Smarter Law Study Habits: An Empirical Analysis of Law Learning Strategies and Relationship with Law GPA

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Part I. Introduction

Law students spend an enormous amount of time studying during their first year, relying heavily on reading and rereading. Most law schools orient incoming students on basic skills of case reading and briefing. However, most law schools do not teach law students how to study, how to apply information from reading and briefing to learning the law concepts necessary for academic success, leaving academic preparation to non-empirical law school success resources, and students’ own improvised study and learning strategies. Due to a lack of research on law student learning, legal educators and law students do not actually know which law study and learning behaviors lead to success in law school and which merely waste students’ time.

Cognitive science research on study and learning strategies shows that undergraduate students overwhelmingly rely on passive, ineffective strategies, like reading and rereading, instead of active, effective strategies like retrieval, self-testing, and periodic review, which increase learning and gauge comprehension. Undergraduate students are able to get by and matriculate using ineffective, passive learning strategies, but also develop illusions of confidence in ineffective strategies, and continue to use these ineffective learning and study strategies in law school.

This Article shows that law students unwittingly fall into a “law school learning trap” by relying on passive strategies like reading, rereading, and briefing cases without testing whether they are learning through active strategies. Law students can avoid the law school learning trap by using active strategies, like retrieval, self-testing, and elaboration, that increase learning, test what students know and do not know, providing critical formative self-assessment and

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3 Law student reading and studying behaviors refer to many different cognitive steps and activities like reading and highlighting cases, rereading cases, summarizing and briefing cases, going to class, taking notes, outlining, memorizing rules, meeting with study groups, working through practice questions, etc. Edward L. Kimball, Larry C. Farmer, and D. Glade Monson, Ability, Effort, and Performance Among First-Year Law Students at Brigham Young University, 1981 AM. BAR FOUND. RES. J. 671, 676 (1981) (finding first year students study on average 53 hours per week outside of class). The Law School Survey of Student Engagement (LSSSE) asked first year law students to estimate how many hours they spent in a typical 7-day week reading assigned textbooks, online class reading, and other course materials. First year law students estimated they spent 31-33 hours per week reading assigned textbooks, online class reading, and other course materials.

4 The “tried and true” study advice in law school success resources can be summarized as: read and brief every case, go to class, take notes, make course outlines, and practice before your exams. In the past fifty years, only three empirical inquiries have targeted law student study behaviors, and two of the three are from 1968 and 1975 respectively. In contrast, undergraduate and graduate disciplines have routinely used comprehensive study behavior research instruments since the 1930’s. See e.g. Study-Habits Inventory (Wren, 1933); Study Skills Inventory (Locke, 1940); Survey of Study Habits & Attitudes (SSHA, Brown & Holtzman, 1955); Learning and Study Strategies Inventory (LASSI, Weinsten & Palmer, 2002); Study Behaviors Checklist (SBC, Gurung, 2005; Gurung, Weidert & Jeske, 2010). See also Noel Entwhistle and Velda McCune, The Conceptual Bases of Study Strategy Inventories, 16 EDUC. PSYCHOL. REV. 325 (2004).

5 Legal scholars have lamented the lack of empirical research in legal scholarship in general. James R. O’Glof, David R. Lyon, Kevin S. Douglas, and V. Gordon Rose, More than “Learning to Think Like a Lawyer:” The Empirical Research on Legal Education, 34 CREIGHTON L. REV. 73, 100 (2000) (“Perhaps it is surprising that so little research attention has been paid to the study habits that students employ to help them navigate their way through the obstacles of law school.”). See generally Peter H. Schuck, Why Don’t Law Professors Do More Empirical Research?, 39 J. LEGAL EDUC. 323 (1989); Matthew Spitzer, Evaluating Vaurling Empiricism (at Law Schools), 53 J. LEGAL EDUC. 328 (2003) (discussing ways to promote empirical research in legal scholarship). Steven Friedland, A Critical Inquiry Into the Traditional Uses of Law School Evaluation, 23 PAC L. REV. 147 (2002)(Although testing has been a “steadfast fixture of legal education since the late 1700s...comparatively few institutional resources have been devoted to the evaluation process, and both institutions and individual instructors generally hold the evaluation process with a similar lack of regard.”).

6 I use the term “law school learning trap” to describe a law student study pattern where a student follows the conventional, tried and true study advice of reading and briefing cases to prepare for class, go to class and take notes, makes course outlines, memorizes black letter law, but does not review or engage in any retrieval or practice testing, which leads to a mistaken belief reading and briefing for class is sufficient to learn the material in law school. Students who follow this pattern often do not test their knowledge with practice questions or hypothetical factual situations.
opportunities for correction.\(^7\) Few legal educators offer formative assessment such as weekly quizzes or midterm exams. Law students that do not use self-testing and formative self-assessment may not realize they have fallen into the law school learning trap until sitting for final exams.

