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How to Help Students from Disadvantaged Backgrounds Succeed in Law School

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HOW TO HELP STUDENTS FROM DISADVANTAGED BACKGROUNDS SUCCEED IN LAW SCHOOL

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I. INTRODUCTION

Over the past 50 years, law schools have seen an amazing increase in the diversity of their students. Minorities, women, and the foreign born now make up a significant percentage of those attending law school. However, law school education has changed little in reaction to the new kind of students it must educate. Law schools continue to use the casebook/Socratic method with some modifications at the edges for legal writing and clinics. While law schools have added minority offices, remedial classes, bar review courses, and academic support personnel, these efforts have not helped to the extent hoped.

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Many in legal education view the failure of a significant number of students as inevitable. Some legal educators have contended that many students just cannot learn.[1] Professor Schwartz relates, "According to this view, students come to law school preprogrammed either to succeed or fail and there is nothing law schools can do to change this fact."[2] These educators believe that law professors are doing everything they can to educate their students, and, consequently, law schools and law professors do not need to make any changes in curriculum or teaching methods.[3] Other educators blame the students; they are not working hard enough.[4]

According to Jay Feinman and Marc Feldman, "This concept of legal education . . . assumes that intelligence and knowledge are normally distributed among the population and that *intelligence and talent possessed by an individual are relatively immutable*."[5] They continued, "The complex hierarchies of law schools, law students, law professors, and lawyers' practice settings are justified as reflecting real differences in the abilities of those stratified."[6]

The Author believes that students from disadvantaged backgrounds can succeed in law school and become successful lawyers if law schools adopt new methods of instructing such students.[7] In other words, the problem lies not in the lack of innate ability of their students, but in how law schools deliver instruction to their students.[8] As Professors Feinman and Feldman have asserted,

> This concept of widely distributed intelligence is evil and false. It is evil because it supports social institutions that prevent the full development of human potential and freedom by convincing people of their own inadequacy. It is false because it is inconsistent with mountains of research and years of experience demonstrating that widely distributed learning outcomes are more a product of ineffective schooling than of the abilities of students.[9]

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1. Michael Hunter Schwartz, *Teaching Law Students to Be Self-Regulated Learners*, 2003 MICH. ST. DCL L. REV. 447, 449 (2003) [hereinafter Schwartz, *Teaching Law Students*].

2. *Id.*

3. *Id.* at 449–50.

4. *Id.* at 450.

5. Jay Feinman & Marc Feldman, *Pedagogy and Politics*, 73 GEO. L.J. 875, 896 (1985).

6. *Id.* at 896–97.

7. Geoff Colvin has noted the great advances in athletic ability over the last century, which must be attributed to effort and better training. GEOFF COLVIN, TALENT IS OVERRATED: WHAT REALLY SEPARATES WORLD-CLASS PERFORMERS FROM EVERYBODY ELSE 9 (2008).

8. The techniques in this Article will help all law students. However, students from disadvantaged backgrounds will gain more because they need to "catch up" with students who have had better education.

9. Feinman & Feldman, *supra* note 5, at 897; *see also* Schwartz, *Teaching Law Students*, *supra* note 1, at 451 ("The problem lies not with the learners, but rather, with the teachers and the educational programs.").

First, law schools must change the mindsets of students from disadvantaged backgrounds. Many students at all levels believe that intelligence is fixed. Such a mindset prevents learning because it creates a defeatist attitude; the student cannot learn, so why bother. Law schools need to instill a growth mindset in their students: that with effort, and the proper approach, any student that is qualified to enter law school can succeed in law school.

Second, law schools should help motivate their students. Many students come to law school lacking the motivation to learn. For some students, this is because they have been poor learners for most of their educational careers and have concluded that effort does not help them learn. For others, they have succeeded too well, and they do not want to tackle tasks unless they can do them easily.

Third, law schools must teach their students how to be metacognitive thinkers. Metacognition concerns thinking about thinking—controlling one's cognitive processes. It involves knowing strategies and when to adopt a particular strategy. It concerns monitoring one's learning and activities. It requires thinking about one's learning processes and problem-solving methods so the student can improve those processes.

Fourth, law schools must help students from disadvantaged groups become self-regulated learners. While they take advantage of expert teachers, self-regulated learners can learn on their own. Self-regulated learners are engaged learners, and they are fascinated by learning new things. Self-regulated learners reflect on what they have learned.

Finally, law schools need to help students develop better study habits. Most students use the same study habits in law school that they did in undergraduate school, regardless of whether those habits worked well. In addition, law school involves a different type of learning that involves a different approach to studying.

This Article will begin with a discussion of some basic learning principles, then it will devote a section to each of the above topics.

II. Basic Principles of Learning

The three basic principles of learning are:

1. Learning is a product of working memory allocation.
2. Working memory's capacity for allocation is affected by prior knowledge.
3. Working memory allocation is directed by *motivation*.[10]

Under this model, there are two types of memory: long-term memory and working memory. Knowledge is stored in long-term mem-

10. Duane F. Shell et al., The Unified Learning Model: How Motivational, Cognitive, and Neurobiologal Sciences Inform Best Teaching Practices 3 (2010).

ory.[11] "Knowledge is everything we know or can do that is stored in neurons in long-term memory."[12] Knowledge is stored in chunks—a single entity, which is "an interconnected cluster of neurons."[13] Long-term memory is unconscious; when it is needed, it enters working memory.[14]

Working memory is where thinking occurs.[15] It has two functions—temporary storage and processing of information (combining and rearranging ideas).[16] Working memory is limited; it has only about four slots.[17] The senses receive a great deal of input, which is aggregated into sensory output and sent to the working memory.[18] However, because its capacity is limited, working memory cannot handle all this sensory input. Consequently, one of its functions is "attention"—processing some of the input and ignoring other parts.[19] Attended memory activates neurons in a temporary memory area, which "creates a neural representation of the sensory input in working memory."[20] "Long-term potentiation" preserves this input for a few hours.[21] "If the neural pattern does not decay, it activates a neural pattern in the cortical region that produces a permanent memory trace of the original input."[22] Thus, storage is the "process of turning a specific [sensory] input into a permanent trace" in the long-term memory.[23] Stated differently, "what is stored in long-term memory is what working memory was attending to."[24]

Attention is essential to learning. Simply stated, "If you don't pay attention to something, you can't learn it!"[25] Working memory is devoted to a task when slots are available for input and attention or processing is directed to a slot.[26] Attention is "how many of the elements in working memory storage can be focused on at any time de-

11. *Id.* at 33–34; DANIEL T. WILLINGHAM, WHY DON'T STUDENTS LIKE SCHOOL? 14 (2009) ("*Long-term memory* is the vast storehouse in which you maintain your factual knowledge of the world . . . .").

12. SHELL, *supra* note 10, at 33.

13. *Id.* at 35.

14. WILLINGHAM, *supra* note 11, at 14.

15. *Id.* at 109. Professor Willingham states that "[t]hinking occurs when you combine information in new ways." *Id.*

16. SHELL, *supra* note 10, at 2, 19; WILLINGHAM, *supra* note 11, at 15.

17. SHELL, *supra* note 10, at 27; *see generally* J. Scott Saults & Nelson Cohen, *A Central Capacity Limit to the Simultaneous Storage of Visual and Auditory Arrays in Working Memory*, 136 J. EXPERIMENTAL PSYCHOL.: GEN. 663 (2007).

18. SHELL, *supra* note 10, at 11.

19. *Id.* at 11, 23 ("The first way working memory allocation produces learning is through attention.")

20. *Id.* at 11.

21. *Id.*

22. *Id.*

23. *Id.*

24. *Id.* at 14.

25. WILLINGHAM, *supra* note 11, at 54.

26. SHELL, *supra* note 10, at 22.

spite distractions and interference."[27] Attention directs sensory input, and it prevents a temporary memory from being erased.[28] Novelty and salience affect attention.[29] Humans can focus attention, and this mainly depends on concentration and motivation.

Motivation affects working memory. Scientists have theorized that the key to performance is not how much working memory a person has, but how much is allocated to a task.[30] As can be seen from the above model, motivation affects working memory by helping to allocate how the slots are used.[31] As the developers of this model have asserted, "Motivation is the impetus for directing working memory to a task"; just because working memory slots are available does not mean they are being used.[32]

Chunking ("[t]he phenomenon of tying together separate pieces of information from the environment")[33] affects the efficient use of working memory because a slot can contain a single item, such as a single number, or a complex chunk, such as the requirements for battery.[34] In other words, chunking greatly expands the capacity of working memory; "slots grow as a result of chunking."[35] Connections between thoughts create chunks.[36] When two sensory inputs are in working memory together then stored in long-term memory, the two inputs will form a neural pattern.[37] When one of these inputs is retrieved, it fires the neuron of the other one because the neurons are chained together (matching).[38] This function also occurs when more than two inputs are involved in the pattern: "When one part of a chain is matched, the entire chain is activated because patterns are linked by chaining of neurons."[39]

Finally, repetition is essential to learning because it affects long-term memory and the connections within long-term memory.[40] As noted above, neurons are strengthened by activation, and neural patterns that are not reactivated are hard to retrieve and may decay.[41] To become a permanent memory, a pattern needs to be retrieved again

27. *Id.* at 20.
28. *Id.* at 21, 24.
29. *Id.* at 20.
30. *Id.* at 66.
31. *See id.* at 3, 13.
32. *Id.* at 3, 66 ("Students may have all their working memory capacity available, but if they are not motivated to focus their attention on the learning task, and allocate their capacity to that task, they likely will not learn anything.").
33. WILLINGHAM, *supra* note 11, at 34.
34. SHELL, *supra* note 10, at 27.
35. *Id.* at 28.
36. *Id.* at 36.
37. *Id.* at 12.
38. *Id.*
39. *Id.* Pattern matching is usually not exact. *Id.* at 35.
40. *Id.* at 14.
41. *Id.*

and again.[42] In addition, "It will not be enough to have students generally memorize (store) a fact. The fact must be used."[43]

III. Competence Is Not Fixed

The major impediment preventing law students from disadvantaged backgrounds from succeeding in law school is that they often have the mindset that intelligence is fixed—that humans are born with a level of intelligence that is unchangeable during their lifetimes. If intelligence is unchangeable, Why should I work hard? Recent research has shown that the fixed mindset is not correct, but that with hard work and the proper approach a normal student can increase her intelligence (fluid or malleable intelligence).[44] As a leading expert in this field has stated, "*The view you adopt for yourself* profoundly affects the way you lead your life."[45] One scholar has defined the growth mindset as being "based on the belief that your basic qualities are things you can cultivate through your efforts."[46]

The question of whether intelligence is nature (genetics) or nurture (environment) is easily answerable: it is both.[47] Scientists used to think that intelligence was 50% genetics and 50% environment.[48] Today, many believe that intelligence is probably more environment than genetics.[49] Regardless of who is right, intelligence is at least 50% environment. Consequently, "*Intelligence is malleable. It can be improved.*"[50] Based on this research, the Author believes that almost every student who is admitted to law school can succeed.

The neurobiology of learning discussed in the previous section supports the growth mindset. Working memory use can be improved through attention and motivation. Similarly, long-term memory, which, as will be shown below is vital to thinking and learning, can be

42. *Id.*
43. *Id.*
44. Susan A. Ambrose et al., How Learning Works: Seven Research-Based Principles for Smart Teaching 200–01 (2010); Willingham, *supra* note 11, at 169–87; *see generally* Colvin, *supra* note 7, at 51 ("The research finds that in many fields the relation between intelligence and performance is weak or nonexistent; people with modest IQs sometimes perform outstandingly while people with high IQs sometimes don't get past mediocrity."). Concerning intelligence, one scholar has written, "Intelligent people can understand complex ideas and use different forms of reasoning. They can also overcome obstacles by engaging thought, and they learn from their experiences." Willingham, *supra* note 11, at 170.
45. Carol S. Dweck, Mindset: The New Psychology of Success 6 (2006).
46. *Id.* at 7 ("Do people with this mindset believe that anyone can be anything, that anyone with the proper motivation or education can become Einstein or Beethoven? No, but they believe that a person's true potential is unknown (and unknowable); that it's impossible to foresee what can be accomplished with years of passion, toil, and training.").
47. Willingham, *supra* note 11, at 173; Dweck, *supra* note 45, at 5.
48. Willingham, *supra* note 11, at 175.
49. *Id.* at 173–74.
50. *Id.* at 179.

vastly improved through repetition and retrieval. In sum, the neurobiology of learning demonstrates that intelligence is controlled significantly by the individual.

Students who believe that intelligence is malleable get higher grades than those who do not, so teachers must convince their students that the right kind of hard work pays off.[51] As one scholar has declared, "Mindsets are just beliefs. They're powerful beliefs, but they're just something in your mind, and you can change your mind."[52] The major way of teaching students that intelligence is fluid is to address their beliefs directly.[53] First, "Just by knowing about the two mindsets you can start thinking and reacting in new ways."[54] As a group of scholars has written, "Even if it is not directly germane to the disciplinary content of your course, consider discussing the nature of learning and intelligence with your students to disabuse them of unproductive beliefs (for example, 'I can't draw' or 'I can't do math') and to highlight the positive effects of practice, effort, and adaption."[55] Another technique is to praise their effort rather than their ability.[56] As one author has stated, "Praising process rather than ability ends the unspoken message that intelligence is not under the student's control."[57] Another way to help students understand that intelligence is malleable is to use as examples famous scientists, athletes, authors, and entertainers who have succeeded through hard work.[58] Moreover, the professor needs to convince students that failure is part of learning—that even the greatest scientists failed before they achieved success.[59] As one scholar has noted, "[T]hose with the growth mindset kept on learning. Not worried about measuring—or protecting—their fixed abilities, they looked directly at their mistakes, used the feedback, and altered their strategies accordingly."[60]

You should also be careful not to praise poor work; it is important that praise be accurate.[61] Inaccurate praise is meaningless, and it will

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51. *Id.* at 180. Professor Dweck relates that a mindset workshop had a significant impact on students' learning and grades. DWECK, *supra* note 45, at 215 ("This one adjustment of students' beliefs seemed to unleash the brain power and inspire them to work and achieve.").

