Brain Training for Academic Success

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by Darby Dickerson

Law schools have developed numerous approaches to teaching the substance of law and providing academic support, but few have studied how brain function and care impact performance.

I. Introduction

Lawyers are professional thinkers. As such, the brain is our main tool. But while it is our most important and widely used organ, it is also the most neglected and misunderstood. Fortunately, it is also “the most modifiable part of [our] whole body.”

Law professors have long sensed that we’re engaged as much in training students’ brains as teaching content and lawyering skills. Take, for example, the ubiquitous quote from Professor Charles Kingsfield: “You teach yourselves the law, but I train your minds. You come in here with a skull full of mush; you leave thinking like a lawyer.”

On the other hand, as my John Marshall colleague Professor Paul Wangerin lamented three decades ago: Law professors “inundate students with substantive and procedural rules of law, but rarely if ever provide guidance or instruction in methods of learning.”

Over time, most law schools have developed academic support and bar-preparation programs to teach students various approaches to mastering the material. And many faculty have taken time to study topics such as active learning, learning styles, and mindfulness. But few have studied the brain, how it works, and how brain function and care impact performance.

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The solution? Law schools should add “brain training” to their program of education. In my view, brain training is the foundation on which all other law school teaching and learning should be built. If we teach students key concepts about neuroscience and neuroplasticity, and provide them with key strategies to enhance cognitive functions, we’ve taught them skills they can use inside and outside law school to learn, remember, innovate, and thrive.

II. Neuroplasticity Basics

“Neuroplasticity refers to the potential that the brain has to reorganize and rewire by birthing new neurons and creating new neural pathways.” Because the brain has the ability to grow and rewire itself, intelligence is not static. Individuals, regardless of age, can increase their intelligence. Thus, we need not be prisoners of our past labels — such as LSAT scores and undergraduate GPAs.

The brain’s “frontal lobe is our higher-order cognitive command center, responsible for novel thinking. It represents nearly a third of our entire brain and is intimately involved in orchestrating our capacity to reason, think abstractly, solve novel problems, flexibly deploy mental resources to update information, and generate insightful ideas.” As the “seat of wisdom,” strong frontal-lobe functioning is critical for academic success.

High-level thinking skills, such as expressing ideas, synthesiz-
ing cases, exercising judgment, controlling emotions, learning new technology, and determining which job to pursue, emanate from the frontal lobe. These complex mental challenges are known as ‘fluid intelligence’ — [which refers to] how dynamically and flexibly individuals use what they know and how they apply learning to new concepts.” People demonstrate fluid intelligence through their “ability to deal with new and uncertain situations and to plan futuristically to solve problems in systematic ways.” Studies have shown that the ability to succeed depends more on an individual’s fluid intelligence than an IQ score.

“[M]any cognitive neuroscientists refer to fluid intelligence skills as executive functions.” The core executive functions are:

- inhibition (e.g., blocking distractions);
- switching (e.g., toggling back and forth between tasks);
- working memory (e.g., actively maintaining and manipulating information); and
- flexibility (e.g., changing and updating old knowledge).

Lawyers and law students use executive functions to solve problems, reason, plan, and organize. They use it to absorb dense and complex material, distinguish one case from another, apply law to facts, interpret statutes, and revise arguments based on new information.

Frontal-lobe functioning is dynamic. In other words, we can improve — or impair — our brains. For example, people who are deep-thought deprived — due to multitasking or being constantly tied to technology — will experience a decline in fluid intelligence and executive functioning. On the other hand, those who unplug, prioritize, and strive to innovate will gain functioning.

Brain training and improvement isn’t magic. Instead, it requires daily attention. It requires people to develop and maintain healthy habits, and to avoid seeking shortcuts to success.