The stakes are high for law students and legal educators. First year law students who do well academically win coveted access to scholarships, law review, job interviews, possible transfers to more prestigious law schools, and higher bar passage rates.\(^8\) While first year law students with poor academic performance are denied access to prestigious opportunities, lose scholarships, face academic dismissal, and experience higher bar failure rates.\(^9\)

The law school learning trap adds to the stressful, corrosive, and dehumanizing nature of the law school learning environment on law students’ well being, values, and motivation, specifically the lack of formative assessment, unsound teaching and testing methods, and continued reliance on summative assessment.\(^10\) Legal scholars have written extensively on the dehumanizing nature of law school and the need to provide law students with self-determination and autonomy support.\(^11\) Law students need to feel that they are good at what they are doing - namely, studying and learning in law school - or that they can become good at it.\(^12\)

Law schools are under increasing pressure to prove that legal education works and is worth the cost. The American Bar Association is putting more pressure on law schools to comply with accreditation requirements\(^13\) and to assess law student learning using “formative and summative assessment methods in its curriculum to measure and improve student learning and

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\(^7\) As this article will discuss, relying on reading and rereading cases and other passive learning and study strategies in law school without engaging in active strategies like retrieval and self-testing correlates with poor academic performance. First year students fall into the “law school learning trap” because reading and briefing cases to prepare for class is time consuming, resulting in fluency and familiarity that creates illusions of confidence with the material.


\(^9\) The American Bar Association collects data on the number of students academically dismissed from law schools. http://www.abarequireddisclosures.org/. For 2016, law schools reported academic dismissals after the first year of law school, as high as 30% of first year students. For example, Charlotte School of Law reported 130 academic dismissals after the first year out of 391 first year students. Erin Lain, *Experiences of Academically Dismissed Black and Latino Students: Stereotype Threat, Fight or Flight Coping Mechanisms, Isolation and Feelings of Systemic Betrayal*, 45 J.L. & EDUC. 279 (2016).


\(^12\) According to Krieger, providing information about empirically supported law study behaviors supports self-determination theory and helps to humanize legal education.

\(^13\) From 2016-2017, the America Bar Association censured Ave Maria School of Law and Valparaiso Law School for non-compliance with admissions standards and placed Arizona Summit Law School and Charlotte Law School on probation for substandard admissions policies and low bar pass rates.
provide meaningful feedback to students." sixteen Enrollment continues to decline adding to the looming threat of failing law schools.

Law students also need to understand effective learning strategies to be effective lifelong learners. seventeen Law learning does not stop with the bar exam. After admission to practice, lawyers are expected to continue learning and mastering complicated material to effectively represent clients.

Legal educators and law students need empirical research to evaluate whether the law student study and learning methods actually work. eighteen This Article provides empirical correlation of law student study and learning strategies to academic success in law school and finds that passive learning strategies like reading and rereading without practice applying the law is negatively correlated with law school academic success, while active learning strategies like retrieval, self-testing and elaboration that involve practice applying the law are positively correlated with law school academic success. Part II summarizes existing cognitive science research on undergraduate study and learning strategies and existing research on law student study behaviors. Part III discusses the development and administration of the Law Student Study Habits Survey. Part IV discusses the results of the research. Part V makes recommendations based on the results.

**Part II: Cognitive Science Research on Study & Learning Strategies**

Hundreds of empirical studies have examined undergraduate study and learning behaviors, demonstrating a clear link between study behaviors and academic performance that are as statistically significant as the relationship between academic performance and the two most frequently used predictors: prior academic performance (GPA) and test scores (ACT, SAT, etc.). nineteen

Undergraduate researchers have developed and used research instruments to assess which study behaviors are correlated with academic success, the study habits, skills and attitudes themselves, the depth of information processing during study, and students’ metacognitive

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14 See American Bar Association Standard 314: “A law school utilize both formative and summative assessment methods in its curriculum to measure and improve student learning and provide meaningful feedback to students.” See also Janet Fisher, Putting Students at the Center of Legal Education: How an Emphasis on Outcome Measures in the ABA Standards for Approval of Law Schools might Transform the Educational Experience of Law Students, 35 SOUTHERN ILLINOIS L. J. 225 (2011); Rogelio A. Lasso, Is Our Students Learning? Using Assessments to Measure and Improve Law School Learning and Performance, 15 BARRY L. REV. 73 (2010); Gregory S. Munro, OUTCOMES ASSESSMENT FOR LAW SCHOOLS (2000).

15 Law school applications continue to decline year after year. Several law schools are either closing permanently or are in severe economic distress. In October 2016, Indiana Tech Law School announced that it would close in June 2017. In April 2017, Whittier Law School announced that it would not accept incoming students for the 2017-2018 academic year, would graduate the existing students, then close the law school. https://www.law.whittier.edu/index/news/article/a-message-from-the-whittier-college-board-of-trustees.


19 Marcus Crede and Nathan R. Kuncel, Study Habits, Skills, and Attitudes, 3 PERSPECTIVES ON PSYCHOLOGICAL SCIENCE 435 (2008); Hattie, supra note ______.

20 Study skills are the student’s knowledge of study strategies and ability to manage time and resources to accomplish the academic task. Study habits are the degree and regularity with which the student uses specific acts of studying (e.g., reviews of material) in an appropriate environment. Study attitudes refer to a student’s positive attitude toward studying and acceptance of the education goals. Crede and Kuncel, Study Habits, Skills, and Attitudes, 3 Perspectives on Psychological Science 435 (2008)
awareness while studying.\textsuperscript{21} The bottom line is the time spent studying does not predict academic success.\textsuperscript{22} The quality of the study determined by the specific behaviors and strategies used by the learner determines the academic success.

