transformation" which includes "a highly sophisticated set of metacognitive practices through which students can learn to transfer insights gained in one experience to other writing tasks." *Id.* at 108. See also *Writing*, THE CAMBRIDGE GUIDE TO TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES (2001), <http://www.credoreference.com.proxy.library.umkc.edu/entry/cupteacheng/writing>.

⁸⁸ See Carnegie Report, *supra* note 6, at 111–14.

⁸⁹ See *id.* at 120–23.

⁹⁰ See *id.* at 109–11. References to research in this section all pertain to research into compositional theory. See discussion of compositional research, *supra* note 87**Error! Bookmark not defined..**

⁹¹ Carnegie Report, *supra* note 6, at 124.

is missed. Essentially, legal research is eclipsed by the Carnegie Report's championing of clinical education.

The Boulder Statements address the Carnegie Report's omission. However, to do so, the conference takes the descriptive exercise of defining legal education's signature pedagogy (with its shadow element highlighting what is missing—"experience with clients" and "ethical substance", but no mention of research)⁹² and turns it into a prescriptive exercise. This means providing an aspirational statement of "deep," "tacit," and "surface" structures for legal research instruction. Since the prescribed signature of legal research instruction is aspirational, it is impossible for the Boulder Statements to provide a "shadow" element (*i.e.*, to identify what of its own aspirational description is missing). So instead, the Boulder Statements' description of shadow pedagogy notes the failure of traditional legal education to recognize legal research, filling in what should have been included in the shadow pedagogy described by the Carnegie Report for legal education as a whole.

In summation, the most significant recent work for reforming legal education almost entirely omits legal research as a skill—even though the report's authors specifically looked for what was missing.⁹³ Other scholars have also noted this: "Mostly these changes [as called for by Carnegie] amount to adding clinical options or even clinical requirements, adding units to legal writing programs, and updating professional responsibility courses."⁹⁴ The library is not on the radar. While legal research skills and legal research instruction have been readily criticized for 100 years,⁹⁵ the authors of the Carnegie Report did not see the issue. The few references to research in first-year research and writing course are generally made in the context of urging integration of other important skills—advocacy, alternative dispute resolution, negotiating, and interviewing.⁹⁶ In response to the omissions of legal research and libraries from the Carnegie Report, groups of determined librarians have met annually for the last four years to produce scholar-

⁹² See *id.* at 56–57.

⁹³ See Leiter, *supra* note 69, at 22.

⁹⁴ Yates, *supra* note 69, at 233.

⁹⁵ See *supra* note 81.

⁹⁶ See *supra* note Error! Bookmark not defined.74.

ship and statements outlining a pedagogy compatible with the Carnegie Report.⁹⁷

The Boulder Statements' Signature Pedagogy

The full text of Boulder Statement on Legal Research Education: Signature Pedagogy Statement can be found at the end of the book. While "metacognitive" is expressly mentioned as part of the *Deep Structure*,⁹⁸ the concept is implicit in the three remaining structures.

Surface Structure

The Boulder Statement boldly describes the surface structure of legal research education as an "*intellectual process* for the application of methods" rather than a "skill." This is important because it points out a fundamental flaw in the trifold apprenticeship model of legal education—practice skills, including legal research, also require cognitive processes such as analysis and synthesis.⁹⁹ The term *skills* has long been a byword for many traditional law faculties¹⁰⁰—hence, the total absence of the term in the surface structure and the usage of "methods" instead. Despite the Carnegie Report's categorization of traditional, Socratic courses as intellectual and cognitive, they do not hold a monopoly over these modes of thinking. Unfortunately, the Carnegie Report may actually reinforce the stereotype at the same time that it asserts the worth of the "non-cognitive" apprenticeships—practice experience and identity, which include ethics and professional values.

⁹⁷ BOULDER STATEMENT ON LEGAL RESEARCH EDUCATION: SIGNATURE PEDAGOGY STATEMENT, Appendix B, *infra* p. 261.

⁹⁸ *Id.* (The "surface structure above enables students to master analytic and metacognitive approaches to [description of the deep structure]").

⁹⁹ For the first Boulder Conference in 2009, I was asked to author an article on how research employs rigorous thinking skills. This article was published in a special issue of *Legal Reference Services Quarterly* dedicated to legal research instruction. See Paul D. Callister, *Thinking Like a Research Expert: Schemata for Teaching Complex Problem-Solving Skills*, 28 *LEGAL REF. SERV. Q.* 31 (2009). The article stressed the intellectual capacities employed by experts—in particular, the use of schemata. See *id.* at 31–32.

¹⁰⁰ "The teaching of legal research is one of those areas that we all talk about—and do least about.... Those who do it well ... readily move onto more 'worthwhile' things—such as teaching Torts." Charles D. Kelso, *Curricular Reform for Law School Needs of the Future*, 20 *J. LEGAL EDUC.* 407, 412 (1968).

Perhaps what is most metacognitive about the *Surface Structure* is the third methodology: "Inculcating the practice of iterative research strategies."¹⁰¹ The recognition of the need to restart a research cycle over again and the mental processes that go with it is a metacognitive activity. It goes to the second part of the definition of *metacognition* that I have constructed above: "The capacity and discipline of expert problem solvers ... 2) to interrupt thinking processes and activities to assess current performance and determine the adequacy of one's current knowledge base and schemata and problem-solving skills, methods, and strategies"¹⁰² Pausing to enquire about the need to go back to the beginning—to loop back—rather than stop at the end of a research cycle is a metacognitive activity. For an example, see Exercise 1 at the end of the chapter.

Deep Structure

The Boulder Statements' Signature Pedagogy Statement calls for students to "master analytic and metacognitive approaches to" a number of capabilities. The most important for my purposes is "3) Synthesize knowledge of the legal resources and institutional structures to implement research design, and evaluate and communicate the results."¹⁰³ Metacognition only happens if the researcher is self-conscious of these activities—that he or she needs to or has done synthesis, research design, evaluation and evaluation. It is the consciousness of these activities and one's assessment of the same that constitutes metacognition.

Tacit Structure

Tacit structure includes "values, attitudes and norms of ethical professional behavior."¹⁰⁴ Among those included are thoroughness, effectiveness, balancing competing duties, critical self-assessment and self-directed lifelong learning.¹⁰⁵ The question "How do I know I am done?" is not just a common refrain among students, but it is fundamental to the field of education psychology's inquiry into the concept

¹⁰¹ Appendix A, *infra* p. 255.

¹⁰² See final row of Table 1 above.

¹⁰³ BOULDER STATEMENT ON LEGAL RESEARCH EDUCATION: SIGNATURE PEDAGOGY, Appendix B, *infra* p. 261.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

of metacognition, which was initially understood as self-awareness of whether one knew enough for tomorrow's test:

For instance, when studying for an exam, we will have an idealized notion of performance (at the meta-level) and we will have some to-be-learned material (at the object level). We will monitor our learning of the material and control it through allocating more or less study or effort. Thus, through metacognition, we will reflect on our performance and modify behavior accordingly, terminating study when monitoring tells us that information is well learnt.¹⁰⁶

Note the parallelism between self-assessment of whether one's study of a topic has been effective in the above passage and the self-questioning of whether enough research has been done. Both questions are also fundamentally epistemological in nature—"Do I now know it?" Indeed, some of the earliest research into metacognition focused on "feelings of knowing."¹⁰⁷ Exercise 5 at the end of the chapter addresses the issue of "being done" by stressing the importance of professional standards and heuristics.

The Boulder Statements' Signature Pedagogy Statement expressly describes *tacit structure* in terms of *values, attitudes, and norms*, one of

¹⁰⁶ Moulin, *supra* note 7. Metacognition has also been referred to with respect to memory, and in particular "predicting memory performance." *Metacognition*, ENCYCLOPEDIA OF COGNITIVE SCIENCE, <http://www.credoreference.com.proxy.library.umkc.edu/entry/wileycs/metacognition> (last visited Oct. 5, 2012).