During Fall 2015 – Spring 2017, Texas Tech University School of Law sought to use the power of neuroplasticity to improve our students’ lives and learning. We did so by partnering with the Center for BrainHealth’s Brain Performance Institute (BPI) at the University of Texas at Dallas, which applied BPI’s Strategic Memory Advanced Reasoning Training (SMART) to the law school setting. The remainder of this article describes the Texas Tech Law–BPI collaboration and possibilities for future law school brain training programs.

III. SMART

BPI developed Strategic Memory Advanced Reasoning Training, or SMART, based on 25 years of scientific study by cognitive neuroscientists and research clinicians. SMART’s “training methods are based on clinical trials that compared strategy-training programs to memory training in a wide population, ranging from healthy older adults to those with brain injury or risk of Alzheimer’s disease.” BPI runs SMART training programs for myriad individuals: from wounded warriors and middle-school students in underprivileged neighborhoods to Navy SEALS, high-performing athletes, and corporate executives.

SMART focuses on three frontal-lobe cognitive functions:

- **Strategic Attention**: BPI trains people to focus with precision on important tasks and to reduce toxic brain habits, such as constantly checking phones or email accounts. The clinicians also show how strategic attention helps to improve brain endurance and resilience.

- **Integrated Reasoning**: BPI trains people to “zoom in” to find critical details then “zoom out” to see and decipher the big
picture. The clinicians train people to apply new information across situations, and to absorb content and synthesize meanings for generalized application.

- **Innovation:** BPI trains people to flexibly update ideas and perspectives to understand the complexities and nuances of information. Clinicians encourage novel thinking, which helps people generate multiple solutions to a problem by seeing and appreciating different options.

BPI has also developed nine strategies to help individuals enhance these three areas of cognitive function and to build a mental toolkit that can increase the brain’s capacity to assimilate and manipulate large amounts of complex incoming data.

A. Strategic Attention

“Strategic attention” involves focusing on essential information while filtering out less critical data. As Dr. Sandra Bond Chapman, Founder and Chief Director of the Center for BrainHealth, explains:

[M]ore than 87 percent of professionals report that they are interrupted more than 80 percent of their day, making it difficult to take even five minutes to deeply ponder the important work needed to be accomplished…. The unfiltered, massive influx of new information competing for your consideration and the constant interruptions from cellphones chirping, emails ding, and in-person intrusions rob you of clear, strategic, insightful thinking…. The result is lower performance, more errors, and greater stress.

Strategic attention involves removing yourself from information absorption to solve problems. It is the ability to block or filter distractions while focusing on a central task. Focus is not just concentrating on the content at hand but, more important, it is about knowing when to step away and when to close off your mind from distractions.

The three BPI strategies to improve strategic attention are:

- **Brainpower of Two:** Identify two top priorities each day. Then follow your plan: devote uninterrupted time for these two priorities; select times when you’re most alert and refreshed; and establish procedures — such as not checking messages and putting a note on your door that you’re working on an important project — to avoid distractions and interruptions. You typically shouldn’t spend all day on these tasks, but prioritize them. When you take breaks from working on the priorities, or after you’ve finished working on them for the day, you can move on to other tasks, such as checking emails and returning calls.

- **Brainpower of One:** Do one thing at a time. Multitasking “weakens your higher-order thinking capacity” and results in less focused thinking and more errors. Instead of attempting to multitask, perform tasks sequentially.

- **Brainpower of None:** Take a break when you hit a mental wall; your brain needs time to rest. The clinicians suggest taking five five-minute breaks — disconnected from all technology — each day.

B. Integrated Reasoning

*By enhancing integrated reasoning, an individual can absorb new meanings and move away from literal meanings, combine ideas and concepts, and generate novel interpretations.*

“Integrated reasoning” is the second key cognitive function. Integrated reasoning is the antithesis of rote memory; it is “transformational thinking” that allows you to “construct new meanings from the vast data you are consuming.” Then update those ideas by “reconciling, interpreting, and converting these concepts, ideas, approaches, and solutions within the context of your vast existing experience and knowledge.” By enhancing
integrated reasoning, an individual can absorb new meanings and move away from literal meanings, combine ideas and concepts, and generate novel interpretations. These are all skills and functions critical to success in the legal profession.