A. Undergraduate study & learning strategy research

Retrieval, self-testing, and periodic review are learning super foods, powering our brains for long term learning; rereading and cramming are learning junk foods, feels good, but bad for learning. Retrieval, self-testing, and periodic review are highly correlated with academic success.\textsuperscript{23} Yet, these active learning strategies are counter-intuitive and challenge conventional ideas about studying.\textsuperscript{24} Despite robust research proving their efficacy, students either do not know about these effective learning strategies or do not trust them, and overly rely on ineffective “tried and true” learning strategies cobbled together through common sense, intuition, and trial and error.\textsuperscript{25}

\textsuperscript{21} Id. Early undergraduate research instruments on study behaviors include the Study-Habits Inventory developed in 1933. G. G. Wren, Study-habits Inventory (1933); the Study Skills Inventory developed in 1940. N. M. Locke, The Student Skills Inventory: A study habits test, 24 J. APPLIED PSYCHOL 493 (1940), and the Survey of Study Habits & Attitudes (“SSHA”) developed in 1954. Wayne H. Holtzman, William F. Brown, and W.G. Farquhar, The Survey of Study Habits and Attitudes: A New Instrument for the Prediction of Academic Success, 14 EDUC. AND PSYCHOL. MEASUREMENT 726 (1954). The most widely used survey is the Learning and Study Strategies Inventory (“LASSI”), which was initially developed in the late 1980’s. Claire Weinstein, Ernest Goetz, Patricia Alexander, Learning and Study Strategies: Issues in Assessment, Instruction, and Evaluation (1988). The Learning and Study Strategies Inventory (“LASSI”) has been widely used to measure undergraduate students’ study habits as well as students’ motivation and awareness of how their study habits relate to their learning. H&H Publishing, Overview of LASSI http://www.hhpublishing.com/_assessments/LASSI/index.html.

\textsuperscript{22} Undergraduate students spend an average of 15 hours per week studying, down from an average of 24 hours per week in the 1960’s and only 1 in 4 college students devote more than 20 hours a week to studying, which is relatively consistent across demographics. See Richard Arum, Josipa Roksa, and Esther Cho, Improving Undergraduate Learning 2-4 (2011); Richard Arum & Josipa Roksa, Academically Adrift: Limited Learning on College Campuses (2011); Christine Bartholomew, Time: An Empirical Analysis of Law School Time Management Deficiencies, 81 U. CIN. L. REV. 897, 904 (2013); Sarah A. Nonis and Gail I. Hudson, Performance of College Students: Impact of Study Time and Study Habits, 85 J. EDUC. FOR BUSINESS 229 (2010) (study focused not just on time spent studying but on how effectively the student spends time studying that influences academic performance, study results did not demonstrate a significant direct relationship between the amount of study time and academic performance). Marcus Crede and Nathan R. Kuncel, Study Habits, Skills, and Attitudes, 3 PERSPECTIVES ON PSYCHOL. SCI 435 (2008) (Programs that focus on the acquisition of specific study skills are likely to be particularly useful in light of the consistent finding that the time spent studying is largely unrelated to academic performance); E. Ashby Plant, K. Anders Ericsson, Len Hill and Kia Asberg, Why study time does not predict grade point average across college students: Implications of deliberate practice for academic performance, 30 CONTEMP. EDUC. PSYCHOL 96 (2005) (researchers have consistently found a weak or unreliable relationship between the weekly amount of reported study time and grade point average (GPA) for college students).


\textsuperscript{24} See, e.g., BROWN, ROEDIGER III & MCDANIEL, MAKE IT STICK; CAREY, HOW WE LEARN.

\textsuperscript{25} Id. at 8; Robert A. Bjork, John Dunlosky, and Nate Kornell, Self-Regulated Learning: Beliefs, Techniques, and Illusions, 64 ANNUAL REV. OF PSYCHOL. 417, 419 (2013). Our intuitions about how to learn are an unreliable guide as to how we should manage our learning activities. We assume that “children and adults do not need to be taught how to manage their learning activities.” Colleges and universities are more concerned about whether incoming students have necessary background knowledge in important domains (i.e., English, math, etc.), but do not test whether students have the necessary learning skills to effective learn; see also Veronica X. Yan, Khanh-Phuong Thai, Robert A. Bjork, Habits and beliefs that guide self-regulated learning: Do they vary with mindset, 3 J. APPLIED RESEARCH IN MEMORY AND COGNITION 140 (2014); Jennifer McCabe, Metacognitive Awareness of Learning Strategies in Undergraduates, 39 MEMORY & COGNITION 462 (2011).
Retrieval, self-testing, and periodic review require more effort and planning than the most commonly used study methods, rereading and cramming. Retrieval, self-testing, and periodic review also create desirable difficulties yielding deeper, more durable learning. But, when students perceive studying as hard, they incorrectly believe they are not learning and resort to easier study and learning methods, like rereading and cramming. When the learning feels easy, students mistakenly believe that material is well learned. But, the learning gains are short term and quickly fade. Easy come, easy go.