52. DWECK, *supra* note 45, at 16.

53. AMBROSE, *supra* note 44, at 212.

54. DWECK, *supra* note 45, at 46; *see also* AMBROSE, *supra* note 44, at 212–15.

55. AMBROSE, *supra* note 44, at 212.

56. WILLINGHAM, *supra* note 11, at 183; *see also* AMBROSE, *supra* note 44, at 202; DWECK, *supra* note 45, at 172.

57. WILLINGHAM, *supra* note 11, at 183.

58. *Id.*

59. *Id.* at 184.

60. DWECK, *supra* note 45, at 111.

61. Elizabeth A. Linnenbrink & Paul R. Pintrich, *Motivation as an Enabler for Academic Success*, 31 SCH. PSYCHOL. REV. 313, 316 (2002), *available at* http://supadoc.syr.edu/docushare/dsweb/Get/Document-26613/motivationAsEnabler2002.pdf.

eventually hurt self-efficacy.[62] Moreover, the student will often see through this and think that you think less of him and his abilities.[63] Finally, teachers need to be careful when delivering feedback. For example, expressing pity in connection with a low grade will cause the student to attribute his failure to lack of ability.[64] A much better strategy is to tell him how he can improve in detail.

A belief that intelligence is fixed can also have a negative effect on students who are labeled as intelligent. When such a student receives a poor grade, she will often attribute it to inaccurate grading or prejudice from the teacher, rather than the fact that she did not work hard enough or that she took the wrong approach.[65] Thus, she will not change her approach or work harder.[66]

IV. MOTIVATING STUDENTS FROM DISADVANTAGED BACKGROUNDS

A major problem with students from disadvantaged groups is motivation. Their experiences have often taught them that learning is not cool or that they cannot learn. Law schools and law professors must create motivation in their students in order to turn out successful law graduates.

Motivation drives the effort needed for learning.[67] As stated above, working memory allocation is directed by *motivation*.[68] In short, motivation is an "academic enabler."[69]

A. *The Basics of Motivation*

One group of scholars has defined motivation as "the personal investment that an individual has in reaching a desired state or outcome."[70] Another group has stated, "Motivation is the psychological construct that is used to describe those things that impel and sustain us in putting forth effort."[71] It is "the general answer to the question of 'why' we do what we do, especially why we do things that are hard to do."[72] From a scientific viewpoint, it is "a dynamic, multifaceted

62. *Id.*
63. WILLINGHAM, *supra* note 11, at 187.
64. Linnenbrink & Pintrich, *supra* note 61, at 317–18.
65. AMBROSE, *supra* note 44, at 201.
66. *Id.*
67. Christopher A. Wolters, *Regulation of Motivation: Evaluating an Underemphasized Aspect of Self-Regulated Learning*, 38 EDUC. PSYCHOL. 189, 202 (2003), *available at* http://www.tandfonline.com/doi/pdf/10.1207/S15326985EP3804_1.
68. SHELL, *supra* note 10, at 3. Other scholars have also stressed the importance of motivation in connection with cognition. *See* Paul R. Pintrich, *Motivation and Classroom Learning*, *in* 7 HANDBOOK OF PSYCHOLOGY 103 (2003) [hereinafter Pintrich, *Motivation*].
69. Linnenbrink & Pintrich, *supra* note 61, at 314.
70. AMBROSE, *supra* note 44, at 68.
71. SHELL, *supra* note 10, at 13–14.
72. *Id.* at 65.

phenomenon," in which "students can be motivated in multiple ways" and which "is not a stable trait of an individual, but is more situated, contextual, and domain specific."[73] Finally, motivation involves "students' choice of activities, the intensity of their effort or level of cognitive engagement within those activities, and their persistence at those activities."[74]

Working memory is substantially connected to and receives input from the emotions.[75] Thus, emotion affects allocation of working memory.[76] More specifically, "Motivation in working memory is derived from emotional inputs as well as from knowledge that has been stored about previous performance, goals, rewards, and ourself. These motivational influences determine the effort level that is put into learning."[77] Of course, effort affects both attention and whether the learner will put in enough work to do the repetitions necessary to develop long-term memory and connections.[78]

There are two types of motivators for learning: cognitive motivators and emotional motivators.[79] Cognitive motivators include "needs for the self, for recognition, achievement, esteem, respect, and confidence."[80]

Because motivation is goal-directed, setting goals is the most important cognitive motivator.[81] Goal theory is based on "achievement motivation"—"behavior is determined by how much students value a particular goal and their expectancy of attaining that goal as a result of performing certain actions."[82] "Once we set a goal, we exert cognitive effort to attain that goal."[83] Goals direct working memory at a task; shifting to a different goal changes working memory allocation.[84] Setting goals also drives processing, allocates attention, sets pattern-matching parameters, and determines whether additional transformations and connections are made.[85]

Goals are cognitive entities, which can be learned and stored in long-term memory.[86] Goals can be parts of chunks, and, like any

73. Linnenbrink & Pintrich, *supra* note 61, at 313–14.
74. Wolters, *supra* note 67, at 190.
75. SHELL, *supra* note 10, at 13.
76. *Id.*
77. *Id.* at 14.
78. *Id.* at 13–14, 24.
79. *Id.* at 68.
80. *Id.*
81. *Id.* at 69–71; *see also* AMBROSE, *supra* note 44, at 70–71 ("[G]oals serve as the basic organizing feature of motivated behavior.").
82. Shawn M. Glynn et al., *Motivation to Learn in General Education Programs*, 54 J. GEN. EDUC. 150, 158 (2005), http://jesserbishop.wiki.westga.edu/file/view/motivation%20general%20education.pdf.
83. SHELL, *supra* note 10, at 69.
84. *Id*.
85. *Id.* at 69; Glynn, *supra* note 82, at 158–59.
86. SHELL, *supra* note 10, at 70.

long-term memory, they can be retrieved by pattern matching from sensory input.[87]

What teachers need to instill in students to create motivation is learning goals ("goals directed at learning new knowledge or mastering a task or problem"; also referred to as "mastery goals").[88] With learning goals, students concentrate on competence and the inherent facets of a task, learning for learning's sake, interest, challenge, and curiosity.[89] Students with learning goals "are more likely to adopt study strategies that result in deeper understanding, to seek help when needed, to persist when faced with difficulty, and to seek out and feel comfortable with challenging tasks."[90] They also do not worry about mistakes because they know that making mistakes is part of the learning process and failing does not hurt their self-esteem.[91]

However, the teacher's goals for the students and the students' goal for themselves may differ.[92] Students usually concentrate on performance goals ("goals directed at demonstrating ability or doing especially well in relation to others"), such as grades, or task goals (regarding assignments "as tasks to complete rather than opportunities to learn"), or even work avoidance goals (getting "through with as little time and effort as possible").[93] Students who have performance goals want to protect their self-image and acquire status, recognition, and praise by appearing competent and intelligent.[94] When students with performance goals do not receive positive external feedback, they can become anxious, apathetic, or depressed, and they often adopt procrastination.[95] Students with work-avoidance goals are trying to avoid looking incompetent, hold little interest in learning, and seem disengaged or alienated.[96] However, a student may have a work-avoidance goal in one class, but a learning goal in another class she is more engaged in.[97]

Scholars also distinguish between intrinsic and extrinsic motivation. Motivation to learn for its own sake is intrinsic, while motivation as a means to an end is mainly extrinsic.[98] These correlate to learning goals and performance goals, respectively. "Intrinsic motivation taps

87. *Id.*

88. *Id.* at 118–21; *see also* AMBROSE, *supra* note 44, at 72 ("The students truly want to learn."); Linnenbrink & Pintrich, *supra* note 61, at 320–21.

89. Judith L. Meece et al., *Classroom Goal Structure, Student Motivation, and Academic Achievment*, 57 ANN. REV. PSYCHOL. 487, 490 (2006), *available at* http://www.annualreviews.org/doi/pdf/10.1146/annurev.psych.56.091103.070258.

90. AMBROSE, *supra* note 44, at 72.

91. Glynn, *supra* note 82, at 159.

92. AMBROSE, *supra* note 44, at 71.

93. SHELL, *supra* note 10, at 118; Linnenbrink & Pintrich, *supra* note 61, at 320–21.

94. AMBROSE, *supra* note 44, at 71; Glynn, *supra* note 82, at 159.

95. Glynn, *supra* note 82, at 159; Pintrich, *Motivation*, *supra* note 68, at 110.

96. AMBROSE, *supra* note 44, at 72; Linnenbrink & Pintrich, *supra* note 61, at 321.

97. AMBROSE, *supra* note 44, at 72–73.

98. Glynn, *supra* note 82, at 156.

into the natural human tendency to pursue interests and exercise capabilities."[99] It involves autonomy, competence, and relatedness (and hard work).[100] Intrinsic motivation is better for learning because students who attribute success to internal causes are more likely to succeed.[101] On the other hand, extrinsic motivation includes things like praise, getting good grades, and rewards, and it is not as effective as intrinsic motivation.[102] Motivation for an activity can be both intrinsic and extrinsic.

Three factors affect whether goals are motivating: (1) the subjective value of the goal; (2) the expectation for successful achievement of the goal ("expectancies"); and (3) whether the environment is supportive or unsupportive ("the environmental context").[103]

First, whether a goal is motivating depends on its value ("how much the goal is worth"), and how it compares to other goals.[104] Values are subjective and personal because humans learn to value things that engender positive emotions.[105] There are three types of value goals. First is attainment value, "which represents the satisfaction that one gains from mastery and accomplishment of a goal or task."[106] An example of attainment value is when a person devotes many hours to chess to master the game. The second value is intrinsic value, "which represents the satisfaction that one gains from simply doing the task rather than from a particular outcome from a task."[107] An example of this value is when a person learns the cello just because he enjoys it. Finally, instrumental value "represents the degree to which an activity or goal helps one accomplish other important goals, such as gaining what are usually referred to as extrinsic rewards."[108] Examples include studying economics to become a better lawyer or getting an M.B.A. at night to obtain a raise.

The second motivating factor—the expectation for successful achievement of the goal—comprises two parts: (1) outcome expectan-

99. *Id.*

100. R.A. Kusurkar et al., *Motivation as an Independent and a Dependent Variable in Medical Education: A Review of the Literature*, 33 MED. TCHR. e242, e243 (2011), *available at* http://www.intrinsicmotivation.net/SDT/documents/2011_Kusurkar_ReviewMedEduc.pdf. The authors add, "The need for autonomy or self-determination is related to the feeling of volition in one's actions. The need for competence is related to one's feelings of capability in achieving the target. The need for relatedness concerns the desire to relate to the significant others in one's life through work and achievement." *Id.*

101. Pintrich, *Motivation*, *supra* note 68, at 107.

102. *Id.*

103. AMBROSE, *supra* note 44, at 70–82. This approach is usually called "the expectancy-value model," and it is grounded in social cognitive theory. Pintrich, *Motivation*, *supra* note 68, at 105.

104. AMBROSE, *supra* note 44, at 74; SHELL, *supra* note 10, at 70.

105. SHELL, *supra* note 10, at 71.

106. AMBROSE, *supra* note 44, at 75.

107. *Id.*

108. *Id.*

cies ("the belief a specific action will bring about the desired outcome"); and (2) efficacy expectancies ("the belief that one is capable of identifying, organizing, initiating, and executing a course of action that will bring about the desired outcome").[109] A positive outcome expectancy might be "If I work hard in this course I will get a good grade." A negative outcome expectancy, such as "No matter how hard I work in this class, I will get a C," can have significant consequences on a student's motivation, causing that student to give up.[110]

Connecting short-term goals with long-term goals can also create positive outcome expectancies.[111] For example, one might complete a homework assignment in French class to help attain the goal of learning French. Similarly, one might learn French to help that individual obtain a legal job in Paris. A group of scholars has described one method of incrementally developing long-term goals:

> (1) [E]nvisioning possible futures for themselves, (2) conceptualizing those futures as goals, (3) construing a path for goal obtainment, (4) making explicit connections between present educational activities and the valued future goals, (5) discussing possible roadblocks and forks in the path, (6) brainstorming strategies for managing imagined future obstacles, and (7) interviewing successful adults from the community about their own strategies for reaching goals.[112]

Efficacy expectations (or self-efficacy) are vital for motivation because they "affect human functioning by influencing the extent to which people are optimistic versus pessimistic, make resilient versus detrimental attributions for successes and failures, apply appropriate coping strategies for dealing with difficult situations, and persist in the face of challenges."[113] In other words, efficacy expectations are important because "[s]tudents will not set and pursue a goal unless they feel confident that they can do what is needed to achieve it."[114] In contrast, students with high self-efficacy tend to be more engaged, work harder, and achieve more, as well as take harder courses.[115]

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109. *Id.* at 76–77.

110. *Id.* at 77.

111. SHELL, *supra* note 10, at 124–26.

112. *Id.* at 125.

113. George M. Slavich & Philip G. Zimbardo, *Transformational Teaching: Theoretical Underpinnings, Basic Principles, and Core Methods,* 24 EDUC. PSYCHOL. REV. 569, 578 (2012), *available at* http://link.springer.com/article/10.1007%2Fs10648-012-9199-6; *see also* Albert Bandura & Edwin A. Locke, *Negative Self-Efficacy and Goal Effects Revisited*, 88 J. APPLIED PSYCHOL. 87, 87 (2003), *available at* http://projects.ict.usc.edu/itw/gel/BanduraLockeSE-Goals.pdf. Self-efficacy is distinguishable from self-esteem in that self-efficacy is situated and contextualized (task specific), while self-esteem is more general. Linnenbrink & Pintrich, *supra* note 61, at 315–16.