¹⁰⁷ *Metacognition*, *supra* note 106.

Hart (1965) was one of the first researchers to investigate the accuracy of introspections about human memory. The "feeling of knowing" (FOK) is an experience in which one has a feeling that a currently unretrieved item is nevertheless in memory. Hart investigated whether FOKs are accurate at predicting subsequent memory performance. He used the recall-judgment-recognition paradigm in which subjects receive a recall test, often consisting of general knowledge questions such as "What is the capital of Australia?" or "What star is called the North Star?" For answers recalled incorrectly, or when no answer is produced, subjects are asked to report their FOK by indicating the likelihood that they would recognize the unrecalled answer.

Id. Hart went on to find a higher probability of recognizing the correct answer when the feeling of knowing was higher. *Id.* See also JT Hart, *Memory and the feeling-of-knowing experience*, 56 J. EDUC. PSYCHOL. 208–16 (1965).

those being "self-directed lifelong learning."¹⁰⁸ As noted above, medical education has also recognized this value. "For more than a century, educators have exhorted curriculum leaders to adopt lifelong learning as a guiding force in medical education."¹⁰⁹ In the legal profession, the impulse to be lifelong learners is manifest in Otto Preminger's film, *Anatomy of a Murder*. In the film, which explores the insanity defense, or "irresistible impulse," the lawyer for the defense, Paul Biegler, played by Jimmy Stewart, does something incomprehensible in the modern practice of law. Biegler and his alcoholic colleague, Parnell McCarthy, actually choose to spend their leisure time drinking bourbon whiskey and reading case reporters—decisions by Justice Holmes no less. For a practicing lawyer to find recreation in reading case reporters, let alone spend significant time to ponderously read cases under any circumstances (while tippling with a colleague), probably strikes most present-day attorneys as anachronistic, if not an outright Hollywood fabrication.¹¹⁰ Yet there was a time when this was the norm, part of what was expected of an attorney.¹¹¹ "The leading lawyers in every State are expected to run over, if they do not read, every case in every new volume of its reports."¹¹² In the opening sentence of a Yale Law Journal article explaining why legal scholarship differs from the textual analysis that characterizes the scholarship of the historian, Max Radin claims, "There is a sense in which the law is not merely a learned profession, but *the learned profession*."¹¹³ It requires constant learning—it is not just about the skill of learning (which includes research), but about the profession's most fundamental values. As such it is part

¹⁰⁸ BOULDER STATEMENT ON LEGAL RESEARCH EDUCATION: SIGNATURE PEDAGOGY, Appendix B, *infra* p. 261.

¹⁰⁹ See QUIRK, *supra* note 4, at xvii.

¹¹⁰ The 1959 movie is based on a book of the same title by John D. Voelker (writing under the name of Robert Traver) originally published in 1958, when Voelker was a justice of the Michigan Supreme Court. He served from 1957 to 1959, when he retired to write full time after the success of ROBERT TRAVER, *ANATOMY OF A MURDER* (1958).

¹¹¹ I have previously described the historical significance of reading and learning to the bar in *Law and Heidegger's Question Concerning Technology: Prolegomenon to Future Law Librarianship*, 99 LAW LIBR. J. 285, 299–301 (2006).

¹¹² SIMEON E. BALDWIN, AMERICAN JUDICIARY 274 (1905).

¹¹³ Max Radin, *On Legal Scholarship*, 46 YALE L.J. 1124, 1124 (1936–1937).

of the tacit structure of legal research education. Exercise 6 at the end of the chapter is designed to address these values.

Shadow Structure

As I have claimed above, legal research is part of the shadow structure of legal research education. Furthermore, if we descriptively (rather than prescriptively) employ the lens of our signature pedagogy, metacognition is often part of the shadow structure of legal research education. This is so because as teachers, it requires us to get beyond the resources and even beyond the problem to asking ourselves and our students, "what were you thinking?" or more precisely, "what was wrong in your thinking that made this search fail?" The subtlety is important here. We are not asking "what resource should you have used?" We are not asking, "what are the best search terms for this problem?" Metacognition is not about the resources or the problem, but about the internal world that constitutes a student's mind. It is a focus on the researcher itself, and what he or she thinks. If we are honest—if I am honest—I suspect that too often this aspect of teaching is completely ignored.

Metacognition and AALL Information Literacy Standards

Brief Background and History

As Dennis Kim-Prieto points out, "[L]aw librarians have been relatively slow to adopt our own subject-specific IL [information literacy] standards, despite the singular nature of legal research and its impact on the practice of law."¹¹⁴ However, after four years, and two draft standards or "principles," AALL has set down standards for information literacy.

In 2009–2010, Kim-Prieto chaired AALL's Joint Special Interest Section Committee on the Articulation of Law Student Information Literacy Standards, which produced a draft of standards.¹¹⁵ This first round of standards, the *Law Student Information Literacy* (LSIL) standards, provides an important connection to information literacy standards already developed by the Association of College and Research Librarians (ACRL), for both general higher education and various

¹¹⁴ See Kim-Prieto, *supra* note 65, at 607.

¹¹⁵ *Id.* at 609.

graduate disciplines.¹¹⁶ "Subsequently, AALL charged a Law Student Research Competency Standards Task Force with reviewing and applying LSIL standards"¹¹⁷ The Task Force, of which Kim Prieto was also a member, produced its own versions of the standards, or rather principles, also based upon the ACRL model. In March of 2011, these principles, *Law Student Research Competencies and Information Literacy Principles* (the "Information Literacy Principles") were adopted by AALL.¹¹⁸ Finally, in 2012, the same Task Force articulated a definitive set of standards, the *AALL Legal Research Competencies and Standards for Law Student Information Literacy* (LRCSL).¹¹⁹

None of the three standards, including the Principles, mentions *metacognition*. However, elements of metacognition can be founded in each of the standards. Furthermore, although the LRCS standard is the final product of AALL's efforts, I will treat each standard separately to illustrate how metacognition is affected by and can enhance standards and principles for the better.¹²⁰

The Draft Law Student Information Literacy Standards

Although an oversimplification, the LSIL standards can be summarized as (I) *identification* of appropriate sources, (II) *accessing* appropriate information efficiently, (III) *information and source evaluation*, (IV) *application* of information for issue resolution, and (V) *distinguishing* ethical and unethical usage.¹²¹ The LSIL have a strong beha-

¹¹⁶ See Kim-Prieto, *supra* note 65, at 606–07. The complete text of LSIL standards is located at <http://www.aallnet.org/Archived/Leadership-Governance/policies/PublicPolicies/policy-lawstu.html>.

¹¹⁷ *Id.* at 610.

¹¹⁸ See *id.* The Principles are available at <http://www.aallnet.org/Archived/Advocacy/AALL-Recommended-Guidelines/Student-Research-Principles.pdf>.

¹¹⁹ *Id.* AALL Legal Research Competencies and Standards for Law Student Information Literacy (approved by the Executive Board, July 2012), <http://www.aallnet.org/main-menu/Leadership-Governance/policies/PublicPolicies/policy-lawstu.html>.

¹²⁰ In addition, I note that the title of Kim-Prieto's article that published the LSIL standards and the Principles begins with "The Road Not Taken." See Kim-Prieto, *supra* note 65. Perhaps this suggests that the LSIL standards offer some advantages that are not reflected in the Principles.