BPI’s three strategies to enhance integrated reasoning are:

- **Brainpower of Zoom In:** Zooming in allows you to gather the critical facts and information that you need to generate novel ideas. The key is knowing when to gather more information and when to stop and develop your opinion or argument. Zooming in also teaches that it’s not enough to merely memorize or understand the facts; instead, you must connect them to a larger idea.

- **Brainpower of Zoom Out:** Zooming out encourages us to look for broader meaning — not to miss the forest for the trees. It allows us to “lift off to a helicopter view, assessing pieces of data and disparate viewpoints from above, merging them into the major themes, core concepts, and broad principles.”

- **Brainpower of Zoom Deep and Wide:** This power requires us to take ideas from one area and apply them to other issues or problems. For example, it would allow a person to take an idea generated about conditions in Ancient Rome and apply it to the current day. Or, it would allow law students to take a concept learned in Torts and use it to help resolve a problem presented in another class.

C. Innovation

“Innovation” is the function that allows us to be creative, adaptable, and resilient, to think flexibly, and to experiment. BPI’s three strategies that expand an individual’s capacity for innovation are:

- **Brainpower of Infinite:** This power teaches us to understand that information can be connected in infinite ways. "Innovative ideas are created out of pieces of seemingly random data, recombined in such a novel way that the whole that was comprised of the pieces does not even look the same.”

- **Brainpower of Paradox:** Initial failure can lead to the greatest advances. “The brainpower of paradox is enhanced when one reflects on a completed task and perceives the holes, and then dynamically and flexibly reworks and reinvents for a better product/output.” This mental flexibility leads to new insights and fresh approaches.

- **Brainpower of Unknown:** The brainpower of the unknown “requires curiosity and asking, ‘What if?’” It teaches us to be a change creator, not a change blocker, and to avoid status quo and routine.

Because these nine strategies relate directly to skills students need to survive and thrive in law school, the legal profession, and life, Texas Tech Law invited BPI clinicians to bring SMART to campus.

**IV. Brain Training at Texas Tech Law**

A. Program Design/1L Training

BPI clinicians worked with two entering classes in two different semesters: Fall 2015 and Spring 2017.

During Fall 2015, SMART training was integrated into new-student orientation. The training started with me, as dean, addressing all of the students to outline the program, the reasons for the program, and the anticipated benefits. During this initial large-group session, the alumnus who introduced me to SMART and who had participated in SMART training for veterans, described the benefits he had derived from the program and why he wished the training had been available to him in law school. Next, BPI’s senior clinician described some basic neuroscience concepts and how those related to SMART and law school learning.
Following this large-group session, all students participated in two three-hour sessions, spread over four days. Two clinicians were assigned to small groups of about 20 to 22 students. In addition to 1Ls, each group included foreign LL.M. students and at least one or two upper-level student ambassadors to help create buy-in and help 1Ls translate SMART into a law school environment.

Although SMART is proprietary, I can say that the two small-group sessions included lessons on how the brain works, the cognitive functions and strategies described above, and interactive exercises that helped students understand how to apply the various strategies in concrete situations. During Session 1, students learned all nine SMART strategies in interactive sessions using a combination of law-specific materials and regular SMART training materials. Session 2 started with a brief review and content mastery check, followed by activities related to the SMART strategies. Again, materials used were a combination of materials BPI created specifically for law students and regular SMART training materials.

One Session 1 activity involved case briefing. Students worked individually and were asked to apply the strategies of Integrated Reasoning — Zoom In, Zoom Out, and Zoom Deep and Wide — to interpreting case law. Students were given a few minutes to read an abridged version of a case and prepare three items:

- A “zoomed in” summary of facts. Clinicians challenged students to condense the summary into one or two sentences.