114. SHELL, *supra* note 10, at 126; *see also* Bandura & Locke, *supra* note 113, at 87 ("Whatever other factors serve as guides and motivators, they are rooted in the core belief that one has the power to produce desired effects; otherwise, one has little incentive to act or to persevere in the face of difficulties.").

115. Linnenbrink & Pintrich, *supra* note 61, at 315.

Self-efficacy can be conscious or unconscious, and students can have high self-efficacy in some areas but not others.[116]

Efficacy expectations come mainly from a student's past successes ("mastery experiences") and failures.[117] "When students successfully achieve a goal and attribute their success to internal causes (for example, their own talents or abilities) or to controllable causes (for example, their own efforts or persistence) they are more likely to expect future success."[118] Efficacy expectations can also be obtained vicariously by observing others succeed and receive praise.[119] Other factors influencing efficacy expectations include: "(1) the student's current skill level, (2) the extent to which she has witnessed modeling from peers and teachers . . . (3) verbal persuasion regarding the difficulty of the task, and (4) the student's current psychological state."[120] Negative efficacy expectations, (such as "last time I succeeded by luck" or "I never will become a better student") can be particularly damaging to motivation.[121]

It is important that self-efficacy be accurate.[122] As mentioned above, inaccurate praise is meaningless and will eventually hurt self-efficacy.[123] Similarly, teachers should make sure that tasks and assignments are achievable.[124]

The final factor in motivating students through goals is whether the environment is supportive or unsupportive.[125] Ingredients of this factor are "the complex dynamics of the classroom, its tone, the interpersonal forces at play, and the nature and structure of communication patterns . . . ."[126] An unsupportive environment can damage motivation, even in the presence of positive factors on the other elements.[127]

One can summarize the elements of successful learning goals as follows:

(1) The subjective value of the goal;
   a. Attainment value;
   b. Intrinsic value;
   c. Instrumental value.
(2) The expectation for successful achievement of the goal;
   a. Outcome expectations;
   b. Efficacy expectations;

116. Wolters, *supra* note 67, at 191; Glynn, *supra* note 82, at 161.
117. SHELL, *supra* note 10, at 127; Glynn, *supra* note 82, at 161.
118. AMBROSE, *supra* note 44, at 78.
119. Glynn, *supra* note 82, at 161; SHELL, *supra* note 10, at 127.
120. Schwartz, *Teaching Law Students*, *supra* note 1, at 456.
121. AMBROSE, *supra* note 44, at 78; SHELL, *supra* note 10, at 121 ("[S]tudents are not likely to set goals unless they believe they can achieve them.").
122. Linnenbrink & Pintrich, *supra* note 61, at 316.
123. *Id.*
124. *Id.*
125. AMBROSE, *supra* note 44, at 79–82.
126. *Id.* at 79.
127. *Id.* at 79–82.

(3) Whether the environment is supportive or unsupportive.

Notably, a negative on any of the above factors or subfactors can destroy motivation.[128] For example, a student who is positive on the first two factors but receives little support in the learning environment will probably adopt a defiant attitude to the class.[129]

As noted earlier, there are also emotional motivators. Emotion affects allocation of working memory because emotion affects motivation.[130] Emotional motivators, which are biological, involve pleasure and pain.[131] Scientists have demonstrated connections between "areas in the prefrontal cortex associated with working memory and lower brain areas associated with emotion (e.g., amygdala)."[132] Positive emotions help focus attention; individuals sustain effort and maintain capacity.[133] Negative emotions produce avoidance, such as avoiding a task that an individual thinks she is not good at (lack of self-efficacy).[134] Also, emotional goals, such as self-esteem, can reduce learning because working memory will focus on the emotion, rather than the learning.[135] Emotions can be stored in long-term memory, and they are subject to pattern matching.[136] Furthermore, other parts of motivation, such as self-efficacy, are partially emotional.[137]

Interest (situational and personal) is another type of motivator that is usually associated with emotion, although it can have cognitive elements, too.[138] Situational interest comes from the environment, is produced by novelty ("sensory features that appear to draw our attention"), is generally based on positive emotions, and can be short- or long-term.[139] Situational interest focuses attention, thus affecting working memory.[140] A teacher can create situational interest by approaching learning in novel and exciting ways. On the other hand, personal interest (or curiosity) derives from our experiences.[141] It

128. *Id.*
129. *Id.* at 81.
130. SHELL, *supra* note 10, at 76.
131. *Id.*
132. *Id.*
133. *Id.*
134. *Id.* at 77.
135. *Id.* at 78. In other words, "Let's do what the teacher wants so I can get praise. Anything that doesn't elicit praise is not worth doing."
136. *Id.*
137. Bandura & Locke, *supra* note 113, at 87.
138. SHELL, *supra* note 10, at 78–80; *see also* Linnenbrink & Pintrich, *supra* note 61, at 318 ("Interest in general is defined as the interaction between the individual and his or her environment.").
139. SHELL, *supra* note 10, at 78–79; Glynn, *supra* note 82, at 155; Linnenbrink & Pintrich, *supra* note 61, at 319.
140. SHELL, *supra* note 10, at 129.
141. *Id.* at 80; Glynn, *supra* note 82, at 155 ("Students . . . who are interested or curious about topics are oriented toward inquiry and discovery . . . ."); Linnenbrink & Pintrich, *supra* note 61, at 319.

helps individuals work to long-term goals and helps sustain attention and persistence.[142]

How a student attributes success can also affect motivation.[143] A student is more likely to be motivated and succeed if she attributes success to controllable internal factors, like effort (a growth mindset).[144] On the other hand, attributing success or failure to external factors (a fixed mindset), such as luck, favoritism, or someone else, destroys motivation.[145]

B. *How Law Professors Can Increase Their Students' Motivation*

Professors can increase student motivation by (1) helping students create the subjective value of the goal; (2) helping them create the expectation for successful achievement of the goal; and (3) creating a positive learning environment.

1. Creating the Subjective Value of the Goal

According to recent education scholarship, teachers should be coaches and motivators.[146] Professors "assume the traditional role of facilitating students' acquisition of key course concepts, but they do so while promoting students' personal development and enhancing their disposition toward learning."[147] Teachers "should view courses as stages upon which life-changing experiences can occur."[148] One author has emphasized that professors "can serve as motivational leaders in this process by compelling students to realize a shared vision for a course, which encourages students to work together to maximize their personal and collective potential."[149] A professor can even create a "mission statement" for the course.[150] Finally, teachers should allow their students to engage in independent discovery.[151]

Professors can create mastery goals for producing motivation.[152] The first step in helping students create learning goals is for the teacher to set goals for the course (the shared vision), for each unit, and for each class, and to clearly articulate these goals to the students.[153] There should be no "hiding the ball" in legal education. Students must understand explicitly what is expected of them. Also, a professor should align goals with assessments and teaching strate-

142. SHELL, *supra* note 10, at 80.
143. Linnenbrink & Pintrich, *supra* note 61, at 317.
144. *Id.*
145. *Id.*
146. Slavich & Zimbardo, *supra* note 113, at 576.
147. *Id.*
148. *Id.*
149. *Id.*
150. *Id.* at 586.
151. *Id.* at 577.
152. Meece, *supra* note 89, at 492.
153. Slavich & Zimbardo, *supra* note 113, at 586.

gies.[154] Students will "have a more coherent picture of what will be expected of them and thus are more motivated because they feel more confident and in control of their learning."[155]

Detailed feedback (formative assessment) is a key to helping students set and attain their learning goals.[156] If the assignments and the feedback correspond to the class goals, then the students will be well focused on their learning goals. Of course, to work properly, assignments and feedback must be closely coordinated with the class goals, and feedback must be timely.

Professors should "address students' beliefs about learning directly."[157] Teachers can turn task or performance goals into learning goals to help students understand that they can achieve their goals through effort.[158] Similarly, teachers should demonstrate that success depends on internal factors, which they can control, rather than external ones, which they cannot.[159]

A teacher should also motivate students by showing how what they are learning relates to their long-term goals.[160] Similarly, telling the students how a class can help them in the future can aid motivation.[161] For example, a professor can tell her students that writing in a science class will help their ability to become successful scientists because it is important that a scientist communicates his ideas to others. Similarly, How does this lesson on editing for wordiness relate to the student's goal of becoming a journalist? How does this class in calculus help with the student's goal of becoming a physicist? The professor can also demonstrate how the class forms "a building block for future courses."[162] For example, "[T]his property class is the foundation for wills and trusts, real estate transactions, and land use regulation."

Two scholars have described an approach for setting, maintaining, and attaining long-term goals:

> First, individuals must establish an ideal self and a personal vision for the future (i.e., Who do you want to be?), which is based on developing an image of a desired future, fostering hope that one can achieve their goals, and identifying established strengths upon which the personal vision can be realized. Second, they must identify their "real self," which includes an honest assessment of strengths and weaknesses, and then compare it to their ideal self, or who they want to become. Third, they must devise a tailored learning plan, which establishes a set of personal standards that the indi-

154. AMBROSE, *supra* note 44, at 85.
155. *Id.*
156. *Id.* at 87–88; SHELL, *supra* note 10, at 121.
157. AMBROSE, *supra* note 44, at 212.
158. SHELL, *supra* note 10, at 121–26.
159. Linnenbrink & Pintrich, *supra* note 61, at 317.
160. AMBROSE, *supra* note 44, at 84; Glynn, *supra* note 82, at 163.
161. AMBROSE, *supra* note 44, at 84.
162. *Id.*

> vidual needs to meet to "close the gap" between their real self and their ideal self. Fourth, they need to engage in activities that allow them to experiment or practice with new behaviors, thoughts, feelings, or perceptions. And finally, they must develop and maintain close, personal relationships with people who can help them move through these steps and toward their goal of realizing change.[163]

Teachers need to motivate their students not just to learn substance but to learn skills—how to apply their knowledge. Teachers must show their students how a particular skill, such as legal writing, brainstorming, or persuasive reasoning, applies to other classes, as well as professional activities.[164]

Cooperative learning can help students create learning goals, if done properly.[165] By properly, the Author means "having students work in interdependent teams where communicating ideas, sharing knowledge, delegating responsibility, negotiating relationships, and obtaining consensus is necessary for solving problems and completing assignments."[166] Collaborative learning works well because it motivates students more than working alone.[167] Social media can also help foster collaboration.[168] However, this can backfire if the students view the cooperative learning as just another task.[169]

Because studying is an important part of learning, professors need to motivate their students to study, by showing them how studying will help students attain their goals.[170] Motivated learners study harder and deeper.[171]

Teachers should create situational interest in the classroom. Methods of creating situational interest include setting the stage for a task, establishing a purpose for a task, having a lively discussion, using demonstrations, debates, role-playing, multimedia, etc.[172] Voting systems (clickers) are particularly effective in keeping students engaged in class because they foster class participation.[173] Teachers should also take advantage of their students' personal interests. Teachers can learn their students' personal interests through questionnaires at the beginning of the semester. Then, they can make assignments based on

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163. Slavich & Zimbardo, *supra* note 113, at 579.
164. AMBROSE, *supra* note 44, at 84.
165. SHELL, *supra* note 10, at 120.
166. Slavich & Zimbardo, *supra* note 113, at 581. In other words, there must be no freeriders. Freeriders hurt the group because one less person is giving input to the group, and they hurt themselves because they learn little from the cooperative exercise.
167. *Id.* at 571.
168. *Id.* at 570.
169. SHELL, *supra* note 10, at 120.
170. *See* Kusurkar, *supra* note 100, at e245. Effective study habits will be discussed below.
171. *Id.*
172. Slavich & Zimbardo, *supra* note 113, at 572; SHELL, *supra* note 10, at 129.
173. Slavich & Zimbardo, *supra* note 113, at 570, 574.

those personal interests. Students read more when they are interested in the subject.[174] For example, a teacher could assign reading that integrates the lesson with that subject. Another method of creating situational interest is to use real-world problems.[175]

Finally, and perhaps most importantly, teachers should be passionate about what they are teaching.[176] If the teacher is bored, the students will be bored. Alternatively, if a teacher is passionate about the subject matter, this will rub off on the students. It will help them see the subjective value in what they are doing.

On the other hand, grade curves and competition can produce performance and work avoidance goals, especially in poor students.[177] Teachers can also create performance goals by giving students these attitudes: (1) "My teacher points out those students who get good grades as an example to all of us"; (2) "My teacher lets us know who gets the highest scores on a test"; (3) "My teacher makes it obvious when certain students are not doing well on their work"; (4) "My teacher tells us how we compare with other students"; (5) "Only a few students do really well in my class"; and (6) "My teacher calls on smart students more than on other students."[178]

These factors often lead to focusing on performance goals, work avoidance goals, or on avoiding looking dumb, rather than learning goals.[179]

Creating situational interest can similarly backfire if it directs the learner away from what is intended to be learned.[180] For example, students might focus on the novelty of the multimedia, rather than the underlying message.