Cognitive science and empirical research proves much of what we think we know about learning is wrong. When learning feels hard, it actually sticks and last longer. Forgetting is part of learning. Mistakes during learning are good because they show knowledge gaps and create opportunities for clarification and consolidation. Rereading tricks us into thinking we learn more than we actually do. Learning is messy and non-linear, less a steady incline than a series of starts, turns, dead-ends, reroutes, and explosive speed. What works best for learning may not be intuitive, but can be explicitly taught, assisting students in becoming self-regulated, expert learners.

i. Retrieval & Self-Testing

Retrieval is an empirically proven learning tool, more powerful than reading, rereading, or any other act of memorization. Retrieving information from memory and “testing” your knowledge leads to deeper learning than more popular study behaviors of memorization and rereading. Every time information is retrieved, it better connects to other learned material, and becomes more accessible in the future because retrieval and testing creates better organization of knowledge.

Retrieval is much more than an assessment of one’s knowledge - the retrieval process creates learning while gauging learning depth. The harder the information is to retrieve, the harder the brain must work to dig it up, the greater the learning. Retrieving information from memory is different and harder than just seeing the information again as in rereading.

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26 See, e.g., BROWN, ROEDIGER III & MCDANIEL, MAKE IT STICK; CAREY, HOW WE LEARN. Jeffrey D. Karpicke, A.C. Butler, and H.L. Roediger, Metacognitive studies in student learning: Do students practice retrieval when they study on their own? 17 MEMORY 471-479 (2010). Retrieving, highlighting, underlining and poring over notes and texts are the most commonly used study strategies.
28 BROWN, ROEDIGER III & MCDANIEL, MAKE IT STICK at 8-22. Students express a bias for “error-free” learning, mistakenly believing that errors in learning are learning failures, instead of a part of the learning process itself.
29 BROWN, ROEDIGER III & MCDANIEL, MAKE IT STICK at 9.
31 Jeffrey D. Karpicke, A.C. Butler, and H.L. Roediger, Metacognitive studies in student learning: Do students practice retrieval when they study on their own? 17 MEMORY 471-479 (2010); BROWN, ROEDIGER & MCDANIEL, MAKE IT STICK at 15.
33 See generally, Karpicke and Grimaldi.
34 CAREY, HOW WE LEARN at 84.
35 CAREY, HOW WE LEARN at 94; Retrieval is not just a read-out of stored knowledge; the act of retrieving itself creates learning. Karpicke and Blunt, at 771-772. The harder it is to retrieve something from memory, the more effort required to retrieve the information, creates a desirable difficulty, and makes the memory stick,. BROWN, ROEDIGER & MCDANIEL, MAKE IT STICK at 26-45.
The testing effect is a well-established cognitive science principle that engaging in testing (retrieval practice) enhances long-term retention compared to rereading or other passive studying activities. Retrieval and testing also improves transfer and knowledge of new contexts. Using retrieval practice such as practice questions or self-quizing even reduces test anxiety and protects our memories from stress. Retrieval and the testing effect are effective learning tools, dispel illusions of competence, and help students accurately gauge their learning progress. Retrieval and testing are valuable formative self-assessment tools that students can use on their own to provide feedback on their learning progress.

Yet, rereading is by far the most commonly used study and learning strategy. The vast majority of students steadfastly believe the best way to learn is to read and reread and reread again in a single study session until material is learned. Students incorrectly believe that rereading creates more learning and that testing merely measures what has been learned to receive a grade. Massed repetition and rereading creates illusions of competence, a false sense of learning, while retrieval and self-testing tests competence and accurately gauges what has been learned.

ii. Periodic Review

As soon as we learn something new, we start to forget it. By periodically retrieving learned information, we slow the forgetting process. Periodic review or spacing study is the opposite of cramming or massing study, and means retrieving material after a period of time has elapsed between retrieval sessions – days or weeks - to allow for forgetting before the next