¹²¹ See *id.* at 619–26. For Kim-Prieto's discussion of how the "shape of the LSIL standards mirrors the overall shape of the ACRL standards," see *id.* at 610.

riorist framework: each standard enumerates "evidence of behaviors that indicate mastery." In Standard II, 1, examples a-c, each suggested item of evidence begins with a gerund—*identifying, selecting, distinguishing, understanding and seeking*.¹²²

As noted above, there is the risk that the most extreme form of behaviorism denies the utility of considering the mind.¹²³ This makes it difficult to give appropriate weight to metacognitive and cognitive growth. This is not a criticism of the LSIL standard, but a reminder that as the instructor seeks evidence of the various behaviors idealized by any standard, he or she must not overlook metacognitive and cognitive elements that may be less easy to identify and assess. Almost all information literacy standards can be misread to emphasize the behavioral at the expense of the cognitive and metacognitive. Their formulation with emphasis on gerunds does not in and of itself make the standard deficient. Indeed, the gerunds above all can be thought of as kinds of cognitive processes. The problem is that thinking is harder to assess than behavior, but that is not a good reason for deemphasizing it.

The LSIL standards facilitate consideration of metacognition at several points. First consider Standard III. 3: "Compare new knowledge with prior knowledge to determine value added, contradictions or other unique characteristics of the information and take steps to reconcile differences."¹²⁴ The key elements of my formation of the definition of metacognition are

- (1) to predict what they may need to be added to their initial knowledge base ..., (2) to interrupt thinking processes ... to assess current performance and to determine the adequacy of their achieved knowledge base..., and (3) to then expand their achieved knowledge base, acquire new skills, engage in progressive research iterations, and modify their future behavior, thinking, and schemata to meet the problem at hand and similar problems in the future.¹²⁵

Note that the elements operate to compare *initial knowledge* to knowledge *achieved* while engaged in the research process and to thereby demand modifications to thinking and behavior. In similar manner, Kim-Prieto's LSIL Standard compares new and prior knowledge and

¹²² See Kim-Prieto, *supra* note 65, at 620.

¹²³ See *supra* note 14 and accompanying text.

¹²⁴ Kim-Prieto, *supra* note 65, at 622.

¹²⁵ See last row of Table 1 above (emphasis added).

assesses value added. Understanding metacognition, as formulated above, can help instructors interpret the LSIL standard more broadly and effectively.

LSIL standard III. 4 is interesting because it points out the importance of engaging experts after obtaining research results: "Validate understanding and interpretation of the information through discourse with other individuals, subject-area experts, or practitioners."¹²⁶ Seeking out experts for validation is similar to the idea suggested by Collins and already quoted above: "reflection on the differences between novice and expert performance by alternation between expert and novice efforts"¹²⁷ When metacognition is considered, interpretation of the standard moves beyond comparing the expert and novice's understanding and interpretation of results to include comparison of the processes by which experts and novice's research.

Finally, LSIL standard III. 5, also suggests the application of metacognition:¹²⁸

5. Determine whether the initial queries should be revised.

Examples of behaviors that indicate mastery:

- a. Determining if original information need has been satisfied or if additional information is needed.
- b. Reviewing research strategies and incorporating additional concepts as necessary.¹²⁹

Assessment of whether there is an information need and whether research efforts have satisfied that need are enhanced when metacognition is considered. Metacognition causes the student to consider not just whether she has an answer, or even the right answer, but whether she knows it. Concept formation and assessment¹³⁰ is inherently metacognitive. The nuanced addition is whether the new information has "informed" or changed the student's mental construct or schema of the law.

¹²⁶ Kim-Prieto, *supra* note 65, at 622.

¹²⁷ See Collins, Brown & Newman, *supra* note 31, at 458.

¹²⁸ See *supra* notes 124 and accompanying text.

¹²⁹ Kim-Prieto, *supra* note 65, at 623 (emphasis added).

¹³⁰ See *supra* notes 9–13 and accompanying text.

Law Student Research Competencies and Information Literacy Principles

Like LSIL, the Law Student Research Competencies and Information Literacy Principles incorporate ACRL's structure of *identify, access, evaluate, apply, and ethical and legal issues*.¹³¹ Like LSIL, the Principles focus on actions (in this case what students "should do"). Once again, metacognition may be used as a lens in interpreting the standards at specific points to enhance those Principles. Similarly to LSIL, the Principles call for consultation with experts in the validation of results.¹³² However, exposing students to metacognition stresses not only checking the results, but how experts would approach and solve the research problem.¹³³ Documenting researcher strategies, as required in the last bullet point of Principle II,¹³⁴ can also be magnified under the lens of instruction in metacognition to be a reflective exercise, where not only the resources, and not only the strategies, are examined, but the thought processes (for example, "what was I thinking when ...?") that led the student on his or her way to the results. To make documentation of legal research strategies more effective, the exercise may require students to answer, "What would I do differently next time I have a similar problem?"¹³⁵ I have provided several suggested activities to encourage this type of reflection in Exercise 1, 2, and 4 at the end of the chapter. Another intersection point for metacognition and the Principles is Principle IV, as described in the second and third bullet points, stated as:

- **Law students should modify the initial research strategy as suggested by preliminary results.** They should *incorporate additional concepts* when implicated by preliminary results,

¹³¹ See *supra* note 121 and accompanying text.

¹³² Compare Principle II, third bullet point (see Kim-Prieto, *supra* note 65, at 628 and note 118); with LSIL standard III. 4 (quoted at text accompanying *supra* note 121).

¹³³ See *supra* notes 33–35 and accompanying text.

¹³⁴ See Kim-Prieto, *supra* note 65, at 628 (and also note 118).

¹³⁵ See the last row of Table 1, which includes in a definition of *metacognition*, "The capacity and discipline of expert problem solvers ... (3) to then expand their achieved knowledge base, acquire new skills, engage in progressive research iterations, and modify their future behavior, thinking, and schema to meet the problem at hand and similar problems in the future."

and expand or narrow research queries *when they retrieve unanticipated results* due to the coverage of research tools or the operation of search engines.

- **Law students should determine when research has provided sufficient background to explain or support a conclusion.** They should ensure that *all questions posed are answered*. They should *identify unresolved issues* and incorporate as appropriate analogous background where research did not clearly resolve the issue posed.¹³⁶

Again, concept formation, modification of search strategies, determination if the question is answered (or better, "Do I now know what I need to know?"), and identifying what is left unresolved (or "What do I still not understand?") can all benefit from careful consideration of metacognition. It is not just about responding to each element of the research question, but more fundamentally, successful research requires fundamental changes in the student's understanding or knowledge construct or schemata of various points of law. Even more profoundly, it requires that the student understand that he or she may have to enhance his or her constructs and schemata and may have to master new strategies to solve the problem at hand. Exercise 3 is an attempt to illustrate the importance of questioning and revising one's schemata.

Legal Research Competencies and Standards for Law Student Information Literacy

The work of the AALL Task Force articulated a definitive set of standards, the *AALL Legal Research Competencies and Standards for Law Student Information Literacy* (the "LRCS").¹³⁷ When viewed through the lens of metacognition, LRCS was worth the wait.

Principle I, "A successful legal researcher applies information effectively to resolve a specific issue or need," stands out as a motivator for teaching metacognition. Particularly poignant is paragraph B.

B. Modifies initial research strategies as necessary.

Knowledge and skills required:

¹³⁶ Kim-Prieto, *supra* note 65, at 629 (emphasis added).

¹³⁷ See *supra* note 119.

1. Understanding research as a *recursive process*, and expanding or narrowing research queries after discovering *unanticipated results*.

2. *Reflecting on the successes or failures of prior strategies* for integrating new information into the analysis; and utilizing concepts, theories, and facts *from prior research to continue the process*.

3. Recognizing when *specific questions* within the larger research problem *have not been answered* with the information compiled, by either:

a. Recognizing when *the ultimate questions presented have not been fully answered* through the research already obtained, or

b. *Realizing when sufficient research has been completed* to address the legal issue or information need.¹³⁸

Recognizing the need for recursive processes (particularly recursive thinking processes),¹³⁹ the unanticipated (prediction is particularly important to metacognition),¹⁴⁰ reflecting on failure and success,¹⁴¹

¹³⁸ See *supra* note 119 (emphasis added).