2. Creating the Expectation for Successful Achievement of the Goal

The most important aspect of helping students develop self-efficacy is to show them that their intellectual abilities are changeable if they use the sufficient effort and proper methods ("a growth mindset"), rather than unchangeable ("a fixed mindset").[181] As noted above, stu-

174. SHELL, *supra* note 10, at 130.
175. AMBROSE, *supra* note 44, at 83.
176. *Id.* at 85 ("Your own enthusiasm can be powerful and contagious.").
177. SHELL, *supra* note 10, at 120; Pintrich, *Motivation*, *supra* note 68, at 108.
178. Meece, *supra* note 89, at 494.
179. SHELL, *supra* note 10, at 120. In addition, studies show that there is more classroom disruptive behavior and absenteeism when the classroom is focused on performance goals. Meece, *supra* note 89, at 499.
180. SHELL, *supra* note 10, at 130.
181. *See supra* Part III. *See also* Slavich & Zimbardo, *supra* note 113, at 589. This has also been phrased in terms of whether a student has control over his or her learning. Pintrich, *Motivation*, *supra* note 68, at 106 ("This self-determination perspective is crucial in intrinsic motivation theories of motivation in which students are only intrinsically motivated if they feel autonomous and their behavior is self-determined rather than controlled by others.").

dents with growth mindsets generally succeed, while those with fixed mindsets usually fail and often develop "learned helplessness"—"a stable pattern of attributing many events to uncontrollable causes."[182] Similarly, having students focus on learning goals, rather than performance goals, helps students' self-efficacy because, with learning goals, achievement is measured against past performance; thus, failure is less traumatic than when students have performance goals, such as getting a good grade or status.[183]

Teachers giving students instrumental support help with outcome expectancy and self-efficacy because it lets students know they are not alone.[184] Instrumental support can include carefully structuring problems so that students can do them in simple steps ("proximal goal setting"), setting realistic time limits, making sure that resources are available, and being available to assist students.[185] Proximal goal setting helps self-efficacy because it is easier to achieve small goals than large ones and because students can see that they are being successful step-by-step. As one professor has noted, "People enjoy mental work if it is successful."[186]

Professors can help students increase their self-efficacy and outcome expectancies by "fram[ing] problems as surmountable and as a chance to practice and demonstrate specific skills," rather than threatening or as barriers to success.[187] Doing this decreases the odds that students will develop biological stress responses when learning and, thus, decreases the interferences with attention in working memory.[188]

A teacher should have high expectations for students and provide assignments that challenge the students, but that are not too hard for the students' skill levels.[189] Students lose interest if an assignment is not challenging.[190] On the other hand, as mentioned earlier, if it is too difficult, students will have problems with their self-efficacy. The best way to achieve a moderate approach is by giving students assignments that are incrementally harder, slightly above their existing skill levels.[191]

Formative assessment with detailed feedback also increases self-efficacy because it shows students that they can succeed in incremental

182. Slavich & Zimbardo, *supra* note 113, at 589; Pintrich, *Motivation*, *supra* note 68, at 106.

183. Linnenbrink & Pintrich, *supra* note 61, at 321.

184. Slavich & Zimbardo, *supra* note 113, at 590.

185. *Id.*; Wolters, *supra* note 67, at 198 (proximal goals).

186. WILLINGHAM, *supra* note 11, at 3. Professor Willingham notes that students get a "pleasurable rush" from successful thought. *Id.*

187. Slavich & Zimbardo, *supra* note 113, at 588.

188. *Id.*

189. AMBROSE, *supra* note 44, at 86; Glynn, *supra* note 82, at 162.

190. "[T]here's no point in working on a problem that is too easy–there'll be no pleasure when it's solved because it didn't feel like much of a problem in the first place." WILLINGHAM, *supra* note 11, at 12.

191. Slavich & Zimbardo, *supra* note 113, at 590; Glynn, *supra* note 82, at 163.

steps. Teachers can also use formative feedback to create high expectations for the students.[192] As discussed above, "Expectations for future performance are influenced by past experiences."[193]

Teachers should also be role models for their students in self-efficacy.[194] They should show their students that they are lifelong, self-engaged learners.[195] They should also show their students that they have developed good motivational habits, such as not procrastinating, giving their full attention to a task, and exuding curiosity and enthusiasm for tasks.

Another way to create self-efficacy is to use specific, rather than general, praise. General praise is saying nice things without giving a reason, while specific praise is giving praise with details.[196] For example, telling the student she did a nice job on her brief means little. On the other hand, telling a student that she did a good job in the presentation of the facts because she emphasized the material facts well and organized the facts in connection with her theme reinforces what the student should do in the future.

Teachers should also allow their students opportunities to reflect.[197] Reflection from prior learning affects subsequent learning, particularly self-efficacy.[198] Reflection also helps students become invested in what they are doing, and it makes learning more interesting.

Cooperative learning can help self-efficacy because it allows students to work on hard problems together.[199] Teachers can also help students with self-efficacy by teaching them good study habits.[200] Students who lack good study habits can become discouraged, even though they spend many hours studying. On the other hand, since good study habits lead to success, students with good study habits will have higher self-efficacy.

3. Creating a Positive Learning Environment

The learning environment (which is a social environment) is important in student motivation, both positive and negative.[201] Choice of goals is important in establishing the learning environment and thus

192. Glynn, *supra* note 82, at 162–63.
193. AMBROSE, *supra* note 44, at 86.
194. Glynn, *supra* note 82, at 164.
195. *Id.*
196. SHELL, *supra* note 10, at 147.
197. AMBROSE, *supra* note 44, at 89.
198. Barry J. Zimmerman, *Becoming a Self-Regulated Learner: An Overview*, 41 THEORY INTO PRAC. 64, 68–69 (2002).
199. Slavich & Zimbardo, *supra* note 113, at 588.
200. AMBROSE, *supra* note 44, at 88. *See infra* Part VII.
201. Kennon M. Sheldon & Lawrence S. Krieger, *Understanding the Negative Effects of Legal Education on Law Students: A Longitudinal Test of Self-Determination Theory*, 33 PERSONALITY & SOC. PSYCHOL. BULL. 883, 884 (2007).

motivation.[202] Encouraging students to adopt learning goals, instead of other goals, is particularly important.[203]

How teachers set up the classroom environment (the tone) can also affect motivation.[204] "When students perceive their classrooms or schools as emphasizing effort and understanding, they are more likely to adopt mastery-oriented goals."[205] Is the learning environment active or passive? Is the teacher encouraging or discouraging? How does the teacher deliver criticism? Does the teacher give the students any autonomy? Does assessment focus on individual improvement?

Autonomy support, acknowledgment of student initiative, and self-directedness are important in an educational environment.[206] In contrast, a controlling environment usually has negative effects on student motivation.[207] Autonomy support and self-directedness have psychological effects—"all human beings require regular experiences of autonomy, competence, and relatedness to thrive and maximize their positive motivation."[208]

Allowing students self-determination helps the learning environment and motivation.[209] Adult learners want to control their learning.[210] Intrinsically motivated activities help create feelings of self-determination.[211] The Author's experiences have shown that the best way to help students develop self-determination is to teach them to learn and to work on their own.

The law school environment may be a particularly important factor in the motivation of law students. Scholars have criticized the "overvaluing theoretical scholarship and undervaluing the teaching function, employing generally unsound teaching and testing methods, and emphasizing abstract theory rather than providing practical training," all of which cause emotional distress in law students and a decline in motivation.[212] Professors Sheldon and Krieger have written, "Consistent with earlier longitudinal studies, Sheldon and Krieger demonstrated that law students experience precipitous declines in their mental health during their first year. More importantly, they showed that these declines were correlated with negative changes in motivation and valuing," with declines in intrinsic motivation being especially acute.[213] Instead, "They shifted toward (extrinsic) image and

202. Linnenbrink & Pintrich, *supra* note 61, at 322.
203. *Id.*
204. *Id.* at 322–23.
205. Meece, *supra* note 89, at 495.
206. Sheldon & Krieger, *supra* note 201, at 884.
207. *Id.*
208. *Id.* at 885 ("These needs are considered so fundamental that Ryan (1995) has likened them to a plant's need for sunlight, soil, and water.").
209. Glynn, *supra* note 82, at 157–58.
210. *Id.* at 157.
211. *Id.*
212. Sheldon & Krieger, *supra* note 201, at 883–84.
213. *Id.* at 884.

appearance values and away from (intrinsic) community and helping values and also exhibited a general decline in the overall level of valuing (both intrinsic and extrinsic)."[214] Similarly, Sheldon and Krieger have demonstrated that, by their third year, law students have become disengaged from law school.[215] In addition, the law school environment, especially controlling faculty, can destroy law students' psychological needs for satisfaction.[216] Thus, law schools must enhance law students' feelings of autonomy.[217]

Finally, the teaching approach affects motivation. Two education researchers have declared, "Several well-controlled studies have shown that students demonstrate more learning, better conceptual understanding, superior class attendance, greater persistence, and increased engagement when collaborative or interactive teaching methods are used compared to when traditional lecturing is employed."[218] Experiential learning is especially motivating for students because it engages them by making learning more interesting.[219] Similarly, problem-solving exercises focus students' attentions on complex problems and involve higher-order cognitive skills (analysis, synthesis, evaluation).[220]

4. Student Self-Regulation of Motivation

Students can regulate their motivations. The first method that students can use for regulation of their motivations is "self-consequating," which involves providing consequences for their behaviors.[221] These are extrinsic reinforcements or punishments, such as "After I do this assignment I will have a cup of tea," or "If I don't finish the brief this afternoon, I can't go to the movie tonight."[222] Self-praise upon completing a task is another example of self-consequating.[223] A second type of controlling motivation is "goal-oriented self-talk": "[S]tudents using goal-oriented self-talk think about or make salient various reasons they have for persisting or completing a task."[224] This type can relate to learning goals, performance goals, or task goals.[225]

214. *Id.*
215. *Id.* at 886.
216. *Id.* at 885, 893.
217. *Id.* at 894. The Sheldon/Krieger study also revealed other interesting results. For example, their study indicated "that perceived autonomy support and psychological need satisfaction, although more subjective than GPA and LSAT, are just as critical in that they predict performance independently of these more objective indicators." *Id.*
218. Slavich & Zimbardo, *supra* note 113, at 570.
219. *Id.* at 574, 594.
220. *Id.* at 574.
221. Wolters, *supra* note 67, at 194.
222. *Id.*
223. *Id.*
224. *Id.* at 195.
225. *Id.*

For example, a student's goal for self-talk might be learning how to play the Mozart clarinet concerto or getting a good grade for finishing an assignment. A third method is "interest enhancement," in which "students [ ] use strategies designed to increase their immediate enjoyment or the situational interest they experience while completing an activity," particularly with boring or repetitive tasks.[226] An example of interest enhancement is making studying a game.[227] Finally, students can use "environmental structuring," which is reducing distractions or increasing readiness for studying by changing location or avoiding activities like eating and drinking.[228] Other examples of environmental structuring include keeping a scheduled calendar or allocating specific times each day to studying.[229]

Students can regulate their self-efficacy through self-talk, where "[s]tudents engage in thoughts or subvocal statements aimed at influencing their efficacy for an ongoing academic task."[230] Such statements can include "I can learn to ski," or "I can complete this math assignment."

Students can also affect their motivations by regulating their emotions so that they can exert the effort to complete a task.[231] It is especially important for students to control negative emotions, such as negative self-talk and test anxiety, because those emotions can affect outcome and self-efficacy expectations.[232] One strategy to overcome negative emotions is self-talk, such as "I am not going to compare myself to my classmates," or "I am worrying too much; I am progressing in finishing this task."[233]

V. HELPING STUDENTS FROM DISADVANTAGED GROUPS DEVELOP METACOGNITIVE LEARNING SKILLS

A. *An Introduction to Metacognition*

An essential skill in becoming a better learner is to understand how one thinks—the cognitive processes that a person uses when he is undertaking a mental task. This is called metacognition, which is "our awareness of the learning process,"[234] or "thinking about one's own

226. *Id.*
227. *Id.* at 196.
228. *Id.*
229. *Id.*
230. *Id.* at 199.
231. *Id.*
232. *Id.* at 199–200.
233. *Id.* at 200.
234. Cem Balcikanli, *Metacognitive Awareness Inventory for Teachers (MAIT)*, 9 ELEC. J. RES. EDUC. PSYCHOL. 1309, 1312 (2011), *available at* http://www.investigacion-psicopedagogica.org/revista/articulos/25/english/Art_25_563.pdf.

thinking."[235] Metacognition controls the cognitive process (the actual thinking).[236] It involves "monitoring and control of the person's cognition—as well as evaluation of the learning outcome and reflection on his/her self as learner."[237]

More specifically, metacognition regulates learning through a cognitive regulatory loop.[238] First, metacognition monitors the learning process. Then, based on that monitoring, metacognition controls the learning process.[239] Thus, metacognition consists of two main subdivisions: knowledge of cognition and regulation of cognition (control).[240]

There are three kinds of metacognitive knowledge: (1) declarative knowledge—"knowing about things," (2) procedural knowledge—"knowing how to do things," and (3) conditional knowledge—"knowing when and why to apply various cognitive actions."[241] First, declarative metacognitive knowledge "involves the understanding of how a task is performed."[242] It "is information that one consults when thinking about a particular cognition."[243] It is a database, which contains "how we or other persons process various tasks, how well we performed on them, what we felt during the task processing, when, why, and what kind of strategies were used . . . and what kind of goals people have when dealing with a task or a situation."[244] Second,

235. Michael Hunter Schwartz, *Teaching Law by Design: How Learning Theory and Instructional Design Can Inform and Reform Law Teaching*, 38 SAN DIEGO L. REV. 347, 376 (2001) [hereinafter Schwartz, *Law Teaching*].

236. Marcel V.J. Veenman et al., *Metacognition and Learning: Conceptual and Methodological Considerations*, 1 METACOGNITION LEARNING 3, 6 (2006), *available at* http://www.csuchico.edu/~nschwartz/Veenman%20Metacognition.pdf. Professors Fleming and Dolan explain, "We now understand the brain as a network of regions working in concert, and thus, it is perhaps unsurprising that one set of regions (such as the prefrontal cortex: PFC) might process, hierarchically, information arising from lower levels (such as primary sensory regions)." Stephen M. Fleming & Raymond J. Dolan, *The Neural Basis of Metacognitive Ability*, 367 PHIL. TRANSACTIONS OF THE ROYAL SOC'Y B. 1338, 1338 (2012), *available at* http://ukpmc.ac.uk/articles/PMC3318765; *see also* Anthony S. Niedwiecki, *Lawyers and Learning: A Metacognitive Approach to Legal Education*, 13 WIDENER L. REV. 33, 42–43 (2006) ("[C]ognition primarily focuses on the skills needed to perform a task, while metacognition involves the understanding of how a task is performed.").

237. Anastasia Efklides, *The Role of Metacognitive Experiences in the Learning Process*, 21 PSICOTHEMA 76, 76 (2009), *available at* http://www.unioviedo.es/reunido/index.php/PST/article/download/8799/8663.