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37 Henry Roediger III, Adam L. Putnam, and Megan A. Smith, Ten Benefits of Testing and Their Applications to Educational Practice, 55 PSYCHOL. OF LEARNING AND MOTIVATION 1, 14 (2011). Repeated testing spaced over time led to improved transfer of complex material to new questions in a new domain compared to restudying material. Andrew C. Butler, Repeated Testing Produces Superior Transfer of Learning Relative to Repeated Studying, 36 J. EXPERIMENTAL PSYCHOL.: LEARNING, MEMORY & COGNITION 1118, 1128 (2010) (finding “test-enhanced learning” increases long-term retention and promotes transfer to new inferential questions from different knowledge domains better than restudying).
38 Amy M. Smith, Victoria A. Floerke, Ayanna K. Thomas, Retrieval Practice Protects Memory Against Acute Stress, 354 SCIENCE 1046, 1047 (2016) (“Whereas we did find memory retrieval impairment during the delayed stress response when information was encoded by restudying, that impairment was absent when information was encoded by retrieval practice. Thus, we argue that stress may not impair memory retrieval when stronger memory representations are created during encoding.”)
39 Jeffrey D. Karpicke, A.C. Butler, and H.L. Roediger, Metacognitive studies in student learning: Do students practice retrieval when they study on their own? 17 MEMORY 471-479 (2010); BROWN, ROEDIGER & MCDANIEL, MAKE IT STICK at 15.
40 “The finding that rereading textbooks is often labor in vain ought to send a chill up the spines of educators and learners, because it’s the number one study strategy of most people – including more than 80 percent of college students in some surveys – and is central in what we tell ourselves to do during the hours we dedicate to learning.” BROWN, ROEDIGER & MCDANIEL, MAKE IT STICK at 10.
41 Jeffrey D. Karpicke, Retrieval-Based Learning: Active Retrieval Promotes Meaningful Learning, 21:3 CURRENT DIRECTIONS IN PSYCHOL. SCI. 157 (2012). Many students believe that “studying” means rereading material over and over and that “practicing” or “self-testing” is only to assess what one has learned through rereading. The choice to repeatedly read and reread material is logical if learning is only the process of encoding or inputting information and if retrieval is only a way to assess prior learning. To study for an upcoming test, students were given a choice - after you read through your notes and the text, which would you do next: (a) go back and reread the study material (all or parts), (b) try to recall the material, or (b) do some other study activity. The majority of students chose to reread their notes or the text, but very few students attempted to recall the material.
42 BROWN, ROEDIGER & MCDANIEL, MAKE IT STICK at 16. Retrieval and self-testing helps to calibrate one’s learning.
43 “All sorts of ideas, if left to themselves, are gradually forgotten.” Herman Ebbinghaus, MEMORY: A CONTRIBUTION TO EXPERIMENTAL PSYCHOLOGY (1885) at 62. After only one hour, we have forgotten 50% of the material we just studied; after 24 hours, we have forgotten 75% of the material.
retrieval attempt. Distributing multiple study sessions spaced over time is far superior to massing of studying in any single session because retrieval practice spaced over time stops the forgetting process.

But, spacing study feels less effective as students have to work harder to retrieve information from days or even weeks ago. When students learn a topic and wait a week or two to review the same material, the information is hard to recall and students feel like they are relearning material they already learned.

Like rereading, massing study creates illusions of competence when material that is easier to recall is judged better learned than material that is hard to recall. This is counter-intuitive because massing study works, as long as a test is immediately after the massed study. But, what if the test is given a week or more later? Spacing study requires time between study sessions where information is forgotten, requiring students to retrieve or recall the previously studied material. The less accessible the memory, the more learning occurs when it is recalled and restudied.

One of the criticisms of retrieval is that it is only beneficial for memorization and other lower-order thinking and learning tasks. Successive retrieval-based learning spaced over periods of time helps learners develop complex knowledge structures, connect and integrate new information to prior knowledge structures, and build depth and complexity with each successful retrieval and consolidation cycle. This process differentiates novices from experts in a field. When experts retrieve information, experts retrieve an entire integrated network of existing, interconnected information built over multiple retrieval and consolidation cycles spaced over years.

iii. Other highly effective study and learning behaviors

Mixing up, or interleaving, different topics when engaging in retrieval and self-testing dramatically increases the studying difficulty and also the learning returns. Interleaving creates

44 Jonathan A. Suss and Jennifer McCabe, From the lab to the dorm room: metacognitive awareness and use of spaced study, 41:2 INSTRUCTIONAL SCI. 345 (2013). BROWN, ROEDIGER & MCDANIEL, MAKE IT STICK at 203-205. How much “space” or forgetting is helpful? Enough time so that some forgetting has occurred so that retrieval will be more effortful, but not so much space or forgetting that you have to relearn the material. Because time periods between learning helps material consolidate, which includes sleeping, at least a day in between review sessions. BROWN, ROEDIGER & MCDANIEL, MAKE IT STICK at 63-64.

45 Id.

46 BROWN, ROEDIGER & MCDANIEL, MAKE IT STICK at 203-205.

47 Periodic retrieval of learned material also creates a desirable difficulty.

48 Id. at 47. Students mistakenly believe that massing creates more learning because it creates “retrieval fluency” - information is easier to recall during massed study sessions, which is perceived as better learning. Kornell at 1312. In massed study, students pay less attention to the second presentation of an item, but pay more attention to the second presentation of an item in spaced study. In massed study, the material is familiar the second time it is presented and students are often more accurate the second time, requiring less effort the second time the material is presented.

49 Id. The spacing effect and the testing effect are similar and interrelated study methods as spaced study inevitably requires retrieval and self-testing in order to recall previously studied information.

50 Id.

51 Henry Roediger III, Adam L. Putnam, and Megan A. Smith, Ten Benefits of Testing and Their Applications to Educational Practice, 55 PSYCHOL OF LEARNING AND MOTIVATION 1, 14 (2011). Repeated testing spaced over time led to improved transfer of complex material to new questions in a new domain compared to restudying material.