- A “zoomed out” interpretation of the case’s over-arching issue. Clinicians asked students to identify high-level themes (in one or two words) that encompassed the case’s main issue. They then asked students to formulate a one-sentence question that captured the essence of the legal question.

- A “zoom deep and wide” application statement. First, students answered the question they posed in item 2. Clinicians then pushed them to develop a more broadly applicable statement that generalized the result to be applied to other cases. For example, if the case used was *Pierson v. Post* about ownership rights in fox hunting, the clinicians challenged students to think beyond who rightfully owned the fox and to develop an application statement about how the principle could apply to property law in general.

One Session 2 activity focused on statutory interpretation and was designed to help students cohesively integrate the strategies. Students were divided into small groups and given a hypothetical situation such as:

You are volunteering at a pro bono information session for low-income individuals who have legal questions or concerns related to landlord-tenant issues. You are tasked with giving a two-minute overview of the following statutes from the Texas Property Code governing landlord-tenant relations.

At the end of the planning time, a representative delivered the group’s synopsis. The other groups and clinicians commented on whether the information was presented in a way that would be appropriate for the intended audience. Students utilized several high-level cognitive strategies to complete this task. They had to quickly read the statute and filter key language to find the elements. They had to practice interpreting technical language in a way that a layperson can understand. They had to communicate information clearly and concisely. And, to provide their intended audience with useful information, they had to be able to shift perspectives to consider the audience’s needs and abilities.

Understanding that skill levels will not progress without practice and reinforcement, we scheduled a mandatory three-hour booster program about 30 days after orientation, and an optional booster 60 days after orientation.

Longer-range plans included booster programs at the end of students’ 2L and 3L years, with the 3L booster being more specifically geared toward bar study. Other plans that were not implemented included having clinicians work with students.
placed on academic probation; more frequent “reminders” about the strategies to all students, including emails and tweets with tips or short articles; integrating the strategies into lawyering skills courses; and developing a “train the trainer” program with BPI so that our faculty members could eventually run all aspects of the training.

B. Faculty and Staff Training

In an effort to increase awareness and understanding, help build a common vocabulary, and provide interested faculty and staff with the benefits of SMART, BPI also held on-campus training sessions for invited faculty, staff, and upper-level student leaders. Because active participation is essential, faculty/staff and student sessions were separate so students would not feel intimidated. In addition, I completed BPI’s High Performance Cognitive Training at the Center for BrainHealth’s headquarters in Dallas.57

We also learned that when we attempt to perform two or more tasks concurrently, we use tremendous energy “blocking,” with the results being less focus, more errors, and greater brain fatigue.

The faculty/staff and student-leader training sessions were not as extensive as the 1L training sessions, but were designed to provide an overview of frontal lobe functions, the three cognitive functions addressed in SMART, and the nine strategies to enhance brain performance.58 The clinicians used several exercises to drive home their points. For example, to demonstrate the detriments of multitasking and prompt discussion on strategic attention, the clinicians asked participants to work on a timed, written logic problem while also listening to a podcast. At the end of the three-minute podcast, they quizzed us about what we heard. That activity demonstrated that our brains can toggle back and forth between tasks very quickly — thus deluding us into thinking we are truly multitasking — but can effectively handle only one task at a time. None of us did as well on the concurrent tasks as if we had tackled each in sequence. We also learned that when we attempt to perform two or more tasks concurrently, we use tremendous energy “blocking,” with the results being less focus, more errors, and greater brain fatigue.

C. Feedback from Fall 2015 Students

Following the new-student orientation in August 2015, BPI clinicians gathered feedback from the upper-level students who participated in the 1L training.