238. *Id.* at 77.

239. Metacognitive control is "any instance of cognitive control that is informed by metacognitive knowledge or monitoring." Michael J. Serra & Janet Metcalfe, *Effective Implementation of Metacognition*, *in* HANDBOOK OF METACOGNITION IN EDUCATION 270 (Douglas J. Hacker et al. eds., 2009).

240. Balcikanli, *supra* note 234, at 1313–14.

241. *Id.* at 1316–17.

242. Niedwiecki, *supra* note 236, at 42–43.

243. Serra & Metcalfe, *supra* note 239, at 278.

244. Efklides, *supra* note 237, at 78; *see also* Balcikanli, *supra* note 234, at 1317 ("[D]eclarative knowledge includes individuals' conceptions, and also their beliefs of task structures, their cognitive goals, and their own personal abilities.").

metacognitive procedural knowledge concerns how humans perform cognitive tasks.[245] In other words, it involves strategies on how to solve problems. Finally, metacognitive conditional knowledge concerns the application of strategies at the proper time and place and for the proper reason (when and how).[246]

Metacognitive skills are important skills for law students to have, and a student who has well-developed metacognitive skills will do better in law school than a student who lacks these skills. As a group of scholars has declared, "Students without metacognitive approaches are essentially students without direction and ability to review their progress, accomplishments, and future learning directions."[247] Such students use their own idiosyncratic approaches to learning, which are probably ineffective and inefficient.[248] On the other hand, metacognition can "guide learners to recreate new goals and revise them on the basis of old ones," and it can "arouse strategies that may be employed in place of cognitive or metacognitive goals."[249] Metacognitive skills are not innate; they must be learned, preferably under the direction of a "coach."[250] Metacognition is programmable general architecture.[251]

B. *Developing Metacognitive Awareness*

Law professors can develop metacognitive awareness in their students. Most law students are not aware of metacognition. Law students do not understand that they can control their learning. They do not realize that knowledge of strategies and when to use those strategies are important. They do not recognize that monitoring one's learning and reflecting on one's learning are important in becoming better thinkers.

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245. Balcikanli, *supra* note 234, at 1317; SHELL, *supra* note 10, at 39; WILLINGHAM, *supra* note 11, at 16.

246. Balcikanli, *supra* note 234, at 1317; Paul R. Pintrich, *The Role of Metacognitive Knowledge in Learning, Teaching, and Assessing*, 41 THEORY INTO PRACTICE 219, 221 (2002), *available at* http://cursa.ihmc.us/rid=1JTPTQ9XB-1142BSK-17N3/A01-004.pdf [hereinafter Pintrich, *Role*].

247. J. MICHAEL O'MALLEY & ANNA UHL CHAMOT, LEARNING STRATEGIES IN SECOND LANGUAGE ACQUISITION 8 (1990).

248. Jeffrey D. Karpicke, *Metacognitive Control and Strategy Selection: Deciding to Practice Retrieval During Learning*, 138 J. EXPERIMENTAL PSYCHOL.: GEN. 469, 469 (2009), *available at* http://learninglab.psych.purdue.edu/downloads/2009_Karpicke_JEPGeneral.pdf.

249. Balcikanli, *supra* note 234, at 1313.

250. Logan Fletcher & Peter Carruthers, *Metacognition and Reasoning*, 367 PHIL. TRANSACTIONS OF THE ROYAL SOC'Y B. 1366, 1368–69, 1372 (2012), *available at* http://www.philosophy.umd.edu/Faculty/pcarruthers/Metacognition%20and%20Reasoning.pdf ("[H]uman meta-reasoning competence [resides] in a variety of habits and strategies for self-management, acquired by individual and cultural learning." *Id.* at 1372); Pintrich, *Role*, *supra* note 246, at 223.

251. Fletcher & Carruthers, *supra* note 250, at 1368.

The best way to help students develop metacognitive awareness is to give them questions that will cause them to focus on their thinking processes. Examples of metacognitive questions include:

(1) What skills are most important for a law student?
(2) What are the strengths and weaknesses of my study techniques? Do I use a variety of study techniques?
(3) Do I always have clear goals when I tackle a problem?
(4) Do I have a specific reason for using the note-taking techniques I use in class?
(5) Do I ask myself whether I have accomplished my goals when I finish studying or finish a task?

Another method for developing metacognitive awareness is to have the students put themselves in the shoes of others—to see themselves and their ideas from an alternative point of view. For example, a student could consider how the other side will respond to her argument or how a professor would critique her work. Similarly, a student could ask what a judge would think of her argument. Likewise, a professor could assign her students to write a dissent to a case. A professor could also assign her students to read Martin Luther King, Jr.'s *Letter from Birmingham Jail* and have the students evaluate it from the viewpoint of its intended audience (fellow clergy), the public at large, white southerners of the time, etc.

Professors should help their students be aware of how the students should approach law school learning. For example, they should teach their students that learning in law school is not just memorization, but also involves how to understand and use rules, how to be a professional, how to solve problems, etc.

Finally, law professors need to help their students understand learning.[252] They need to help their students understand the misconceptions mentioned in the previous sections. They need to help their students understand what it means to be an engaged learner. They need to help their students understand the importance of preplanning, monitoring, and reflecting. They need to teach their students how learning works.

C. *Developing Metacognition in the Classroom*

The most important part of helping students develop metacognitive skills in the classroom is for the professor to set clear goals for the class.[253] It is important that the students know the class goals so that they can develop their own goals for the class.[254] The professor

252. DWECK, *supra* note 45, at 212–15.

253. As noted above, setting goals is also important for increasing motivation.

254. Professor Kowalski has declared, "learning is enhanced because educators articulate the premises behind their instructional methods and curricular design." Tonya Kowalski, *True North: Navigating for the Transfer of Learning in Legal Education*, 34 SEATTLE U. L. REV. 51, 108 (2010); *see also* ROY STUCKEY ET AL., BEST

should announce the goals in the first class, put the goals in the syllabus, and organize the course and each class around the goals.[255] These goals should include learning and skills goals, in addition to doctrinal goals.[256] Teachers should also choose texts that fit with the goals and that develop cognitive and metacognitive skills, including case reading, rehearsal, elaboration, organization, synthesis, problem solving, deductive reasoning, inductive reasoning, information processing, distinguishing cases, reflection, etc. Fortunately, legal publishers have recently started casebook series that reflect the latest in educational research.[257]

Professors should be explicit in their teachings.[258] As one education specialist has asserted, "Thinking skills need to be explicitly and consciously taught and then used with many types of examples so that the skill aspect and its appropriate use are clarified and emphasized."[259] The traditional law school teaching method of "hiding the ball" is confusing, especially to students who come from poor learning backgrounds. As Professor Andrews has written, "Many law students cannot translate general advice to the concrete application of their study. They need specific advice, and they need examples."[260] When students have knowledge of metacognitive strategies, such as those for memorization, studying, and reading, they are more likely to use them, especially if they are told that such strategies will improve their

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PRACTICES FOR LEGAL EDUCATION 130 (2007) ("Students are more motivated to learn as a part of a community of learners if they understand the long term and intermediate objectives of the program of instruction.").

255. A professor could even email an agenda to her students before every class. Michael T. Gibson, *A Critique of Best Practices in Legal Education: Five Things All Law Professors Should Know*, 42 U. BALT. L. REV. 1, 27 (2012).

256. *Id.* at 14.

257. Carolina Academic Press has published a series of casebooks, the Context and Practice Series, with each book containing practical exercises and metacognitive materials. CONTEXT AND PRACTICE SERIES, CAROLINA ACADEMIC PRESS, *available at* http://www.cap-press.com/p/CAP. Similarly, LexisNexis has a series of supplementary texts, the Skills & Values Series, that contain lots of problem-solving exercises. LEXISNEXIS, SKILLS & VALUES SERIES, *available at* http://www.lexisnexis.com/store/catalog/catalog.jsp?id=cat80154. Finally, ABA Publishing has issued an introduction to law text, E. SCOTT FRUEHWALD, THINK LIKE A LAWYER: LEGAL REASONING FOR LAW STUDENTS AND BUSINESS PROFESSIONALS (2013); *see also* Michael Hunter Schwartz, *Improving Legal Education by Improving Casebooks*: *Fourteen Things Casebooks Can Do to Produce Better and More Learning*, 3 ELON L. REV. 37 (2011) [hereinafter Schwartz, *Casebooks*].

258. Pintrich, *Role*, *supra* note 246, at 223; *see also* Niedwiecki, *supra* note 236, at 60; Gibson, *supra* note 255, at 21 ("A good teacher expressly tells her students what she wants them to learn."). In fact, one group of scholars advocate being more explicit than you think necessary. AMBROSE, *supra* note 44, at 205.

259. Diane F. Halpern, *Teaching Critical Thinking for Transfer Across Domains: Dispositions, Skills, Structure Training, and Metacognitive Monitoring*, 53 AM. PSYCHOL. 449, 454 (1998).

260. Carol Andrews, *Four Simple Lessons About the Needs of First-Year Law Students*, 18 LAW TCHR. 4, 4 (2012).

performances and grades.[261] Similarly, law students need to thoroughly understand legal miniskills, such as problem solving, deductive reasoning, synthesis, reasoning by analogy, and distinguishing cases.

Part of being explicit in teaching is breaking down complex tasks into component skills (unpacking).[262] While experts can often see how the parts fit together, novices often need help with unpacking.[263] "The advantage to practicing a component skill in isolation is that it allows students to focus their attention solely on the skill that needs work."[264] Thus, students can develop fluency at each component skill.[265] Of course, the teacher also needs to show his students how to recombine the parts.[266]

Challenging students, rather than feeding them material they can regurgitate on the exam, creates better learners. Learners retain information better when it requires "effortful processing."[267] Consequently, professors should give students challenging problems to solve and employ probing questions in class.

When teaching a class, the professor should ask the students probing questions to determine whether they understand the material and to develop their metacognitive and cognitive skills.[268] There are five main types of questions: (1) Reflective questions—questions "that require students to recognize, recall, and execute knowledge that was directly taught"; (2) analytical questions—questions "that require students to take information apart and determine how the parts relate to the whole"; (3) predictive questions—questions "that require students to form conjectures and hypotheses about what will happen next in a narrative or sequence of information or actions"; (4) interpretive questions—questions "that require students to make and defend inferences about the intentions of an author"; and (5) evaluative questions—questions "that require students to use criteria to make judgements and assessments of something."[269] Teachers should use deep questioning—questions that involve why, how, what if, and what

261. Pintrich, *Role*, *supra* note 246, at 222.

262. AMBROSE, *supra* note 44, at 100.

263. "Because instructors, as experts, do not experience the same cognitive load as novices, they may have performance expectations for students that are unrealistically high." *Id.* at 105.

264. *Id.* at 101–07.

265. *Id.* at 105.

266. *Id.* at 102.

267. University of Memphis, Department of Pshychology, *Lifelong Learning at Work and at Home: 25 Learning Principles to Guide Pedagogy and the Design of Learning Environments*, http://www.bgsu.edu/downloads/provost/file47947.pdf, at *7 (2008). The authors note, "One possible explanation for this effect is that learners create multiple retrieval paths, which make the information more accessible at retrieval." *Id.*

268. There is nothing wrong with using the Socratic method as long as it is used properly and is one of several teaching approaches. Professor Gibson has an extensive discussion on how to use the Socratic method. Gibson, *supra* note 255, at 30–61.

269. ROBERT J. MARZANO ET AL., BECOMING A REFLECTIVE TEACHER 41 (2012).

if not.[270] Also, inference questions are particularly important because they "require the construction of a causal, situation model [('the highest level of representation . . . [where] there is integration of the ideas that were presented with prior knowledge')], in order to be answered."[271] Finally, questions that require students to talk about their thinking, evaluate their strategy choices, or reflect on their learning are metacognitive questions.

Professors should use concrete examples and compare examples in class to help the learning of abstract concepts.[272] Examples make abstractions concrete.[273] They create flexibility and connections, reinforce memory, and help students develop the ability to process information.

Similarly, experiential in-class exercises (problem solving) help create expertise.[274] Professors should help their students develop step-by-step processes to problem solve, to analyze legal materials, and to write analyses. When demonstrating problem solving, professors should state out loud their thinking processes.[275] This "modeling of strategies"—explicitly talking out loud about the steps the teacher uses when solving a particular problem—helps students develop metacognitive process skills by providing models for students.[276] This is because students must understand knowledge creation before they can create knowledge themselves.[277] Modeling helps students "[to] see the key features of the problem and to analyze the steps and rea-

270. Memphis, *supra* note 267, at *9.

271. Jennifer Wiley et al., *Putting the Comprehension in Metacomprehension*, 132 J. GEN. PYSCHOL. 408, 412, 415 (2005), *available at* http://scholarworks.boisestate.edu/cgi/viewcontent.cgi?article=1006&context=cifs_facpubs.

272. WILLINGHAM, *supra* note 11, at 102; Memphis, *supra* note 267, at *5.

273. WILLINGHAM, *supra* note 11, at 90.

274. As Best Practices declared, "Simulations should be incorporated into every course to strengthen students' understanding of legal concepts and to give them opportunities to assume professional roles." BEST PRACTICES, *supra* note 254, at 277.

275. One might question whether every doctrinal professor needs to do this. However, Professor Gibson has argued, a doctrinal professor needs to educate his students in the basic steps "for almost *every* non-doctrinal concept [he expects his] students to learn." Gibson, *supra* note 255, at 22. He has added, "How could I legitimately expect students in their second month of law school to discover and understand these steps [of statutory analysis] on their own." *Id.* at 26.