53 Henry L. Roediger III & Andrew C. Butler, The Critical Role of Retrieval Practice in Long-Term Retention, 15 TRENDS IN COG. SCI. 20 (2011). Mixing up your retrieval practice by interleaving two or more subjects is also a type of spacing that helps students to discriminate between different types of problems and select the correct strategy to apply. BROWN, ROEDIGER & MCDANIEL, MAKE IT STICK at 65. See also M.S. Birnbaum, Nate Kornell, Elizabeth L. Bjork, and Robert A. Bjork, Why interleaving enhances inductive learning: The roles of discrimination and retrieval, 41 MEMORY 392-402 (2013). BROWN, ROEDIGER & MCDANIEL, MAKE IT STICK at 46-66. Interleaving means “mixing related but distinct material during study.” The mixing of material, skills, and concepts during study,
space between retrieval attempts because you are mixing up the subjects and forces learners to distinguish between subjects, creating deeper understanding with material.\textsuperscript{54} Again, this finding is counter-intuitive to the conventional method of blocked practice - concentration on the same topic or skill during a single study or practice session. Learners also resist interleaving because it is much more difficult and feels counter-productive, even though research proves its efficacy.

Elaboration is also an effective learning strategy that uses retrieval to relate newly learned information to existing knowledge by self-explanation, putting the information into “your own words,” or explaining steps used during problem solving.\textsuperscript{55} Elaboration requires retrieving newly learned material and prior knowledge and helps learners develop mastery by finding additional layers of meaning in newly learned material.\textsuperscript{56} Different ways to incorporate elaboration as a learning strategy are to relate new material to what you already know about a subject, summarize or paraphrase by putting information in your own words, or personalize the information by relating it to your own life.

Reflection is a combination of retrieval and elaboration where a learner reflects or reviews on information, a past event, or a skill, and asks themselves a series of questions to evaluate what went well and what did not.\textsuperscript{57} Many learners attribute reflection to developing mastery of material, developing mental models and checklists, developing automaticity, and aiding in transfer.

While these study and learning strategies are highly effective for undergraduate study, are they as effective and correlated with academic success for law study?

B: Law student study & learning strategy research

Very little empirical, data driven legal scholarship has analyzed which law student learning and study behaviors lead to academic success in law school.\textsuperscript{58} The earliest empirical research on law student study behaviors was published in 1968 in \textit{The Student, The Situation, and Ability, Effort, and Performance Among First-Year Law Students at Brigham Young University}, 1981 American Bar Association Journal. 671-694. While these studies were conducted in the 1980s, they are still relevant to understanding the effectiveness of study strategies in the modern legal education setting.


\textit{A.S. Donker, H. de Boer, D. Kostons, C.C. Dignath van Ewijk, M.P.C. van der Werf, Effectiveness of learning strategy instruction on academic performance: A meta-analysis}, 11 Educational Research Review 1, 3 (2014). Elaboration is a cognitive learning strategy that build connections between not yet learned material and prior knowledge, attaching meaning to new information by connecting the it to what is already known, allowing learners store more information in long-term memory. Summarizing and paraphrasing are common elaborative learning strategies. Self-explanation is a more complex elaborative strategy where a learner will explain to themselves their thought process or steps to work through a problem. An effective elaborative strategy for study is to summarize material and attempt to reduce the number of words by one quarter.

\textit{Make It Stick} at 209-210.

Performance During the First Year of Law School, finding that high performing students had more effective reading techniques, tested their understanding of the material by “note taking, outlining, group discussion and periodic reviewing” and prepared more effectively for exams by spacing reviews and testing comprehension of the material rather than just memorizing.⁵⁹

In 1975, Guy Loftman’s Study Habits and their Effectiveness in Legal Education noted the “surprising lack of analysis on the effectiveness on study techniques in legal education.”⁶⁰ Loftman found that class attendance and review were the most effective study techniques, that reading and briefing cases, total study hours, and use of hornbooks to have less of an impact, and that reliance on law summaries had a negative impact.⁶¹

In 2010, Karol Schmidt’s Learning from the Learners: What High-Performing Law Students Teach Us About Academic Support Programming found that high-performing students engaged in a multiple step process when outlining that included “distilling or condensing outlines” and consistently engaged in self-testing in the outlining process, whereas underperforming students did not outline or did not further distill their outlines.⁶²

These findings are generally consistent with the undergraduate literature. Effective reading strategies, periodic review, self-testing, and time management are more common among high performing students. Conversely, over-reliance on passive strategies like case reading and briefing, cramming, and memorization without review and self-testing are more common among low and under performing students.

Law schools have long assumed that students come to law school primed and ready to read and dissect copious amounts of primary source material by reading and briefing judicial opinions, engage in rigorous Socratic debate, and able to put all of the pieces together for themselves.⁶³ Law schools have historically out-sourced law learning skills to law school success self-help resources using the non-empirical, anecdotal approach: “I did well in law school, so you should do what I did.”⁶⁴ Even the limited empirical research from 1968 and 1975 on law student

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⁵⁹ Michael J. Patton, The Student, The Situation, and Performance During the First Year of Law School, 21 J. LEGAL EDUC. 10 (1968). Even in 1968, Patton found that many first year law students entered law school relying on passive memorization techniques learned in college that were inappropriate for the study of law.

⁶⁰ Guy R. Loftman, Study Habits and Their Effectiveness in Legal Education, 27 J. LEGAL EDUC. 418 (1975) (citing to Patton’s article as the only study he found on the subject).