One [upper-level student] expressed that she “was genuinely surprised by the personal impact of the training,” stating that “for first year law students to have access to these strategies before they even read their first case will put them light years ahead of their peers.” She added that “the training exercises emphasized things that were not only applicable to incoming 1L students who presumably know nothing about the law, but also someone who is anticipating going into the legal community as a lawyer,” giving credence to the applicability of future expansion to 3L students.… Another student ambassador imparted her specific applications, sharing the following feedback with us: “I have definitely started to incorporate a few of the strategies. I am taking Oil and Gas Law this semester. It is not a subject that comes easy for me. Instead of reading the cases two or three times, I remembered the specific strategies of Integrated Reasoning and used them. It cannot be overstated that the ‘zoom in’ and ‘zoom out’ techniques really work.”59

Following the mandatory 30-day booster sessions in September 2015, the clinicians collected additional information. Of the original 184 1Ls who attended training during new-student orientation, 175 participated in Day 1 of the mandatory three-hour booster sessions, which were spread across two days, but only 145 participated in Day 2, likely because it preceded the Labor Day weekend.60 Only three students attended the optional 60-day booster.61
Feedback following the September booster sessions was mixed. Generally positive feedback and comments included:

- “Find it much easier to synthesize/understand cases with the integrated reasoning approach.”
- “Zoom Deep & Wide is applicable to law school — professors demand this of us daily.”
- “Helped us to think about all aspects of studying/prioritization.”
- “Made me more self-aware about how my brain works.”
- “Being innovative helps to see cases from many angles.”
- “Very applicable to school and study habits/activities showed applicability to studies.”
- “Useful to be able to pick out themes/big picture while reading cases.”
- “Much easier to anticipate the other side’s potential arguments because of this training.”
- “Taking breaks from studying makes it easier to focus afterwards.”
- “Not multitasking helps to get things done more efficiently.”
- “Identifying priorities that are more important is helpful to getting things accomplished.”
- “Interval training helps focus for longer periods.”

Generally negative feedback and comments included:

- “Sessions too long with not enough breaks.”
- “Timing of training wasn’t convenient (busy weeknight, assignment due, etc.).”
- “Generating themes is pointless/not applicable to anything else.”
- “Identifying two priorities unrealistic/everything is important/hard to narrow it down.”
- “Innovation strategies too vague, not helpful in law school because deviation from the standard is not beneficial.”
- “Too many texts/videos, want more hands-on activities.”
- “Repetitive/could be condensed.”
- “Too simplified/easier than what they do in class.”

Texas Tech Law faculty and staff also received feedback that including SMART during orientation may not have been optimal. Students wanted to get to “the law” and didn’t perceive SMART to be as firmly law-related as other parts of orientation, in large measure because the segments were not run by law faculty, and most BPI clinicians were not lawyers.

When BPI clinicians asked students what they would do differently, they listed:

- Multitask less.
- Allow fewer distractions while studying.
- Approach things from different perspectives.
- Prioritize better and procrastinate less.
- Take breaks when hitting a mental wall.
- Look for big-picture concepts.

D. Preliminary Results

On the final day of the 30-day booster, BPI personnel administered the Brain Performance Index, “a measure designed to evaluate performance across the three primary cognitive functions engaged” (strategic attention, integrated reasoning, and innovation). Students were evaluated in a group format both immediately before the first training session during new-student orientation and after completing the final day of the 30-day booster.

- **Scale of Advanced Reasoning:** “Demonstrated significant improvement in the ability to express ‘big picture’ lessons/take-home messages (p<.001) as well as recall and describe details (p<.001) from a lengthy text.”

- **Integrated Reasoning & Proverb Interpretation Measures:** “Demonstrated significant improvement in abstract thinking, expressing more quality themes and interpretations from visual (p<.001) and verbal (p<.001) information.”

- **Visual Selective Learning:** “Demonstrated significantly improved ability to prioritize high-value information (p<.01), more selectively attending to important pieces of information...”
while simultaneously blocking/inhibiting lower-value items (i.e., more strategic control of memory and attention).”

- **Depression, Anxiety, and Stress Scales & Quality of Life Scale:** “Although the group did not report significantly decreased symptoms of depression, anxiety, or stress or increases in quality of life, the students did report slight reductions in symptoms associated with anxiety and stress (10.43%) … over this narrow time span suggesting a promising trend.”