276. Pintrich, *Role*, *supra* note 246, at 224. A group of authors explains, "worked-out examples include the formulation of a problem, the steps taken to work out that problem, and ultimately the final solution." Julian Roelle et al., *The Use of Solved Example Problems for Fostering Strategies of Self-Regulated Learning in Journal Writing*, 2012 EDUC. RES. INT'L 1, 3 (2012), http://downloads.hindawi.com/journals/edu/2012/751625.pdf. Similarly, Professor Schwartz writes, "A think-aloud is an attempt to offer students insights into an expert's thinking process as the expert works through the process of analyzing a problem; the expert speaks aloud every idea, hypothesis, rejected hypothesis, concern, problem, or other thought she has beginning when she first encounters the problem and continuing all the way through her creation of a work product." Schwartz, *Casebooks*, *supra* note 257, at 41.

277. WILLINGHAM, *supra* note 11, at 140–42.

sons behind problem-solving moves."[278] Similarly, telling the students why the professor is employing a particular strategy helps with conditional metacognition.[279] Professors should also help students create strategies for solving ill-defined problems.[280] In sum, the teacher should demonstrate a sample problem's thinking process in detail, explain why the teacher used that process, have students do similar problems, then give students feedback on their problem-solving skills.

In addition to providing modeling of strategies, teachers can help students learn procedures through scaffolding—"providing hints and cues when students first try to perform the skill."[281] Scaffolding helps students focus on what is key to the task and not get bogged down in extraneous load.[282] For example, the professor could partially fill in a diagram, then let the students finish it.[283] Similarly, the professor could ask the students leading questions before they read a case.[284] When the students become proficient in a skill, the professor should withdraw the scaffolding.[285]

Finally, professors need to teach students how to organize knowledge in their minds.[286] How students organize knowledge is part of metacognition; "Knowledge can be organized in ways that either do or do not facilitate learning, performance, and retention."[287] Professors should avoid the mistake that their students (novices) organize material the same way the professors do.[288] Rather, professors should help their students develop organizational methods gradually, step-by-step and as stated above, be explicit in telling the students how the course and each class are organized.

Material is stored in long-term memory in relation to how it is learned.[289] Thus, students should organize knowledge in their minds in relation to the context and function of the material.[290] For example, a student could organize a series of cases on due process and personal jurisdiction by the state involved, by whether the court found

278. AMBROSE, *supra* note 44, at 106.
279. Pintrich, *Role*, *supra* note 246, at 224.
280. MARZANO, *supra* note 269, at 15.
281. Schwartz, *Casebooks*, *supra* note 257, at 40.
282. AMBROSE, *supra* note 44, at 106.
283. THOMAS A. ANGELO & K. PATRICIA CROSS, CLASSROOM ASSESSMENT TECHNIQUES 138 (2d ed. 1993).
284. Schwartz, *Casebooks*, *supra* note 257, at 43. The Schwartz and Riebe contracts casebook does a very good job of this. MICHAEL HUNTER SCHWARTZ & DENISE RIEBE, CONTRACTS: A CONTEXT AND PRACTICE CASEBOOK (2009).
285. Schwartz, *Casebooks*, *supra* note 257, at 43.
286. As one author has stated, "top performers understand their field at a higher level than average performers do, and thus have a superior structure for remembering information about it." COLVIN, *supra* note 7, at 102.
287. AMBROSE, *supra* note 44, at 44.
288. *Id.* at 58.
289. *Id.* at 48 ("[T]he usefulness of knowledge organizations depends on the tasks they need to support.").
290. *Id.*

jurisdiction or not, or by the reasons for finding or not for finding jurisdiction. Which of these organizational techniques would usually best aid learning in a civil procedure class? Superficial knowledge organizations, like organizing personal jurisdiction cases by the state involved, do not lead to effective learning and limit retrieval of knowledge.

Experts organize by recognizing deep patterns in the knowledge.[291] For example, a law expert would organize a series of cases by the types of reasoning a court used, then organize on a sublevel by the similarities and the differences among the cases. Therefore, professors should teach their students how to recognize deep-organizing patterns in material. Using contrasting examples will often help students see patterns.[292] Putting charts (concept maps) on the board or a screen also helps students develop deep knowledge organization.[293]

Another difference between expert and novice knowledge organization is the number and quality of connections between bits of knowledge.[294] Novices usually have few connections among neurons.[295] Consequently, they often do not make connections among related pieces of knowledge.[296] Experts have many more connections. A professor should help his students to view knowledge from multiple angles in order to create more connections. Showing how to organize knowledge into different organizations also helps students create connections.[297] For example, a professor could have his students organize a set of cases by the doctrinal principle behind the cases, then by the theoretical principle behind the cases. Experts also tend to organize knowledge hierarchically.[298] For instance, think of how you had to learn the various classifications of plants and animals in biology: general to less-general, to less-general, to specific. Experts frequently have even more complex knowledge organizations with cross-references or additional relationships.[299] Having properly arranged knowledge organizations help experts access information quickly.[300]

Professors should provide their students with ways to organize their knowledge within a field. Putting knowledge into categories helps students create knowledge organizations in long-term memory. For example, Is there an organization students can use to understand torts or

291. *Id.* at 55.
292. *Id.* at 61.
293. *See* discussion *infra*.
294. AMBROSE, *supra* note 44, at 49.
295. *Id.*
296. *Id.* at 50.
297. *Id.* at 63.
298. *Id.* at 51.
299. *Id.*
300. *Id.* at 52.

criminal law? Of course there is. All professors use it, but all students need to learn it.[301]

In sum, "students performed better when their knowledge organization matched the requirements of the task, and they performed worse when it mismatched."[302] For example:

> It is one thing for a medical student who has just memorized the symptoms of Disease X to answer correctly if her supervisor asks, "Does this patient have Disease X?" It is another thing when the medical student has studied a hundred diseases and is able to answer correctly if her supervisor asks, "What disease does this patient have?"[303]

This principle demonstrates a major problem with legal education today. Most law school classes focus on preparing for appellate arguments, and they are organized on a case-by-case basis with little synthesis or summarization. A significant number of other classes are centered around making philosophical arguments. Since these types of arrangements are mismatched with what lawyers normally do, is it any wonder that many graduates experience difficulty in making the transition to practice?

D. *Developing Metacognition in One-on-One Meetings*

Most law schools have academic support personnel who can help struggling students in one-on-one meetings. In addition, professors should encourage students from disadvantaged groups to come see the professors in their offices. One-on-one is the best way to help confused students. Since law school often consists of step-by-step learning, if a student does not clear up confusion early in the semester, the student will become more and more confused. In other words, meetings with students are opportunities to make sure the students truly understand the material and to work on detailed problems.[304] For example, Professor Wellford-Slocum has noted, "We might be able to discuss general organizational strategies with students in class, but it is far more effective to teach the process of organizing legal analysis by collaborating with a student as she reviews the organization of her own paper."[305]

In one-on-one meetings, teachers should do many of the things they do in the classroom, such as asking probing questions, modeling of

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301. As a group of scholars has declared, "When students are provided with an organizational structure in which to fit new knowledge, they learn more effectively and efficiently than when they are left to deduce this conceptual structure for themselves." *Id.* at 53.

302. *Id.* at 48.

303. Gibson, *supra* note 255, at 9. He has added, "[R]eal learning involves looking for and finding patterns." *Id.* at 13.

304. Robin S. Wellford-Slocum, *The Law School Faculty Conference: Towards a Transformative Learning Experience*, 45 S. TEX. L. REV. 255, 265–66 (2004).

305. *Id.*

strategies, and scaffolding. Teachers should also make the students explain the steps in their reasoning processes. This is just like a math teacher making her students "show their work" when solving a math problem.

There are several approaches a teacher can employ in student meetings. First, the professor can use "Socratic tutoring," where the professor "asks students illuminating questions that lead the learners to discover and correct their own misconceptions in an active, self-regulated fashion."[306] Second, the teacher can adopt "modeling-scaffolding-fading," in which the professor "first models a desired skill, then gets the learners to perform the skill while the tutor provides feedback and explanation, and finally fades from the process until the learners perform the skill by themselves."[307] Third, there is "reciprocal teaching," where the teacher "and learner take turns working a problem or performing a skill, as well as giving feedback to the other along the way."[308] Fourth, teachers can employ "frontier learning"—where teachers "select problems and give guidance in a fashion that slightly extends the boundaries of what the learner already knows or has mastered."[309]

Finally, professors can use think-alouds in meetings. In a typical think-aloud session, the student "talks through" a problem with his teacher.[310] During the think-aloud, the student verbalizes all steps of the thinking process, including alternatives and dead ends. Think-aloud exercises help students develop problem-solving skills, reflect on their problem-solving strategies, deal with new types of problems, and improve domain-transfer skills.[311]

E. *Developing Metacognition Through Formative Assessments*

Frequent, formative assessments, which are related to the course goals, are vital to effective learning because formative assessments allow students to see how they are progressing in the class. One scholar has declared, "Assessment methods and requirements probably have

306. Arthur C. Graesser et al., *Meta-Knowledge in Tutoring*, *in* HANDBOOK OF METACOGNITION IN EDUCATION 360 (Douglas J. Hacker et al. eds., 2009).

307. *Id.*

308. *Id.*

309. *Id.* at 370–71.

310. SCHWARTZ & RIEBE, *supra* note 284, at 719–20; *see also* Brian P. Coppola, *Progress in Practice: Using Concepts from Motivational and Self-Regulated Learning Research to Improve Chemistry Instruction*, *in* NEW DIRECTIONS FOR TEACHING AND LEARNING: UNDERSTANDING SELF-REGULATED LEARNING NO. 63, 89–90 (Paul R. Pintrich ed., 1995). Professors Schwartz and Riebe include several think-aloud exercises in their contracts book.

311. Professors McNamara and Magliano have asserted, "The reading strategies that readers engage in while self-explaining or thinking aloud are heavily guided by metacognition." Danielle S. McNamara & Joseph P. Magliano, *Self-Explanation and Metacognition*, *in* HANDBOOK OF METACOGNITION IN EDUCATION 61 (Douglas J. Hacker et al. eds., 2009).

a greater influence on how and what students learn than any other single factor."[312] Formative feedback is especially important for students with poor learning backgrounds because it is "designed to provide feedback and guide students to improve and learn further, based on feedback that enhances their capacity to build on what they know and address areas of misunderstanding."[313]

Formative assessment helps learning because "learning and memory for material is improved when time is spent taking a test on the material, versus spending the same amount of time restudying the material,"[314] because testing keeps students engaged in the subject matter.[315] Also, testing uses retrieval, which reinforces long-term memory retention. Furthermore, students retain more if they get feedback on their assessment because without feedback students do not know when and why they have made mistakes.[316] Finally, students who receive feedback are generally more engaged, more positive about law school, and spend more time studying than those who do not receive feedback.[317]

Legal educators should adopt a variety of formative assessments,[318] such as writing assignments, problem-solving exercises, multiple-choice tests, observations, and midterms. For example, a professor could give the students a problem-solving exercise at the end of a unit to do at home, then go over that exercise in class.[319] Likewise, the professor could give the students a take-home multiple-choice test that could be graded by a teaching assistant. Similarly, the professor could give the students a complaint, a corporate document, or a lease, and then have the students find errors. Finally, the students could draft a contract clause after the unit concerning that clause.

312. ALISON BONE, NAT'L CTR. FOR LEGAL EDUC., ENSURING SUCCESSFUL ASSESSMENT 2 (Roger Burridge & Tracey Varnava eds., 1999), *available at* http://www.heacademy.ac.uk/assets/documents/subjects/law/ensuring_successful_assessment.pdf.

313. Judith Welch Wegner, *Reframing Legal Education's "Wicked Problems,"* 61 RUTGERS L. REV. 867, 886 (2009). She continued, "Too often assessment is seen as the end of the story, when in fact, it provides a means of continuing improvement." *Id.* at 887. Professor Ramy has similarly noted, "While formative assessments do measure whether students are achieving a teacher's course goals, they do so to enhance the learning process." Herbert Ramy, *Moving Students from Hearing and Forgetting to Doing and Understanding: A Manual for Assessment in Law School*, 41 CAP. U. L. REV. (forthcoming 2013) (manuscript at *9), *available at* http://ssrn.com/abstract=2123560.

314. Jennifer McCabe, *Metacognitive Awareness of Learning Strategies in Undergraduates*, 39 MEM. COGN. 462, 464 (2011).

315. Memphis, *supra* note 267, at *2.

316. *Id.*; *see also* Ramy, *supra* note 313, at *17 ("[T]aken together, however, feedback and assessments are part of an iterative process that enhances learning and allows for more effective instruction.").

317. Ramy, *supra* note 313, at *17–18.

318. *Id.* at *20–55.

319. Professor Ramy has declared, "More assessment does not necessarily mean more grading." *Id.* at *5.

As one author has noted, the general criteria for designing effective formative assessments are:

> First, the teacher must formulate learning outcomes and performance standards and publicize them to the students. Second, the teacher must design the assessment tool. Third, the teacher must design instruction and activities to enable the students to learn what they need to fulfill the assessment task. Fourth, the teacher and student must discuss and use the results of the assessment measure to further promote learning and teaching.[320]

Rubrics ("sets of detailed written criteria used to assess student performance")[321] are an especially effective method of formative assessment because they give students detailed feedback. Rubrics identify how a student performed on a particular task, skill, or area,[322] and they include both characteristics and levels of quality.[323] They can be a scoring rubric, an instructional rubric, or both,[324] and they can employ grades, numbers, or categories. They should be related to the teacher's goals for the class.[325] Here is an example of one rubric's criteria for the application of the law to the facts in an objective memorandum:[326]

	Highly Proficient	Proficient	Acceptable	Unacceptable
Application of Law to Facts	Includes a discussion of how and why precedent cases' rules, reasoning, and implicit policies applies to client's facts.	Applies precedent cases to client's facts, but neglects to provide a thorough explanation of how and why the cases should apply.	Mentions cases when discussing client's facts, but neglects to explain how and why the precedent cases are applicable.	Discusses the client's facts with little or no reference to precedent cases.