¹³⁹ See Carnegie Report, *supra* note 6, at 98 (cognitive researchers discover importance of "iterative processes"); *id.* at 100 ("teachers of legal practice in several areas such as negotiation, writing, and clinical-legal education have begun to put these ideas [use of iteration and procedural and conceptual models] to effective use."); *id.* at 124 (also quoted at length in accompanying text at *supra* note 91) (discussion of iteration among apprenticeships, the cyclic nature of practice, and pedagogical cycles); see last row of table, *supra* Table 1 above (The capacity and discipline of expert problem solvers (3) to then expand their achieved knowledge base, acquire new skills, *engage in progressive research iterations*, and modify their future behavior, thinking, and schemata to meet the problem at hand and similar problems in the future.") (emphasis added); and text accompanying *supra* notes 101–102 (commenting on the Boulder Signature Pedagogy Statement, which stresses "inculcating the practice of iterative research strategies").

¹⁴⁰ See *supra* note 107 (discussing "feelings of knowing" in advance and prediction).

¹⁴¹ See Moulin, *supra* note 7 (Thus, through metacognition, we will reflect on our performance and modify behavior accordingly, terminating study when monitoring tells us that information is well learnt."); Collins Brown, & Newman, *supra* note 31, at 458 ("reflection on the differences between novice and expert performance by alternation between expert and novice efforts"); and Carnegie

modifying research behavior,¹⁴² strategizing,¹⁴³ assessing what one knows compared to what one needs to know,¹⁴⁴ and determining when sufficient research is done (especially if considered in the context of what one knows)¹⁴⁵—and the awareness of the need for all of these activities—are at the heart of metacognition.¹⁴⁶

Report, *supra* note 6, at 124 (“a back-and-forth cycle of action and reflection—also characterizes most legal practice”).

¹⁴² See *supra* notes 7 and 17 and accompanying text.

¹⁴³ See *supra* notes 20–25 and accompanying text (discussion of cognitive strategies); Limmer, *supra* note 36 (“Students become metacognitive ... when the student can control which learning strategies are appropriate for a given course.”); last row, “Concept Definition,” of *supra* Table 1 (“The capacity and discipline of expert problem solvers (1) to predict ... what learning and problem-solving skills, methods and *strategies* will be most effective, (2) to interrupt thinking processes and activities to assess current performance and to determine the adequacy of their ... *strategies*”) (emphasis added).

¹⁴⁴ See last row, “concept definition”, of *supra* Table 1 (“The capacity and discipline of expert problem solvers (1) to predict what they may need to add to their initial knowledge base or schemata..., (2) ... to determine the adequacy of their achieved knowledge base, schemata ..., and (3) to then expand their achieved knowledge base”) (emphasis added). Interestingly, the ACRL Information Literacy Competency Standards for Higher Education, include “[d]etermine the extent of information needed” as the first element in their definition of information literacy and what an “information literate person” can do. American Library Association, Association of College and Research Libraries, Information Literacy Competency Standards for Higher Education 2 (2000), <http://www.ala.org/acrl/sites/ala.org.acrl/files/content/standards/standards.pdf>. This appears to be an omission from all of the AALL standards discussed in this chapter.

¹⁴⁵ See text accompanying *supra* notes 105–107.

¹⁴⁶ See DRISCOLL, *supra* note 7, at 103 (metacognition is the “awareness of thinking and the self-regulatory behavior ... that accompanies awareness.”); SMITH & RAGAN, *supra* note 14, at 245 (“Metacognition involves students’ awareness of their own cognitive processes, their ability to control these processes by selecting among cognitive strategies, and their ability to monitor, evaluate, and strategy use.”); and text accompanying note 25–26. The Carnegie Report also emphasizes awareness and refers to it as part of its concept of *intentional learning*:

Teaching for *intentional learning* aims explicitly at enabling students to become *aware* of what they are doing as they learn law.... [S]tudents learn more effectively when they become ‘metacognitive,’ or *aware* of what they are trying to accomplish (rather than just trying to pass a test, for example) Such a pedagogy pays direct attention to student learning through devices such as making

Particularly impressive is that the requirements are stated as competencies of *knowledge* and *skills* rather than in terms of "evidences of behavior" (as in the draft LSIL standards) and in terms of what students "should" do (as in the Principles). The distinction may be subtle—both LSIL and LRSC use a host of gerunds that describe both mental and physical activities—however, these activities are expressed in the LRSC in a more cognitive context, while the earlier standards are stated in more behavioral terms.¹⁴⁷ The subtlety is evident in LRSC's preamble: "Highly competent research skills, effective problem solving skills, and critical thinking skills are keys to success in all areas of legal practices of today and the future."¹⁴⁸

Like other standards, the LRCS also emphasizes knowing when the research is done. From Principle IV.C.: "Understands when research has answered all questions posed, and when it provides sufficient background to explain or support a conclusion."¹⁴⁹ The connection of knowing to metacognition is based upon "knowing when the research is done" has already been discussed above.¹⁵⁰

Finally, the LRCS does an excellent job of linking lifelong learning to professional ethics. Principle V.C. states that the information literate: "Understand[] that research skills are among the set of professional skills that are continuously learned and re-learned throughout one's professional life."¹⁵¹ The commitment to lifelong learning is driven home with requiring the skill of "[c]omprehending that legal research skills, like legal standards, are 'moving targets' subject to further refinement and development as the universe of legal knowledge (and

goals explicit and coaching toward these goals; formative assessment is then linked to them.

Carnegie Report, *supra* note 6, at 179–80 (emphasis added). See also Limmer, *supra* note 36 ("Students become metacognitive, or engage in the process of 'thinking about thinking,' when they are aware of how they learn and when the student can control which learning strategies are appropriate for a given course.") and text accompanying *supra* notes 44–50.

¹⁴⁷ See text accompanying *supra* notes 122–123 and 132.

¹⁴⁸ See the preamble to the LRCS, *supra* note 119.

¹⁴⁹ Compare IV.C of the LRCS., *supra* note 119, with standard IV.4. of the LSIL standard, *supra* note 116, and the third bullet point of IV of the Principles, *supra* note 118.

¹⁵⁰ See *supra* notes 143–146 and accompanying text.

¹⁵¹ V.C of the LRCS., *supra* note 119 Exhibit E.

legal research tools) expands."¹⁵² Quirk's book on medical education and metacognition has particularly emphasized the importance of lifelong learning.¹⁵³ It is part of the tacit structure of legal education in general and legal research education. As such, it is essential.¹⁵⁴

AALL has articulated a standard for information literacy that has deep pedagogical roots and is compatible with metacognition. At last, the field of legal research education can be built upon a sure foundation.

In Conclusion: Comments on Teaching Metacognition

At the end of this chapter, I have set forth six lesson plans or activities that may help students develop metacognitive capacities in the context of legal research. By way of disclaimer, I must disclose that I have not tried all of the exercises below—chiefly because some only occurred to me while exploring the nuances of metacognition for this chapter. I have no doubt that many other, more innovative approaches will be taken by some of my colleagues. Indeed, many readers may find they are teaching metacognition without having been previously aware of it, and simple adjustments to their current lessons will make the concept more explicit.

I make no claim that these lessons address all of the facets of metacognition discussed in this chapter. Indeed, some aspects of metacognition will be taught in small “metacognitive moments,” when a good instructor helps a student struggling with a particular problem see the lighthouse through the fog. Outside of the context of specifically designed lessons, the students’ capacity for metacognition can also be enhanced by “thinking out loud” exercises, whereby the instructor

¹⁵² *Id.* at V.C.3.

¹⁵³ QUIRK, *supra* note 4, at xvii.

For more than a century, educators have exhorted curriculum leaders to adopt *lifelong learning* as a guiding force in medical education. Although there has been widespread agreement in principle, substantive change in this direction remains elusive. Why? Because the current paradigm for medical education does not support lifelong learning.