Based on what we learned during Fall 2015, the next academic year we moved the SMART program from the fall to the spring. Still focusing on 1Ls, we added an additional orientation session in January before the first day of the spring semester. For a variety of reasons, including my departure for a new law school a few weeks prior, the sessions were voluntary. The initial training still consisted of two three-hour sessions, but the follow-up sessions were eliminated due to a budget choice. For this reason, we have feedback and data for only one class.

E. Lessons Learned

For schools considering brain-training programs, especially ones run by clinicians outside the law school, below are several lessons learned from the Texas Tech Law experiment.

*To observe and measure results takes at least four years. In addition, buy-in from faculty, staff, and key student opinion leaders is important.*

First, a long-term institutional commitment is crucial. To observe and measure results takes at least four years. In addition, buy-in from faculty, staff, and key student opinion leaders is important. Schools considering embarking on this type of training should hold information and training sessions for faculty and staff, and potentially for student leaders. Trying anything new will bring out the skeptics. Including skeptics in the training and welcoming their feedback may help smooth the process.

Institutional commitment includes a commitment to develop a brain training regime that follows students throughout their law school careers. In addition to booster sessions during the first semester, schools should commit to booster sessions in students’ second and third years, both to reinforce and build on the cognitive strategies. Integrating training into actual law school classes would also help reinforce key concepts. In addition, regular reminders and tips sent via email or tweets to remind students to apply the various “brainpowers” would help students turn the strategies into habits.

On a related point, evaluation over a period of years will be the only way to measure the program’s true value and worth. Each class should be tested each year, and, if possible, individual measures should be taken and analyzed. In addition, developing a system to match performance in the program with data points such as LSAT and bar passage could be valuable. Only with evidence-based measures can we truly progress.

Second, spend time finding the right partner. Whether inside or outside your institution, find clinicians who are interested in working with law students, learning about your law school’s program of legal education and culture, and — ideally — who have a lawyer on their training staff. Law students want information they believe is relevant, and it was important that at least some materials and exercises used during the training included cases and statutes. Texas Tech Law was fortunate that BPI was actively seeking a law school partner and had one clinician with a J.D. who could adapt some of the SMART training material for law students; she also understood the law school curriculum, law student attitudes, and legal vocabulary.

Third, the institution should work with the clinicians to develop a common vocabulary to enhance participation and eliminate confusion. As just one example, BPI clinicians asked students to “brief” a case using Strategic Attention brainpower concepts. Professors would then use the term “brief” but want
students to perform a slightly different task by focusing on the more traditional relevant facts, rules, holding, etc. Both exercises were designed for students to actively engage with the case, learn relevant facts and rules, and then be able to fit that case into a larger context and use the case when analyzing a different factual situation. But the differences in approach led some students to be confused, especially when their professor was not aware of the BPI approach and terminology.

Identifying the optimal time to introduce law students to brain training can be tricky.

Fourth, identifying the optimal time to introduce law students to brain training can be tricky. We were anxious to provide students with information that could benefit them from their first days in law school. But for many, integrating SMART training into new-student orientation before classes started was not optimal. Students were anxious to “learn the law” and did not always see how the cognitive concepts would help them. Having never attended a law school class or taken a law school exam, they were not able to envision how SMART would help them. Interestingly, upper-level students who assisted during new-student orientation and many non-traditional students quickly grasped connections between the strategies and law studies. I would recommend that schools either integrate the concepts into a particular class, whether legal writing or a doctrinal course, or add a January orientation session for SMART training as Texas Tech did in January 2017.

Timing for the booster sessions is also critical. Staff scheduling the sessions must avoid placing the sessions on days before assignments are due or tests are being administered. Also, placing sessions near holiday weekends or at the end of an otherwise long day can lead to less than optimal results.