320. Kristin B. Gerdy, *Teacher, Coach, Cheerleader, and Judge: Promoting Learning through Learner-Centered Assessment*, 94 LAW. LIBR. J. 59, 73 (2002).

321. Sophie M. Sparrow, *Describing the Ball: Improve Teaching by Using Rubrics—Explicit Grading Criteria*, 2004 MICH. ST. L. REV. 1, 7.

322. *Id.* at 7–8.

323. Heidi Goodrich Andrade, *Teaching with Rubrics: The Good, the Bad, and the Ugly*, 53 COLLEGE TEACHING 27, 27 (2005); *see also* AMBROSE, *supra* note 44, at 205–06.

324. Andrade, *supra* note 323, at 27.

325. Sparrow, *supra* note 321, at 7. Professor Andrade has commented that

> [w]hether we teach elementary school or graduate students, rubrics orient us toward our goals as teachers. We use them to clarify our learning goals, design instruction that addresses those goals, communicate the goals to students, guide our feedback on students' progress toward the goals, and judge final products in terms of the degree to which the goals were met.

Andrade, *supra* note 323, at 27.

326. Sparrow, *supra* note 321, at 25. The appendices of this article present many variations on grading rubrics.

F. *Developing Metacognitive Regulatory Skills*

Finally, professors should help their students develop regulatory metacognitive skills, which control cognition.[327] Regulatory metacognitive skills include planning, monitoring ("strategies for . . . checking the implementation of the planned action"), and evaluating ("strategies for evaluating the outcome of task processing").[328] Planning is "the selection of appropriate strategies and the allocation of resources that affect one's learning performance."[329] Planning skills include setting goals, creating strategies, making predictions, and time and practical management.[330] Monitoring is "one's on-line awareness of comprehension and task performance."[331] In other words, Did the thinker achieve an accurate and proper result (metacomprehension—"the accuracy of metacognitive monitoring"), and Did he use the best process to reach that result (efficiency)?[332] The most basic monitoring skill is realizing that one does not understand something.[333] Finally, evaluating (reflecting) is "appraising the products and regulatory processes of one's learning."[334] "Evaluating requires that the students critically look at whether the steps they took resulted in successful learning, whether the goals were met, and whether the anticipated obstacles were avoided or managed."[335] After evaluating the learning, the student should identify why the learning was successful or unsuccessful and, if unsuccessful, modify his learning strategy.[336]

VI. Helping Students from Disadvantaged Groups Become Self-Regulated Learners

The key to helping students from disadvantaged backgrounds become successful law graduates is to make them self-regulated learners. The first step in becoming a self-regulated learner is to become an engaged learner. As one scholar has stated, "It is virtually impossible to become proficient at a mental task without extended practice."[337]

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327. Efklides, *supra* note 237, at 79.

328. Balcikanli, *supra* note 234, at 1318; *see also* Efklides, *supra* note 237, at 80.

329. Balcikanli, *supra* note 234, at 1318.

330. *Id.*

331. *Id.*; *see also* Serra & Metcalfe, *supra* note 239, at 279 ("Metacognitive monitoring focuses on the progress of the cognitive process in which the person is engaged.").

332. Wiley, *supra* note 271, at 408; *see also* Schwartz, *Teaching Law Students*, *supra* note 1, at 460.

333. John H. Flavell, *Metacognition and Cognitive Monitoring: A New Area of Cognitive Development Inquiry*, 34 Am. Psychol. 906, 909 (1979), *available at* http://www4.ncsu.edu/~jlnietfe/Metacog_Articles_files/Flavell%20%281979%29.pdf.

334. Balcikanli, *supra* note 234, at 1318.

335. Niedwiecki, *supra* note 236, at 62; *see also* Ambrose, *supra* note 44, at 210 ("When students learn to reflect on the effectiveness of their own approach, they are able to identify problems and make the necessary adjustments.").

336. Schwartz, *Teaching Law Students*, *supra* note 1, at 461.

337. Willingham, *supra* note 11, at 81; *see also* Colvin, *supra* note at 60 ("The results were extraordinarily clear.").

Furthermore, as Daniel Kahneman has declared, "Those who avoid the sin of intellectual sloth could be called 'engaged.' They are more alert, more intellectually active, less willing to be satisfied with superficially attractive answers, more skeptical about their intuitions."[338] For example, once an engaged learner has "the rudiments down, [she will] continue to practice the skill in an effort to refine and improve [her] abilities."[339] In contrast, lazy thinkers are characterized by "a reluctance to invest more effort than is strictly necessary."[340]

Engaged learners understand that success in a domain "requires extensive factual knowledge."[341] As one scholar has noted, "[T]rying to teach students skills such as analysis or synthesis in the absence of factual knowledge is impossible."[342] Likewise, context is essential for understanding.[343] In addition, "[M]emory is the cognitive process of *first* resort. When faced with a problem, you will first search for a solution in memory, and if you find one, you will very likely use it."[344] The cognitive process of second resort is analogy—comparing problems to ones stored in long-term memory.[345] Studies have shown that those who succeed in a field, such as chess masters, have the best long-term memories, and such experts "can access the right information from memory with great speed and accuracy."[346] However, researchers have demonstrated that "average people can achieve extraordinary memory ability by developing their own retrieval structures or being given them by researchers."[347] Consequently, engaged learners put forth the effort to master their field.

However, being an engaged learner requires more than effort (being behaviorally engaged); students must also be cognitively engaged.[348] Professor Pintrich has declared, "In this sense, cognitive engagement refers to the quality of students' engagement, whereas sheer effort refers to the quantity of their engagement in the class. This outcome of cognitive engagement is the most important one for understanding classroom learning . . . ."[349] Self-engaged learners do not stop when the learning is difficult because they have a growth

338. DANIEL KAHNEMAN, THINKING, FAST AND SLOW 46 (2011).

339. WILLINGHAM, *supra* note 11, at 82.

340. KAHNEMAN, *supra* note 338, at 31. Thinking is effortful and requires concentration. *Id.* at 5.

341. WILLINGHAM, *supra* note 11, at 19.

342. *Id.*

343. *Id.* at 92.

344. *Id.* at 29.

345. *Id.* at 72.

346. *Id.* at 29–30, 100. Do not let your students use a "poor memory" as an excuse for failure. As noted throughout this paper, long-term memory is created mainly by effort and the proper approach.

347. COLVIN, *supra* note 7, at 16.

348. Pintrich, *Motivation*, *supra* note 68, at 105.

349. *Id.*

mindset.[350] If they do not understand a case on first reading, they read it as many times as necessary to fully understand it. Self-engaged learners do not stop when their first strategies fail; they try another approach. Self-engaged learners welcome challenges. They seek feedback, and they accept criticism because it helps them improve. Self-engaged learners do more than the professor requires.

Helping students develop a growth mindset, as discussed above, is the first step in creating engaged learners. With a growth mindset, students focus on the implications for learning, rather than on judging themselves.[351] They develop curiosity and a love for knowledge.[352]

Self-regulated learning involves three stages: forethought, performance, and reflection.[353] Expert learners do not just jump into solving a problem; they define the problem, ponder the problem, and gather the context first (the forethought stage or planning stage).[354] The forethought stage is the thought processes the learner undertakes before the learning task, and it involves the subparts of "task perception, self-efficacy, self-motivation, goal setting, and strategic planning."[355] First, the learner should identify and classify the task, by perceiving its skill domain, the subject of the task, and how it relates to learning tasks previously undertaken by the learner.[356] Next, the learner assesses her self-efficacy for accomplishing the task.[357] (The Author has discussed self-efficacy in detail above.)[358] The next step is accessing self-motivation, which the Author discussed in detail in Part IV above.

Based on the earlier substages, the learner then sets goals (purposes) for the learning (the desired outcome).[359] Research has shown that those who set goals for the learning task learn more and retain more.[360] Likewise, the learner should consider the context of the learning task. The final step in the forethought stage is developing a learning strategy based on the earlier substages.[361] Strategies are

350. DWECK, *supra* note 45, at 53.

351. *Id.* at 209.

352. *Id.* at 53.

353. Schwartz, *Teaching Law Students*, *supra* note 1, at 454; *see also* COLVIN, *supra* note 7, at 116–21 (before the work, during the work, after the work).

354. WILLINGHAM, *supra* note 11, at 134. A group of scholars has noted that novices generally spend little time planning. AMBROSE, *supra* note 44, at 197.

355. Schwartz, *Teaching Law Students*, *supra* note 1, at 455.

356. *Id.*; Marian Murphy et al., *Reflective Inquiry in Social Work Education*, *in* HANDBOOK OF REFLECTION AND REFLECTIVE INQUIRY: MAPPING A WAY OF KNOWING FOR PROFESSIONAL REFLECTIVE INQUIRY 177 (N. Lyons ed., 2010).

357. SHELL, *supra* note 10, at 74–76.

358. *See supra* notes 118–24 and accompanying text.

359. Schwartz, *Teaching Law Students*, *supra* note 1, at 457.

360. COLVIN, *supra* note 7, at 116–17 ("[T]he poorest performers don't set goals at all; they just slog through their work.").

361. Schwartz, *Teaching Law Students*, *supra* note 1, at 457; Peter Dewitz, *Legal Education: A Problem of Learning from Text*, 23 N.Y.U. L. REV. L. & SOC. CHANGE 225, 228 (1997) (Strategic readers "set a purpose for reading, self-question, search for

"set[s] of mental processes" used by a thinker to achieve a purpose.[362] "[T]he best performers make the most specific technique-oriented plans";[363] they "know which strategies and behaviors are generally effective within their domains of expertise, and they select the best or most effective strategy or behavior for a particular situation."[364]

The performance stage is the actual learning. This stage encompasses three processes: (1) "attention-focusing," (2) "the activity itself," and (3) "the self-monitoring the [learner] performs as she implements her strategies and begins to learn."[365] Self-regulated learners are able to focus their attention.[366] As mentioned above, having a purpose or goal when learning helps attention-focusing, as does being enthusiastic about learning. As noted earlier in the metacognitive section, self-monitoring is important to learning because it makes learning more accurate and efficient.

The final stage in learning is the reflective stage. In this stage, the learner critically reflects on what she has learned and considers how effective the learning strategy was.[367]

As one can see from the above, metacognition and metacognitive skills are very important to becoming a self-regulated learner. Understanding how learning occurs, self-knowledge of one's thinking processes, understanding the different strategies and when to use them, self-monitoring, and reflection are all a vital part of being a successful law student.

Self-regulated learners develop attitudes and habits. An example of an attitude is "I will communicate my analysis to my reader as clearly as possible." A habit instituting this attitude would be to carefully edit one's writing several times. Another attitude might be "I will reread these cases until I fully understand them." A habit would be to always reflect on each case after having read it. A self-regulated learner also sets growth goals,[368] such as "I will work on my editing skills over winter break," or "I will work on my case synthesis skills this weekend."

Finally, self-regulated learners employ mental models to organize a domain (an area of knowledge). First, self-regulated learners use mental models (or schemas) as a framework on which to "hang" their

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important information, make inferences, summarize, and monitor the developing meaning.").

362. *See* Leah M. Christensen, *Legal Reading and Success in Law School: An Empirical Study*, 30 SEATTLE U. L. REV. 603, 608 (2007); *see also* COLVIN, *supra* note 7, at 117 ("[T]he best performers are focused on how they get better at some specific element of the work, just as a pianist may focus on improving a particular passage.").

363. COLVIN, *supra* note 7, at 117.

364. MARZANO, *supra* note 269, at 11.

365. Schwartz, *Teaching Law Students*, *supra* note 1, at 458.

366. *Id.* at 458–59.

367. *Id.* at 460–61.

368. MARZANO, *supra* note 269, at 13.

knowledge of a domain: "A mental model not only enables remarkable recall, it helps top performers understand new information better than average performers, since they see it not as an isolated bit of data but as part of a large and comprehensible picture."[369] Second, self-regulated learners use mental models to help distinguish relevant from irrelevant information.[370] Finally, self-regulated learners employ mental models to "project what will happen next."[371] Colvin has asserted, "Since your mental model is an understanding of how your domain functions as a system, you know how changes in the system's inputs will affect the outputs—that is, how the events that just happened will create the events that are about to happen."[372]

VII. HELPING STUDENTS FROM DISADVANTAGED GROUPS DEVELOP BETTER STUDY HABITS

Many students enter law school with poor study habits, especially those who have had poor educations.[373] In addition, law school requires a new approach to thinking, which means that law students need new study habits. However, most law schools do not teach study habits to entering students, and most do not want to. Nevertheless, because of the above reasons, law schools must teach study habits, especially if they want their minority and foreign students to succeed.

Law schools and professors should help students develop study strategies (e.g. deciding what items to study, how to allocate study time, and what study strategies to use).[374] A law school can start students on the path to using effective study habits with a study habits session during orientation. Then, individual teachers could reinforce good study habits throughout the first year.

Professors should help their students develop general study strategies for a course. Many law students prepare for class by reading that class's cases before class, then cramming for the exam using class notes and other materials a couple of days before the exam. This is not an effective learning strategy. Spacing studying, opposed to massing it, aids in retaining material in long-term memory.[375] Students

369. COLVIN, *supra* note 7, at 123.

370. *Id.* The Author has noticed that one reason novice law students fail is because they lack this skill.

371. *Id.* at 124.

372. *Id.*

373. Professor Willingham notes, "Don't take for granted that your slower students have these skills, even if they *should* have acquired them in previous grades." WILLINGHAM, *supra* note 11, at 185.

374. Serra & Metcalfe, *supra* note 239, at 290.

375. Jessica M. Logan et al., *Metacognition and the Spacing Effect: The Role of Repetition, Feedback, and Instruction on Judgments of Learning for Massed and Spaced Rehearsal*, 7 METACOGNITION LEARNING 175, 176 (2012), *available at* http://castel.psych.ucla.edu/papers/Logan%20JOL%20Spacing%20ML.pdf; Memphis, *supra* note 267, at *3. Massing does not "properly reinforce the pathway over a sufficiently distributed length of time." Hillary Burgess, *Deepening the Discourse Using*

often mass learn (cram) because they think it is the best way to prepare for an exam. However, it is not the best way to retain knowledge in long-term memory, which is what students need to succeed in law school.