Id. (emphasis added).

¹⁵⁴ See text accompanying *supra* notes 50, 54, and 105. See also the description of *Tacit Structure*, Boulder Conferences Statement on Legal Pedagogy, Appendix B, *infra* p. 261.

models solving a research problem in front of the class. Sometimes it is important not to be too prepared to teach the problem—it helps for the student to see the instructor struggle and sweat, only to have a eureka moment by switching to a different strategy. I have often had this experience in front of a class when I have failed at searching for something on an online database, only to be successful by giving up and trying an index (often in print).

I have organized the six lessons around the first three structures of the Boulder Statements' Signature Pedagogy Statement. The last structure—the shadow—is not listed, because it is the unseen structure. Depending on the viewpoint, it is either what is missing from our pedagogy (which I have attempted to describe in this article) or what I have missed. For purposes of “structural” classification, my own belief is that by asking students to think about “why my research failed?”, we come nearest to bringing metacognition to the surface. Consequently, I have included it as part of the surface structure of my aspirational signature pedagogy in Exercise 1 and 2. In contrast, I suspect that the importance of constructs or schemata to research is still not widely understood. Perhaps because I am disposed to cognitive descriptions of pedagogy, I view making constructs and schemata explicit as part of the deep structure—it constitutes the underlying principles that need to be learned. Exercise 3 addresses the importance of constructs and is part of the Tacit Structure. Exercise 4 is likewise linked to the Tacit Structure because it concerns self-awareness of planning, interruption, iteration, and other mental and behavior processes. Finally, in Exercise 5, I have linked the idea of using a heuristic to maintain a certain professional standard or best practice to values, and in Exercise 6, I have emphasized life-long learning as part of professional identity.

Metacognition Lesson Plans and Exercises
Categorized by Signature Pedagogy Structural Element
Surface Structure

Exercise 1. Why did my Research Effort Fail? The Necessity of Iterative Research

Learning Objective:

Student will learn from failed effort to identify a common reason why research efforts fail—the failure to consider the iterative nature of research. Students will also recognize that the key terms and concepts found in statutes and regulations often require additional research.

Assignment (Research Problem) Instructions:

You represent a non-profit group of evangelical Christian churches that in general are dedicated to providing service to the community through activities such food kitchens and homeless shelters.

They wish to sponsor a state constitutional amendment opposing same-sex marriage but are concerned about whether this will adversely affect their non-profit status. What do you advise?

A Typical Student Answer:

The church would lose their tax exempt status by engaging in lobbying that attempts to influence legislation related to same-sex marriage.

Corporations ... or foundations having religious ... purposes ... are tax-exempt if no substantial part of the organization's activities consists of propaganda or otherwise attempting to influence legislation.¹⁵⁵

Evaluation of Student Answer:

Student does not understand the iterative nature of legal research and so answer fails to get to the real question: What is *substantial*?

¹⁵⁵ Requirements for Tax-Exempt Status, FEDERAL TAX COORDINATOR 2d ¶ D-4101 (2012) (emphasis added).

Post Research Problem Activity

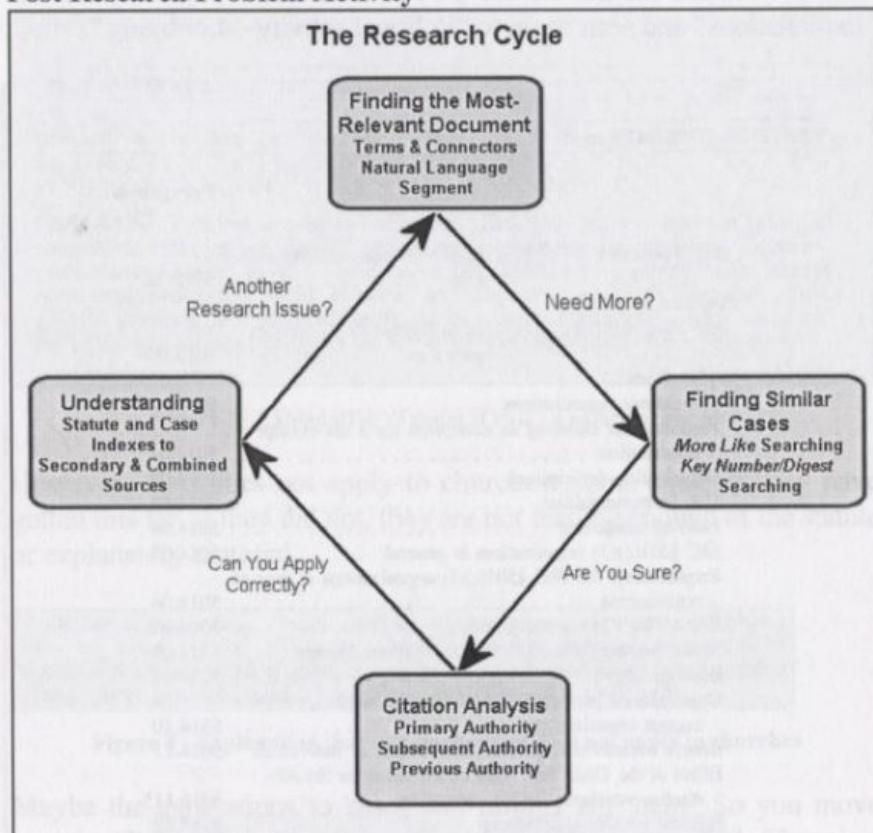


Figure 1-The Research Cycle

The instructor may want to review the diagram of the research cycle with the students and discuss other examples where research becomes iterative. One example, as in this case, occurs when an answer to a research inquiry is based upon statutes where the student finds a relevant code section, but then fails to see the need to seek definitions of key terms from the section in other sections of the code, in regulations, or in case law and administrative rulings. Sometimes, commentary about the code section may point to such definitions.

The instructor may want to walk through the problem in the following way. Ask the students what the issues and key terms are. Someone should up with *lobbying* as a term although there are other terms for other issues. Use 8A United States Tax Reporter. Turn to the

table of contents for the tab for § 501. Turn to the page that has the "Explanations" and scan down to "Political activity—Lobbying."

TABLE OF CONTENTS <i>cont.</i>		
	Paragraph [¶]	
Reg. 1.501(k)-1	Communist-controlled organiza- tions	5012.32
Proposed Regulations		
Prop. Reg. 1.501(c)(20)-1	Qualified group legal services plan trust	5013.003
Explanations		
Tax-exempt organizations	5014	
Procedure for claiming an exemption for a tax-exempt organization	5014.01	
Organization descriptions	5014.02	
U.S. instrumentalities	5014.03	
Holding companies	5014.04	
IRC §501(c)(3) organizations in general	5014.05	
Requirements for IRC §501(c)(3) organizations at time of organization	5014.06	
IRC §501(c)(3) exempt purposes	5014.07	
Public purposes distinguished from private interest	5014.08	
Business activity	5014.09	
Organizations performing supporting functions for other exempt organizations	5014.10	
Benefit inurement to private shareholders or individuals	5014.11	
Effect of the Code Sec. 4958 excise taxes on the sub- stantive standards for tax exemption	5014.115	
Political activity—Lobbying	5014.12	
Civic leagues and local employee associations	5014.13	
Labor, agricultural and horticultural organizations	5014.14	
Business leagues	5014.15	
Social clubs	5014.16	

**Figure 2 - Table of Contents for Thomson Reuters RIA, US Tax Reporter, volume 8A,
tab for section 501, "Exempt Organizations"**

This will lead to an explanation that there is a safe harbor test—a dollar limitation for "direct and grass roots lobbying."