Because students tend not to take advantage of even great opportunities when they are voluntary, schools should consider either making all booster sessions mandatory or developing an incentive program to encourage participation in voluntary sessions.

Schools also must know who their students are and should be able to give clinicians advance notice of students with disabilities or special needs. For example, if a student is blind, the clinicians need time to develop accessible materials.

Cost is an important factor, especially if the clinicians must travel to your location. Determining how to fund the program will determine whether the program is sustainable. Adding a student fee to cover at least some of the costs could be one possibility. I also found several donors — some of whom had completed BPI’s training for veterans or business executives — who were willing to help fund the program. So, fundraising to support and sustain the program is possible.

Finally, and most importantly, brain training complements and can enhance the program of legal education. It is scalable and can be offered to all students or to specific groups of students. It can be offered in a way that meshes with the school’s calendar. It can be offered as stand-alone training or integrated into one or more existing courses. In addition, law schools can use actual course content to provide the exercises for the cognitive strategies. For example, if brain training is integrated into the Contracts course, the school can draw from Contracts to help develop the exercises. Thus, students can continue to focus on the content of their courses while also enhancing their brain function and fluid intelligence.

Finally, and most importantly, brain training complements and can enhance the program of legal education.

V. Conclusion

Although the Texas Tech program was short-lived, it represents the future of enriched instruction in law school and other disciplines. The BPI program, specifically, is evidence-based and has generated statistically and anecdotally significant results among disparate groups of individuals, ranging from those with severe brain injuries to high performers.
Brain training is the missing gap in our program of legal education, and appears to be the key to helping students achieve their full potential.

The science shows that we are not our past test results, that our brains can improve (or decline) every day, and that using the brainpower strategies can dramatically impact higher-level thinking. If a lawyer’s brain is the lawyer’s main tool, it’s critical that we teach students how to use that tool effectively. Brain training is the missing gap in our program of legal education, and appears to be the key to helping students achieve their full potential. It can help them successfully complete the academic program, pass the bar examination, and build a successful life and career.

But brain training requires a serious commitment. To develop a successful program, law schools must make a long-term commitment and collaborate with trained neuroscientists and clinicians. They must be willing to integrate brain training throughout a student’s legal education, not just at one or two points. And the faculty and senior staff must invest time in understanding the program and how it relates to the curriculum and other parts of the educational program. The benefits, however, appear to far outweigh the costs and also appear to be a missing part of our programs of legal education.

Endnotes


3 Id. at 4.

4 The Paper Chase (Twentieth Century Fox Film Corp. 1973).


7 “Each law student … has the power to alter brain processes to achieve states more conducive to learning.” Austin, “Killing Them Softly,” supra n. 1, at 799 (quoting Stephen R. Campbell, “Educational Neuroscience: Motivations, Methodology, and Implications,” in Educational Neuroscience: Initiatives and Emerging Issues 8 (2011)).

8 Chapman, supra n. 2, at 6.

9 Id. at 4.

10 Id. at xiii; see id. at 6 (“Every person can positively influence their brain’s capacity to generate new brain cells and build connections in his or her own brain…. The notion that brain change or brain repair is limited by age, the amount of time since injury, disease, and scale of severity has been proven false thanks to neuroplasticity.”).

11 Id. at 20.

12 Id. at 21.

13 Id.

14 Id.

15 Id. The contrast to “fluid intelligence” is “crystallized
intelligence,” which “refers to how much one knows and how much experience one has.” Id.

16 Id. at 22.
17 Id.
18 Id.

19 See id.; see also George Watson, “School of Law Introduces Brain Performance Initiative for Students” (Aug. 19, 2015) (quoting Dr. Sandra Bond Chapman: “Our brains are the one indispensable tool we need throughout life. Up-and-coming law students … need to be innovative on the spot, absorb dense and complex information and make quick decisions that will impact the future of our legal system.”).