⁶¹ Id. at 445. Loftman developed a questionnaire consisting of fifteen questions on the students’ pre-law performance, law school performance, and study techniques.

⁶² Karol Schmidt, Learning from the Learners: What High Performing Law Students Teach Us About Academic Support Programming, 4 PHOENIX L. REV. 287 (2010). Schmidt used the Learning and Study Skills Inventory (“LASSI”) and the Multiple Intelligences Developmental Assessment Scales (“MIDAS”), supplemented by follow-up interviews with participants about outlining and exam taking. The MIDAS is a 119 questions on activities, skills, and interests on a six-part Leikert scale. The LASSI was developed as an undergraduate survey instrument; its questions are not tailored to the law school learning environment. Schmidt found positive correlations between selecting main ideas, time management, and test strategies with first year law GPA.

⁶³ Peter F. Lake, When Fear Knocks: The Myths and Realities of Law School, 29 STETSON L. REV. 1015 (2000) (describing myths beginning law students have about law school and what students need to know such as “The Reverse Cassandra Complex” - where first year law students believe that everyone offering information about law school knows the truth about law school, but in most cases, is the opposite and comes from a variety of different sources – study aids and assistance materials, outlines, wisdom of upperclassmen).

study habits found that reading and briefing cases was insufficient and that students needed to “test their comprehension” with practice instead of relying on just memorization and review. Legal educators and scholars have only recently started to apply cognitive science and educational psychology research to academic success and bar prep.

But, how do we really know what works if the legal academy has not successfully examined which law learning behaviors truly relate to academic success in law school? The political, social, and economic climate has changed dramatically in the past ten years regarding the presumed value of a law degree. Many critics argue that law school is not worth the investment and demand the legal academy justify the effectiveness of teaching and learning methods and outcomes.

By assuming students come to law school with well developed study and learning habits, which we know from undergraduate research to be a flawed assumption, then relying on bar passage to assess ultimate learning success, law schools are ignoring an ugly truth: law schools do not know which learning and study behaviors actually work in law school because they have not closely studied a core function of legal education — students learning the law.

Part III: Methodology of the Law Student Study Habits Survey

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Empirically tested study habit surveys exist, but are designed for the undergraduate learning model. Significant differences in the law school pedagogy, environment, and assessment methods require a specialized survey instrument.70

First, the law school instruction method differs substantially from undergraduate school, namely instruction through the Case Method71 and the Socratic Method rather than a lecture format,72 and the lack of right answers. Second, the law learning environment is more competitive than undergraduate programs: the large number of graduate students (average of 75 per section with multiple sections per class) compared to other graduate programs with much smaller classes,73 with mandatory curves in first year courses, competition for grades and rank, the importance of first semester grades,74 and increased stress and anxiety.75 Third, law school assessment is less frequent than in undergraduate programs: single, end-of-term written essay exam to assign grades, few, if any, midterm exams, written assignments, or evaluation of students’ skills in doctrinal courses,76 the mandatory grade curve and ranking of students.77 Fourth, the demands on law students’ time are much greater than in undergraduate school because of the increased workload78 and the need to be a self-regulated learner to teach one’s self the law.79

A. Research Questions & Hypotheses

This project began while I was working with first year law students who were struggling academically. I was increasingly frustrated and disappointed by the lack of credible research on effective law student behavior. My students had followed the “tried and true” advice from law school success books and advice from legal educators, but were facing imminent risk of academic dismissal because of poor academic performance in the first year of law school. These students were desperate and confused. They needed to know - what really works? What should I be doing to study for my classes and prepare for exams? What should I be doing to improve my grades so I can stay in law school? I did not have any evidence-based answers for them.

71 Grant H. Morris, Teaching with Emotion: Enriching the Educations Experience of First-Year Law Students, 47 SAN DIEGO L. REV. 465 (2010) (citing Michael Patton’s article, the case method, learning to think like a lawyer and the use of the case method in the first year significantly contributing to student anxiety – because students have never experienced anything like this, not how they learned in undergraduate, unprepared for type of learning demanded immediately in law school).
72 James Jay Brown, Forging an Analytical Mind: The Law School Classroom Experience, 29 STETSON L. REV. 1135 (2000) (describing initial first year student reactions to the Socratic method classroom, compared with the “predominant form of undergraduate education.”); Ruta K. Stropus, Mend It, Bend It, and Extend It: The Fate of Traditional Law School Methodology in the 21st Century, 27 LOY. U. CHI. L.J. 449 (1996) (deep analysis of the Langdellian methodology itself and strengths and weaknesses of the methodology, also “the need to teach these skills is more acute because of the modern undergraduate experience.” Christopher C. Langdell, Teaching Law as a Science, 21 AM. L. REV. 123, 123 (1887) (“[E] law is a science, and ... all the available materials of that science are contained in printed books.”).
77 Id.
79 Corinne Cooper, Letter to a Young Law Student, 25 TULSA L. J. 275 (2000) (The undergraduate learning environment, where students learn passively, does not prepare students for law school. Law is a self-teaching discipline.)
B. Development of the Law Student Study Habits Survey

My initial research question was which law student study and learning behaviors are positively and negatively correlated with academic success in law school. One of my early hypotheses was that relying too heavily on reading and briefing cases and not leaving time for review, something I perceived as a trend in law student behavior based on feedback from students, would be negatively correlated with first year law GPA. I also hypothesized that the effective study behaviors from undergraduate research - retrieval, self-testing, and periodic review - would be positively correlated with first year law GPA.