EXPLANATION cont'd. IRC §501

taxes also apply. Reg. §1.501(c)(3)-1(f)(2)(iv), Ex. 1; Reg. §1.501(c)(3)-1(f)(2)(iv), Ex. 2; Reg. §1.501(c)(3)-1(f)(2)(iv), Ex. 3; Reg. §1.501(c)(3)-1(f)(2)(iv), Ex. 4; Reg. §1.501(c)(3)-1(f)(2)(iv), Ex. 5; Reg. §1.501(c)(3)-1(f)(2)(iv), Ex. 6.

[¶5014.12] Political activity—Lobbying. IRC §501(h) sets optional rules for permissible lobbying activities of certain public charitable organizations. These organizations can elect to be covered under IRC §501(h) or continue under general rules explained below under Political and Legislative Activity. Generally, IRC §501(h) provides for a dollar limitation on permissible direct and grass roots lobbying defined in terms of expenditures for influencing legislation. Under the general

Figure 3 - Explanation of general rule - a safer harbor test

However, ... it does not apply to churches. Some students may have gotten this far. If they did not, they are not reading enough of the statute or explanatory material.

Eligible organizations. Public charities eligible to elect the optional lobbying rules are listed in IRC §501(h)(4). Churches or convention of association of churches (or an integrated auxiliary or member of an affiliated group that includes a church) aren't permitted to elect under these provisions. IRC §501(h)(5).

Figure 4 - Explanation that safe harbor test does not apply to churches

Maybe the annotations to cases and rulings will help? So you move past the "Explanation" section to the last one for section 501. There is a table of contents for the annotations.

ANNOTATIONS IRC §501	
(8) Health care facilities	(45) Student loans
(9) Pharmacy	(50) Church subsidiary formed to manage businesses
(10) Hospitals and clinics	(55) Training programs
(15) Homes or sanitariums for the aged and handicapped	(70) Miscellaneous business activities
(20) Regulating health care	Benefit inurement to private shareholders or individuals ¶5015.11
(25) Organizations providing benefits to public employees or their families	(5) Private shareholder or individual defined
(30) Organizations providing benefits to employees of private employers	(10) Organization's activities claimed to benefit private shareholders or individuals
(32) Organization providing benefits for its membership	(15) Payment of purchase-price debts
(35) Organizations providing scholarships	(20) Compensation
(37) Organizations providing computer information	(25) Rent
(40) Individual beneficiaries	(30) Reimbursements for expenses
(42) Trust's purchase from creator	(35) Free facilities or services
(45) Organizations providing benefits to family members	(40) Gifts received subject to burdens
(50) Corporations contributing funds and realty to organization which established park	(45) Reversionary interest
	(50) Miscellaneous
	Political activity ¶5015.12
	(5) Minor activities
	(6) Direct influence of legislation
	(7) Indirect influence of legislation

Figure 5 - Table of Contents for Annotations Section

Under the heading "Political activity," you note that there is a "Minor activities" subheading. Pursuing that you find in the annotations section, a listing on point.

TC MEMO 2007-89, TCM TC MEMO ¶2007-85, 95 CCH TCM ¶92.	
ind	[¶5015.12] Political activity.
sk	(5) Minor activities.
ick	Attempts to influence legislation was minor activity (5%) in relation to other activities. Exempt.
efiz	<i>Seasongood v Comm. (1955, CA6) 48 AFTR 711, 227 F2d 907, 56-1 USTC ¶9135, rev'd (1954) 22 TC 671.</i>
nc	(6) Direct influence of legislation. IRC §501(c)(3) over that attempts to influ
ob	
ize	
n'	
ay	
vn	
TC	

Figure 6 - Annotation citing Seasongood v. Commissioner

If we were to pursue additional iterations of research, we would first note that *Seasongood v. Commissioner* is a 1955 case, and it only applies to the Sixth Circuit. Furthermore, the case precedes the safe harbor rule described above. Following the Research Cycle, we need to use *Seasongood v. Commissioner* to find other similar cases, and in particular, cases that may have come down for churches or groups that did not qualify for the safe-harbor after the safe harbor rule. Through citation analysis on Westlaw KeyCite and the citator function on RIA Checkpoint, we find citations in 212 documents, including cases and ALR. In addition, if we search "227 F2d 907" in Thomson Reuters RIA Checkpoint, there are several references and some discussion of the case and the meaning of "substantial" in an IRS Private Letter Ruling, a General Counsel Memorandum, a Tax Court Memorandum, the IRS Manual, and an article in a RIA WG&L publication. Only by having pursued iterative cycles of research into the citations to *Seasongood v. Commissioner* have we uncovered that the meaning of "substantial" in 501(c)(3) (outside of the context of the safe harbor rule in 501(h)) has been treated by many different primary and secondary authorities. Without needing to review many of these authorities in class, instead reemphasize the importance of being conscious of the need to follow the research cycle.

Exercise 2: Why did my Research Effort Fail? Identifying Gaps in Knowledge

Learning Objective:

Students will learn to recognize when their knowledge base is insufficient to solve the problem. The student will understand that this deficit can be remedied by defining what concepts or gaps in knowledge exist and by then reading background materials, particularly in handbooks and other secondary sources.

Assignment - Research Problem:

You represent a partnership of two doctors. Under California law debtor-creditor law (excluding consideration of bankruptcy), are their retirement plan assets, including distributions at retirement, beyond the reach of creditors? Because the plan has no other participants than the two doctors, it does not fall under the protections from creditors offered by the federal statute ERISA. The doctors are opposed to filing for bankruptcy. The only issue is determining whether retirement plan

assets are beyond the reach of the partners' creditors under California law.

Typical Student Answer:

Retirement plan assets are protected from the reach of creditors under California Code of Civil Procedure § 704.115.

Evaluation of Student Answer:

The student has failed to recognize a subtle distinction under the statute. Assets of "private retirement plans," including "profit sharing plans" are *wholly exempted* from creditors, even after distribution to the debtors, under paragraphs (a), (b), and (d), but the assets of "Self-Employed Plans" are exempted under (a)(3) and (e) "only to the extent necessary to provide for the support of the judgment debtor when the judgment debtor retires and for the support of the spouse and dependents of the judgment debtor"¹⁵⁶ The issue for further research is what constitutes a "self-employed plan" and determine whether the clients' retirement plans falls into that category. This requires reviewing annotations and background literature. The annotated cases reveal that *Keogh plans* (profit sharing plans not sponsored by corporations) and IRAs sponsored by an individual are treated differently than plans sponsored by corporations.¹⁵⁷ They are "self-employed plans" and are only protected to the extent needed for the debtor's support. However, the language of the statute does not define "self-employed" retirement plan. By reading background material on types of retirement plans, the student should have eventually realized that the partnership's profit

¹⁵⁶ See CALIFORNIA CODE OF CIVIL PROCEDURE § 704.115(e) (effective Jan. 1, 2001), *In re Cheng*, 943 F.2d 1114 (9th Cir. 1991), *In re Davis*, 323 B.R. 732, 735-36 (B.A.P. 9th Cir. 2005), and *In re Moses*, 167 F.3d 470, 476 (9th Cir. 1999). Note that federal bankruptcy courts have interpreted the statute because debtors may elect to apply state debtor-creditor exemptions under § 522(b)(3)(A).

¹⁵⁷ See, e.g., Nancy Yuenger & William Lindsley, *Private Retirement Benefits*, 30 CAL. JUR. 3d § 294 (updated Nov. 2012), *In re Cheng*, 943 F.2d 1114 (9th Cir. 1991), *In re Davis*, 323 B.R. 732, 735-36 (B.A.P. 9th Cir. 2005) and *In re Moses*, 167 F.3d 470, 476 (9th Cir. 1999). Note that federal bankruptcy courts have interpreted the statute because debtors may elect to apply state debtor-creditor exemptions under § 522(b)(3)(A). Some student may raise the issue of California's spendthrift trust legislation, which might offer complete protection of assets, but this only appears to apply to plan assets in the context of bankruptcy. See *In re Moses*, 167 F.3d at 476.

sharing plan fits the description of a Keogh plan.¹⁵⁸ Consequently, it is treated as a self-employed plan and the exemption is limited.