20 Chapman, supra n. 2, at 22–23.

21 Center for BrainHealth, University of Texas at Dallas, Handout, Are Your Daily Habits Toxic to Your Brain Health? (copy on file with Author). See generally Chapman, supra n. 2, chs. 4–6.

22 Herald, supra n. 6, at 5 (“Law school involves learning multiple new skills. Law school is difficult, in part, because the brain resists forging new neural pathways when the old ones are so warm, comforting, and easy. Your brain needs to adjust to the new workload and develop new habits. You need to make sure you develop the right habits because they will guide your unconscious for the duration of law school and perhaps beyond.”).

23 Brain Performance Institute, Center for BrainHealth (last visited Nov. 25, 2017).

24 Center for BrainHealth, High Performance Cognitive Training (last visited Nov. 25, 2017); Watson, supra n. 19.

25 Watson, supra n. 19.

26 Center for BrainHealth, Programs (last visited Nov. 25, 2017).


28 Brain Performance Institute, Handout, Strategies to Enhance Brain Performance (copy on file with Author).

29 Chapman, supra n. 2, at 58.

30 Id. at 62–63 (emphasis deleted).

31 Id. at 65.

32 Id. at 77–80.

33 Id. at 73–77.

34 Id. at 74–75. “When pursuing a single goal, your frontal lobe works efficiently. When pursuing two goals concurrently, your frontal lobe power is divided and decreased. If you add a third task to your attention dashboard, your errors increase dramatically, as much as tripling.” Id. at 76 (footnote omitted). Unfortunately, “[t]he concept of doing only one thing at a time is not being rewarded.” Id. at 75. But it should be. Studies show that: (1) on average, we work for a total of only three minutes with laser focus, with no multitasking or interruptions; (2) once interrupted, it takes, on average, 20 minutes to return to the original task; and (3) in total, adding the time we are distracted and the time it takes us to return to the original critical task to complete it equals 2.1 hours!” Id.

35 The brain does not actually multitask. Instead, when we perform two tasks concurrently, “[t]he brain’s frontal lobe has to quickly toggle back and forth.” This toggling results in brain fatigue. Id.

36 Id. at 77.

37 Id. at 70–73.

38 Id. at 72 (“Big ideas often come when the brain stops frantically trying to solve the issue at hand. The brain thinks more clearly when it is seemingly doing nothing or is a calmer state…. We often experience major ahah moments when we stop trying and clear our minds. Often when we are practicing the brainpower of none, our brain’s frontal lobe continues to search, change strategies, and start thinking in new ways.” (footnote omitted)). The brainpower of none requires us to disconnect from all technology. Id at 73. During the BPI training, the clinicians asked: “Why does your cellphone charge more quickly when it is in airplane mode?” Because it is not attempting to recharge while also receiving various inputs. Our brain is the same.

39 Id. at 84–85.

40 Id. at 94.

41 Id. at 96.

42 Id. at 97.

43 Id.

44 Id. at 107.

45 Id. at 116.
their large writing assignments and exams coming up. They seemed to find that helpful and also provided good comments about how they have been using the strategies. For example, one student expressed that he felt the training was really helpful in keeping his stress down, relaying that his time management is much better and that he is able to sleep better and be more present with his family (able to stay on top of studies, studies for one subject a day to improve focus, engages mental ‘blocking’ during reading so that he does not have to re-read multiple times, sees ‘zooms’ as particularly helpful when revisiting cases at a later time, etc.).” *Id.* at 3.

62 Cook, supra n. 59, at 2.

63 *Id.* at 2–3.

64 *Id.* at 3.

65 Brain Performance Institute, *Texas Tech University School of Law 1L SMART* (n.d.) (copy on file with Author).

66 *Id.*

67 In August 2016, BPI developed an app, which allows individuals to schedule reminders and perform follow-up exercises. Center for BrainHealth, *BrainHealth App* (last visited Nov. 25, 2017).

68 See *supra* text following n. 52.

69 Cook, *supra* n. 59, at 3.

### About the Author

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