During the semester, law students should spend one-third of their time preparing for class, one-third of their time reflecting on what they learned in class (usually the same day as the class), and one-third of their time organizing and synthesizing the materials (say every weekend).[376] Preparing for class should involve more than just reading the cases so that the student will not be embarrassed if called upon. The students should think about the law and reasoning in the cases and how they relate to material previously learned. They should also come up with any questions they have on the material (what they did not understand). The evening after the class, the students should review the class notes and rewrite them.[377] After the students have reviewed that day's notes, they should identify the most important ideas in that class and what important procedures, such as the steps in analyzing a case, were covered.

Students should also question the material (reflection), asking questions such as: How do these ideas relate to what we have learned before? What is the reasoning behind the rules, and are there alternatives to the law and reasoning? The students should also create their own examples of concepts or tests. A law student needs to synthesize (outline) the material at least once a week, using graphic organizers (see *infra*). This helps learning through repetition and restating the material. Finally, students will study before the exam, but the above eliminates the need for cramming. Also, based on spacing principles, students should study for a particular exam over several days. (E.g. Monday-Thursday torts in the morning, contracts in the afternoon, property in the evening.)

Professors should also help their students develop good habits concerning the details of studying. The greater the number of different approaches a student takes to studying, the better, because it creates more connections in the brain (multimodal learning).[378]

First, professors should help students recognize study strategies that do not work, especially ones they relied on in college.[379] Students will continue to use ineffective study habits from high school and college unless they are shown that these approaches do not work well.

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the Legal Mind's Eye: Lessons from Neuroscience and Psychology That Optimize Law School Learning, 29 QUINNIPIAC L. REV. 1, 37 (2011).

376. For a similar strategy, *see* Andrews, *supra* note 260, at 4–5.

377. Professor Schwartz notes, "If students can accurately restate a rule in their own words, they understand it." Schwartz, *Casebooks*, *supra* note 257, at 46.

378. Burgess, *supra* note 375, at 45–47.

379. Serra & Metcalfe, *supra* note 239, at 292.

Professors should help their students develop reading strategies. Professors should help their students extract meaning and comprehension from cases, rather than just producing empty briefs.[380] Strategic readers interact with the text. They "set a purpose for reading, self-question, search for important information, make inferences, summarize, and monitor the developing meaning."[381] Likewise, "Good readers constantly monitor their reading, noting when comprehension is proceeding smoothly and when difficulties occur. When comprehension breaks down, readers attempt to repair their problems through rereading the text, summarizing, making inferences or consulting outside help."[382] Effective readers also employ self-explanation ("the process of explaining text or material to oneself either orally or in writing.").[383] Finally, strategic readers talk back to the text, draw inferences from the text, and question the text.[384]

Professors should help students use study strategies that reinforce long-term memory and create connections between concepts, processes, declarative knowledge, etc. This is important because humans obtain knowledge (declarative and procedural knowledge) for use in short-term memory from two sources—the environment and long-term memory.[385] As noted above, "Factual knowledge must precede skill."[386] In addition, those who have the knowledge in their long-term memories are more effective thinkers and can consider a problem from more angles than those who have to look up the facts. Moreover, chunks in long-term memory can help free space in short-term memory.[387] Finally, having background knowledge of an area makes it easier to remember new material in that area.[388]

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380. Schwartz, *Law Teaching*, *supra* note 235, at 376. The best works on legal reading are RUTH ANN MCKINNEY, READING LIKE A LAWYER: TIME-SAVING STRATEGIES FOR READING LAW LIKE AN EXPERT (2005) and Laurel Currie Oates, *Beating the Odds: Reading Strategies of Law Students Admitted Through Alternative Admissions Programs*, 83 IOWA L. REV. 139 (1997).

381. Dewitz, *supra* note 361, at 228. Setting a purpose for reading is especially vital because it affects how we read and question texts. José Otero, *Question Generation and Anomaly Detection in Texts*, *in* HANDBOOK OF METACOGNITION IN EDUCATION 47 (Douglas J. Hacker et al. eds., 2009). For example, "[R]eading an expository text with a study goal results in more explanatory and predictive instances than reading the same text with an entertainment goal." *Id.*

382. Dewitz, *supra* note 361, at 229.

383. McNamara & Magliano, *supra* note 311, at 61 ("A good deal of research has shown that readers who self-explain spontaneously or when prompted to do so understand more from learning materials and construct better mental models of the content." *Id.* at 61–62.).

384. Christensen, *supra* note 362, at 609.

385. WILLINGHAM, *supra* note 11, at 15–16.

386. *Id.* at 25.

387. *Id.* at 35.

388. *Id.* at 42–44 ("That's because when you have background knowledge your mind connects the material you're reading with what you already know about the topic, even if you're not aware it's happening.").

One way of reinforcing long-term memory is through repetition, which aids long-term memory retention because repetitions strengthen the neurons where long-term memory is stored.[389] Repetition works best for retention when the student is thinking about the meaning of the material.[390] Similarly, retrieval of material (self-testing), in contrast to just studying or rereading, aids in long-term retention of the material.[391] Thus, students should test their knowledge frequently while studying. For example, they should test their knowledge of the elements of negligence or murder. Finally, when studying, students should relate the new material to material studied before, which creates connections with the previous knowledge and allows more ways to retrieve the material from long-term memory.[392] Does the new material add to, reinforce, or contradict the old material? Does the new material help me understand the old material better?

Law teachers should help their students develop "deliberate practice" strategies. Studying for long hours by itself does not create mastery; rather, deliberate practice is required.[393] Deliberate practice produces deep learning—understanding not just the parts of knowledge, but also how they are interconnected, and both the concrete and the abstract.[394] "This understanding allows the student to apply the knowledge in many different contexts, to talk about it in different ways, to imagine how the system as a whole would change if one part of it changed, and so forth."[395] Deep learners can see problems functionally, instead of just at the surface level.[396]

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389. SHELL, *supra* note 10, at 24–25 ("The more the neuron fires, the easier it is to fire again." *Id.* at 8–9.).

390. WILLINGHAM, *supra* note 11, at 58–63.

391. Karpicke, *supra* note 248, at 483 ("Once a word pair could be recalled, practicing retrieval two additional times promoted long-term retention much more than studying it two additional times or removing it from further practice, and additional studying produced little benefit relative to dropping items."); *see also* John A. McNulty et al., *Study Strategies are Associated with Performance in Basic Science Courses in the Medical Curriculum*, 1 J. EDUC. & LEARNING 1, 9 (2012), *available at* http://www.ccsenet.org/journal/index.php/jel/article/viewFile/17038/11358. "Being able to recall information depends first upon the information being stored in long-term memory, and then upon being able to both locate and retrieve the information." Burgess, *supra* note 375, at 34.

392. Kowalski, *supra* note 254, at 73 ("Metacognition requires a 'deliberate effort' on the part of students to connect new knowledge to already-familiar concepts."); Schwartz, *Law Teaching*, *supra* note 235, at 375.

393. K. Anders Ericsson, *The Influence of Experience and Deliberate Practice on the Development of Superior Expert Performance*, *in* THE CAMBRIDGE BOOK OF EXPERTISE AND EXPERT PERFORMANCE 685, 693 (K. Anders Ericsson et al. eds., 2006). Ericsson relates that, while violinists at the Music Academy in Berlin studied about the same amount (over 50 hours a week), the better violinists spent more time "on activities that had been specifically designed to improve performance." *Id.*

394. WILLINGHAM, *supra* note 11, at 95–97.

395. *Id.* at 95.

396. *Id.* at 137.

Deliberate learners "strive to continuously achieve mastery of increasingly higher levels of performance through the acquisition of more complex and refined cognitive mechanisms."[397] Moreover, "In deliberate practice, you are thinking about some details of what you are doing, possibly with the intent of changing them."[398] In other words, deliberate practice "involves working to specific goals."[399] Deliberate practice must (1) be designed to specifically improve performance, (2) include repetition, (3) involve continuous feedback, and (4) be highly demanding mentally.[400] "Top performers repeat their practice activities to a stultifying extent,"[401] and the intense concentration required for deliberate practice distinguishes it from other types of learning.[402] One reason musicians practice so much is to make certain processes, such as playing the notes, automatic so that they can devote the limited slots in their working memories to more important things, like interpretation.[403]

Deliberate learning also requires constant monitoring. As a group of scholars has noted, "[G]ood problem solvers were far more likely to monitor their understanding while they studied, that is, to continually stop themselves as they were reading to ask whether they were understanding the concepts just presented."[404]

Focused practice, adopting focused strategies for learning, is essential to deliberate practice.[405] Focused practice involves specificity, rather than just performing an action several times.[406] It "involves repeating a specific strategy with attention to improving detailed aspects of the strategy."[407] It "presents performers with tasks that are initially outside their realm of reliable performance, yet can be mastered within hours of practice by concentrating on critical aspects and by gradually refining performance . . . after feedback."[408] For example, a basketball player might shoot one hundred free throws to work on her release.

Using the "generative effect" in which the learner creates her own materials,[409] such as an outline or a case analysis, is an effective way of learning because "information in working memory that is changed or

397. MARZANO, *supra* note 269, at 7. Deliberate practice methods have been used in a wide variety of domains, including chess, music, typing, athletics, darts, medicine, and insurance sales. *See generally* Ericsson, *supra* note 393, at 685–705.
398. SHELL, *supra* note 10, at 156.
399. AMBROSE, *supra* note 44, at 127.
400. COLVIN, *supra* note 7, at 67–72.
401. *Id.* at 69.
402. Ericsson, *supra* note 393, at 694.
403. *See* WILLINGHAM, *supra* note 11, at 112–15.
404. AMBROSE, *supra* note 44, at 198.
405. MARZANO, *supra* note 269, at 49.
406. *Id.*
407. *Id.*
408. Ericsson, *supra* note 393, at 694.
409. McCabe, *supra* note 314, at 465.

altered is better remembered."[410] For example, "Free recall or essay tests which require the test taker to generate answers with minimal cues produce better learning than multiple choice tests in which the learner only needs to be able to recognize correct answers."[411] Similarly, summarization of material helps learners remember the material, especially when summarization occurs at a delayed time from the reading.[412] Likewise, paraphrasing aids storage and retrieval from long-term memory because humans remember things better in long-term memory when it is altered in the memory (deep versus surface learning).[413] Finally, writing assignments use the generative effect, as do synthesis from multiple sources.

An important example of the generative effect is organizational learning strategies, such as outlining, integrating, and synthesizing. Such strategies produce more learning than passive strategies, such as rereading or rote learning, because active engagement creates more learning than passive learning.[414] Moreover, "Organizing requires students to understand how individual components relate to each other to form a coherent whole."[415] A student can organize information into a graphic organizer—"a type of organizing strategy such as a hierarchy chart, a flowchart, or a mindmap."[416] Using graphic organizers at the end of a unit (such as intentional torts) reinforces long-term memory and creates connections among concepts (schemas).[417] For example, a professor could have students make posters that teach others the fundamentals of a unit, such as having students make a poster teaching adverse possession. Students can also use charts to help synthesize cases. Finally, it is important to note that "the processes of synthesizing cases and creating an outline help the student store her understanding of the rule of law in long-term memory more effectively than reading a commercial outline."[418] Using commercial outlines, old outlines, or canned briefs is the worst thing a student from a disadvantaged background can do.

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410. SHELL, *supra* note 10, at 25.

411. Memphis, *supra* note 267, at *4. The authors add, "In fact, free recall tests produce as much learning as restudying the material." *Id.*

412. Serra & Metcalfe, *supra* note 239, at 288.

413. SHELL, *supra* note 10, at 25–26. "Any time working memory temporarily held contents, the result of that manipulation appears to be stored, at least into long-term memory potentiation." *Id.* at 26.

414. Memphis, *supra* note 267, at *4; *see also* Schwartz, *Law Teaching*, *supra* note 235, at 375.

415. Burgess, *supra* note 375, at 17.

416. Schwartz, *Casebooks*, *supra* note 257, at 46. For various examples of graphic organizers, *see* Burgess, *supra* note 375, at 58–74; *see also* SCHWARTZ & RIEBE, *supra* note 284.

417. *See* Burgess, *supra* note 375, at 32 ("Graphical organizers also help novices create efficient organizational systems for their knowledge and weed out inefficient or incorrect connections.").

418. *Id.* at 36.

Requiring students to keep a journal concerning their experiences in class is also an effective way to build metacognitive skills and remember material.[419] As one author has written, "This activity . . . requires students to write down their reflections on the learning contents from a previous lesson," highlighting the main ideas, generating examples, and noting comprehension problems.[420] Of course, professors should give their students guidelines on the most effective way to create a journal.

Finally, while students have had study groups for years, professors can help their students make study groups more effective by providing metacognitive and other guidance for the study group.[421] Study groups can serve as a way for students to improve their critical skills. Study groups, or even just two students, can criticize cases, do problem-solving exercises, and give each other hypotheticals (think-aloud exercises). Students can also interact using Twitter or text messaging. Since many students tweet, they might consider this fun, rather than work.

VIII. CONCLUSION

Implementing the above changes will require a great deal of effort by professors and students. However, helping students from disadvantaged backgrounds succeed in law school is worth that effort. Moreover, these changes will significantly improve the quality of law school graduates, which will also improve society. Law schools can help law students from disadvantaged backgrounds, and the time to start is today.

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419. MARZANO, *supra* note 269, at 10; *see generally* Roelle, *supra* note 276.

420. Roelle, *supra* note 276, at 2.

421. Studying with others is important because it allows others to be critical of one's work. However, research has shown that studying alone is usually the best technique for learning. COLVIN, *supra* note 7, at 58–59. In other words, do both, but spend the most time studying alone.