In this example, the student fails to recognize that his or her knowledge base is inadequate with respect to what types of retirement plans exist and how to classify the clients' plan. The student needs to understand the importance of always thinking through whether there are any technical terms that require background reading.

Post Research Problem Activity:

Rather than immediately explaining why students may have failed in their research effort, query them about their understanding of the problem. See if they can recognize whether there are any "blind spots" or gaps in their knowledge base, such as the definition of technical terms and understanding of the basic kinds of retirement plans. If not point it out and explain the problem.

Ask students to write a short reflective essay on how they can ensure this does not happen in the future, perhaps with respect to their own outline of working the problem.

Deep Structure Exercises

Exercise 3. Understanding the Importance of Making Construct Formation and Adaptation Explicit

Learning Objective:

Student will recognize that a particular construct (in this case a conceptual map) does not apply in every situation. Indeed, it may hinder understanding.

Prerequisites:

Students should already be familiar with the chart of primary law divided based on branch of government and manner of organization.

¹⁵⁸ Background materials might include Michael J. Canan & Gray Robinson, *Plans Covering Unincorporated Businesses, S Corporations and Top-Heavy Plans*, 1 QUAL. RETIREMENT PLANS § 5:1 (2011 ed.) (available on Westlaw), *Self-Employed and Individual Plans*, 1-15 FEDERAL TAX GUIDEBOOK § 15.05 (2012), Keogh Plan, Investopedia, <http://www.investopedia.com/terms/k/keoghplan.asp> (last visited Oct. 26, 2012).

Quiz/Assignment Instructions:**Table 2**

Match the following resources to their appropriate box in the chart of primary law, which has been previously introduced and explained to you. Classify sources by branches of government and by their organization (chronological, topical or by citation).

For Primary Materials, Determine the Kind of Law, Jurisdiction and Appropriate Arrangement*				
Institution	Kind of Law	How the Law is Published (Arrangements)		
		Chronologically	Topically	By Citation
	Legislature	Statutory Law		
	Courts	Case Law		
	Agencies and Executive Branch	Administrative Law		

*Table based upon Christopher G. Wren and Jill Robinson Wren, *The Teaching of Legal Research*, 80 Law Libr. J. 7, 35 (Matrix A) (1988). See also Christopher G. Wren and Jill Robinson Wren, *The Legal Research Manual* 17 (fig. K) (2d ed. 1986).

- | | | |
|-------------------------------|-------------------------|-------------------------------|
| a) US Code | j) Federal Register | s) Southwest Reporter |
| b) Federal Register | Rule Notice | Missouri Case |
| Regulation | k) Code of Federal | t) Missouri Register |
| c) Keycite a Case | Regulations | u) Federalist Papers |
| d) Federal Digest | l) Shepardize a Code | v) Vernon's Annotated |
| e) ALR 5th | Section | Missouri Code |
| f) Senate Hearing Report | m) Missouri Laws | w) The Bern |
| g) Missouri Digest | n) Keycite a Code | Convention |
| h) Statutes at Large | Section | x) Ruling by Attorney |
| i) Supreme Court Amicus Brief | o) US Constitution | General |
| | p) Congressional Record | y) Internal Revenue Procedure |
| | q) Trial Motion | |
| | r) Federal Court Rules | |

Post Quiz/Assignment Discussion:

See if students recognize that the model often does not fit even though the items all appear to be primary law (e.g., e [ALR is not just a primary resource], f [need a better model that takes in process prior to preparing a statute], i [similar to f], j [similar to f], o [chart is limited to law of three branches of government], p [similar to f], q [similar to f], r [court and evidence rules are not really a neat fit because they do not resemble other items in the box—they are more like regulations than case law], u [neither constitution nor explanatory or pre-constitutional documents have a place], and w [treaties find no place either], x [an administrative ruling looks like case law, but it does not fit neatly in boxes with regulations; rather, it is a post-regulation process and its own unique category], and y [similar to x, but the primary authority is post regulation and is more regulatory than case-like in character]).

Post Quiz/Assignment Instructions:

Can you adapt the conceptual map of primary law resources to accommodate other types of “Primary Law” that do not fit the current model?

Review:

Students should present their conceptual map. Instructor may want to compare their maps to Peter Hook’s model below.

The instructor may then want to take this opportunity to discuss the importance of constructs, schemata, and conceptual models.

Every 15-18-20 minutes, students group themselves together so that items (c), (d) and (e) can be monitored.

does it make? - Exhibit

¹⁰ This baseline is based upon one used in medical education. See [http://www.acgme.org](#) and accompanying text.

LEGAL RESOURCES CONCEPTUAL FRAMEWORK

POST CREATION VALIDATION	PRIMARY SOURCES (ACTUAL LAW)	PRECURSOR DOCUMENTS
	CONSTITUTIONS and Charters Establish the framework of government. 	Historical Records of Constitutional Conventions Journals and Comm. Prints Hearings Conference Reports Transcripts Pres. Signing Statements
Update with an annotated copy of the constitution. Shepard's Federal Statute Citations / KeyCite	Legislative Chronological Access Executive Chronological Access Judicial Chronological Access	NOTICE AND COMMENT RULE-MAKING DOCUMENTS (Federal Register, Agency Archives) Bills Comm. Prints Debates Hearings Conference Reports Transcripts Pres. Signing Statements
Internet / Commercial Databases	Shepard's Regulations / KeyCite Shepard's Statutes / KeyCite	PARTY BRIEFS & CASE FILE / DOCKET (Kept at the clerk's office in the courthouse in which the case was heard. Some documents available online through PACER and state online docket systems.)
Internet / Commercial Databases	Shepard's / KeyCite	

Table 3 - Source: Peter Hook.

Reflection Short Essay Exercise:

Reflect upon how constructs influence your thinking for good and bad. How are they part of your learning? How can they be used to improve legal research skills? How is making a construct explicit and a part of your regular process for approaching learning and research helpful? Can you give any examples?

Exercise 4. Planning and Interruption**Learning Outcome:**

Students will recognize the importance of planning their research strategy and interrupting their research and thinking in order to assess whether they are following their plan, whether the plan needs to be modified, or whether they are "spinning their wheels."

Activity:

Divide the students into groups of five and ask them to conduct research in Westlaw on how to go about preparing an estate plan in which a client leaves \$10,000,000 to himself. The client plans to undergo cryonic suspension upon death with the hope that future technology will bring him back to life. He would like to have his estate back if that happens.

Before commencing the research, ask each group to designate members of the group to record or monitor the following:

- (a) Definition and prioritization of goals for the project
- (b) Anticipation and assessment of specific information needs in relation to the goals
- (c) Organization (and periodic reorganization) of the research effort in order to meet information needs
- (d) Recognition and definition of how different perspectives of group members may affect the effort
- (e) Continuous monitoring of knowledge base, problem solving, and interactions with others¹⁵⁹

Every 15 to 20 minutes ask the group to meet back together so that items (c), (d) and (e) can be monitored.

¹⁵⁹ This heuristic is based upon one used in medical education. See *supra* note 41 and accompanying text.

Post Activity Discussion

Ask the groups to report back on each of the elements above. Take time to point out how each of the elements may have affected progress toward the ultimate goal. In particular stress how experts plan, assesses, identify their knowledge base and interrupt their thinking as they approach problems. The critical component of this exercise is to make these thinking and social processes explicit.

As of this writing, there is almost nothing on cryonic estate planning on Westlaw. Students will have to reformulate issues to think analogously about who can be the beneficiary of the trust, the rule against perpetuities, death taxes, and anatomical gifts. They may need to fill-in knowledge gaps about the purposes and functions of trusts and about when estate taxes are an issue. They may need to move away from a database search strategy to using indexes to find the material that will help them achieve the understanding necessary to approach the problem.

Tacit Structure Exercises

Exercise 5. Am I Done? Was I Competent?

Learning Outcome:

Students will understand how to develop and apply heuristics or schemata to ensure their research is up to professional standards and complete.

Activity:

Have students read the following passage and study its footnotes from Barbara Glesner Fines' article, *Out of the Shadows: Incorporating Legal Research Instruction throughout the Curriculum*:

Failure to conduct legal research competently can have career-ending results. Research is a core professional responsibility in representing clients; lapses can result in discipline.¹ Courts may impose sanctions for inadequate research. For example, Rule 11 of the Federal Rules of Civil Procedure requires that pleadings be "warranted by existing law or by a non-frivolous argument for the extension, modification, or reversal of existing law or the establishment of new law."² Malpractice liability may also result.³

¹ ABA Model Rules of Professional Conduct, Rule 1.1 Competency (2012). While the prior Code of Professional Conduct did not address research specifically, its centrality to competent representation was implied by the requirement that

attorneys "prepare" cases adequately and insure that courts are "fully informed on the applicable law". ABA Model Code of Professional Conduct, EC 6-4 & EC 7-23 (1980). Attorneys have been subject to discipline for inadequate legal research. See, e.g., *State ex rel. Counsel for Discipline v. Orr*, 759 N.W.2d 702 (Neb. 2009) (lawyers should not take on "cases in areas of law with which they have no experience, unless they are prepared to do the necessary research to become competent in such areas or associate with an attorney who is competent in such areas")

² Fed. R. Civ. P. 11(b)(2). See generally, Marguerite T. Butler, Rule 11-Sanctions and a Lawyer's Failure to Conduct Competent Legal Research, 29 CAP. U. L. REV. 681 (2002) (reviewing cases).

³ See, e.g., *Helmbrecht v. St. Paul Ins. Co.*, 362 N.W.2d 118 (Wis. 1985) (failure in researching community character of retirement benefits in divorce); *Jerry's Enter. Inc. v. Larkin, Hoffman, Daly & Lindgren Ltd.*, 711 N.W.2d 811 (Minn. 2006) (failure to properly research and anticipate a change in the law that caused an expensive dispute in a real estate transaction).¹⁶⁰

Discuss the different ways attorneys can get into trouble. Then ask students to break out into groups. Explain what a heuristic is—a kind of checklist or steps of a process that can be used to judge something. Ask each group to develop a heuristic to ensure that their research is professionally competent and complete. Also point out that research needs to fall within the budget restraints of the client as well as fulfill the duties to the court under ethical rules. Finally, remind them of the necessity to consider research outside the context of litigation—for instance, transactional law.

Post-Activity Discussion:

To synthesize the groups' heuristics, make a new list on the board or in a projected document. Here are some possibilities items for the list.

- Have I identified holes in my legal knowledge and addressed them through background reading and research?

¹⁶⁰ Barbara Glesner-Fines, *Out of the Shadows: Incorporating Legal Research Instruction throughout the Curriculum*, J. DISPUTE RESOLUTION (forthcoming 2013).

- Have I worked the problem by determining the "who," "what," "why," "when" and "how"?¹⁶¹
- In working the problem, have I extracted all of the relevant and descriptive terms, including subject headings, synonyms, technical terms, entities involved, jurisdictions, time periods and referenced law?¹⁶²
- Have I applied the "research cycle" in a reiterative fashion?¹⁶³
- Do I understand whether the client or supervising attorney wants "every" relevant authority and commentary or just the "most relevant ___ (fill in a number) authorities and commentary?"¹⁶⁴ This is important to budgeting time and expenses.
- Have I identified the most important relevant primary authority? Is this set of authority consistently cited in other authority, including secondary authority?
- Have I identified and consulted the most important secondary authorities in the field?
- Have I discovered the definitions of technical terms in relevant code sections through examining definitional code sections?
- Have I examined annotations for relevant code sections for interpretations and applications of the statute? If the statute is a uniform or model code section, have I reviewed annotations from a multistate version of the code?
- Have I looked for applicable regulations and administrative rulings interpreting and applying applicable code sections?
- Have I considered whether it is necessary to review legislative history, and have I done so if necessary?
- Have I conducted citation analysis and updated the law? Have I identified relevant contrary and distinguishing authority?
- Do I understand relevant authority in context through finding discussion of prominent cases and statutes in secondary author-

¹⁶¹ The Research Cycle, at <http://www1.law.umkc.edu/faculty/callister/bootcamp/Survival/Tab1.html> (last visited Oct. 20, 2012). See also Figure 1.

¹⁶² Picking out Descriptive Words and Phrases, <http://www1.law.umkc.edu/faculty/callister/bootcamp/Survival/Words2.html> (last visited Oct. 20, 2012).

¹⁶³ Working the Problem, at <http://www1.law.umkc.edu/faculty/callister/bootcamp/Survival/tab6.html#Top> (last visited Oct. 20, 2012).

¹⁶⁴ See *supra* note 161 (in particular follow the links to "Precision/Recall" for the web site).

ity (e.g., looking up cases and statutes in tables that accompany many encyclopedic sets)?

- Have I recognized and researched in an iterative fashion new issues that have arisen during research?
- Have I taken measures to be notified of changes in the law—for example, through the use of “clip” services?
- Have I considered what non legal sources—for example, statistical, social science, economic, news, and scientific literature—may be relevant?

At the conclusion of the discussion, you may want to emphasize that part of being an expert is not only applying particular heuristics, but recognizing when such devices need to be adapted to fit new situations and contexts.¹⁶⁵

Exercise 6. A Profession of Learners

Learning Outcomes:

Students will understand that part of being a professional and their ethical duties is to stay informed and become life-long learners. This is a fundamental value of the profession.

Activity:

Have students watch a section *Anatomy of a Murder*, a film where Jimmy Stewart plays a defense attorney. Pick the section in which Jimmy Stewart and his partner entertain themselves with drinks and by reading case law—in particular, Justice Holmes. Ask the students whether they think this an accurate portrayal of lawyers at the time? Even if lawyers do not do this today, you might ask students to think about how they might apply this to being a professional, but in the context of the digital age.

Assignment:

I suggest assigning my article, *Law and Heidegger's Question Concerning Technology: Prolegomenon to Future Librarianship*, 99 LAW LIBR. J. 285–305 (2006). The purpose of the article is to convey the informative nature of reading law as “transformative” and part of the

¹⁶⁵ For an exercise in recognizing when another type of schema is find inadequate, see *Exercise 1. Why did my Research Effort Fail? The Necessity of Iterative Research*.

essence rather than simply a "mining" activity to harvest relevant information. You may want to assign the reading before class, or between classes, with a follow-up session. The entire article is relevant to thinking about legal information and the ethical duties of the profession, but an alternative to reading the whole passage is just to assign paragraphs 29–35.

Ask the students to write a reflective essay on what it means to be a lawyer in terms of a commitment to "lifelong learning." You may need to spend some time on what that may mean. Stress that it may require not only staying informed of the law, but also learning other fields, such as those that are related to their clients' businesses and those of expert witnesses.

Follow-up Activity:

Introduce students to how to distinguish among the different kinds of resources that are used by lawyers to not only research the law, but to stay informed. Explain Table 4 below with particular attention to news and awareness services. You should bring examples of materials into class. The table provides for building a library in two different subjects, one of which could be done with print resources (except for the *Blogs*, *Wikis* and *Internet Sources*) and the other with electronic resources. You may also require the students to determine the cost of the various resources to educate them on the costs of legal research.

Subject _____	Subject _____	
		Flagship Services Most comprehensive. Often includes primary.
		Case or Code Service
		Subject Based Narrower or single subject (e.g. a treatise), but comprehensive
		Hand or Desk Books
		Form-books
		News & Awareness
		Citator
		Blogs, Wikis and Internet Sources
		General Reference

Table 4—Building a Library Exercise