Because a specialized law student study habits survey did not exist, I developed one myself.\textsuperscript{80} I was fortunate to partner with Dr. Regan A.R. Gurung, chair of the Psychology Department at University of Wisconsin-Green Bay, an expert in teaching and learning, who granted me permission modify his undergraduate Study Behaviors Checklist\textsuperscript{81} survey for the law learning environment. The Study Behaviors Checklist was selected for adaptation as it had been empirically tested and addressed a similar research question – “\textit{what study behaviors are associated with higher grades on exams?’}\textsuperscript{82} The researchers intended to build on previous research, but ‘provide a more fine-tuned view of what students do to study by assessing different behaviors in a shorter format than existing scales.’\textsuperscript{83}

The Checklist included many questions directly applicable to the law school environment.\textsuperscript{84} However, not all of the Study Behaviors’ Checklist questions were appropriate for the law school learning environment; therefore, it was necessary to modify the Study Behaviors Checklist questions to the law school learning environment. I conducted open interviews of first year law students using a Study Habits Questionnaire,\textsuperscript{85} which led each student through the entire cycle of studying in an academic term and included both closed-ended and open-ended questions.\textsuperscript{86}

\textsuperscript{80}An ideal law school survey instrument would be inexpensive and easy to administer, quickly completed, empirically valid, and capable of being used immediately by learners and facilitators. Gary J. Conti, Development of a User-Friendly instrument for identifying the learning strategy preferences of adults, 25 TEACHER AND TEACHER EDUCATION 887, 889 (2009). Ultimately, I learned that creating empirically valid surveys and research instruments is a time consuming and expensive endeavor. A more time and cost effective method of creating an empirically valid research instrument tailored to the law school setting was to find a survey with a similar research question and adapt the questions to the appropriate environment, with the survey author’s permission.

\textsuperscript{81}Gurung et. al., Focusing on how students study, 10 JOURNAL OF THE SCHOLARSHIP OF TEACHING AND LEARNING 28 (2010). After giving the Study Behaviors Checklist to 120 students in an introductory psychology class, Gurung, Weidert, and Jeske found support for their hypothesis that metacognitive strategies, such as self-testing, correlated positively with academic success.

\textsuperscript{82}Id. The Study Behaviors Checklist is a 35-item survey designed to assess undergraduate students’ use of different study techniques and correlate with students’ course grades. Specifically, the Checklist assesses five types of behaviors: organizational, application, elaboration, metacognitive, and resource use on a Likert scale from 1 (Not at all like me) to 5 (Exactly like me).

\textsuperscript{83}Id.

\textsuperscript{84}For example: “After class, I looked over my notes to check for and fill in missing information,” “I created and answered questions about the material while I was reading in my notes,” “I used practice exams to study,” “I read the difficult material slowly,” and “I related what I was reading to lecture materials and discussion.”

\textsuperscript{85}Most students were At Risk students who were required to meet with me, but many students came on their own seeking assistance.

\textsuperscript{86}Study schedules, class preparation, description of case reading process, description of case briefing process, description of note-taking process, description of post-class review, use of study groups, development and use of course outlines, use of academic resources, description of exam preparation process, use of past exams to study and practice, descriptions of supplements and study aid use, and a self-assessment of the efficacy of the student’s study habits. Using the student responses, I refined the questions and created an online Questionnaire for students to complete on their own. An online version would save appointment time and allow me to target each student’s weak areas and students might be more honest completing the survey on their own. I gathered 103 completed Questionnaires. The Study Habits Questionnaire was not IRB approved, has not been formally analyzed for data, but was used to develop patterns and questions for the Law Student Study Habits Survey.
Using information from the Study Behaviors Questionnaire, we modified Dr. Gurung’s Study Behaviors Checklist questions and created an 87-question pilot Law Student Study Habits Survey to pre-test the items in the research instrument - the questions themselves. After pre-testing the pilot Law Student Study Habits Survey, we refined the Survey to a 37-question final version covering the following topics: time management, class preparation (reading and briefing cases), class attendance and note-taking, outlining, review, exam preparation, and test taking.

Table 1: Law Student Study Habits Survey Questions

<table>
<thead>
<tr>
<th>Time Management:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I spread out my studying so I don’t have to cram for exams.</td>
</tr>
<tr>
<td>I study the same way that I did in college.</td>
</tr>
<tr>
<td>I spend most of my time preparing for class and do not have time to review.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class preparation (Reading &amp; Briefing Cases):</th>
</tr>
</thead>
<tbody>
<tr>
<td>I read all the assigned cases in the casebook.</td>
</tr>
<tr>
<td>I attend every class.</td>
</tr>
<tr>
<td>I read each case from beginning to end.</td>
</tr>
<tr>
<td>I do not understand the cases even after reading them more than once.</td>
</tr>
<tr>
<td>I reread parts of the cases to make sure I understand.</td>
</tr>
<tr>
<td>I read the “Notes &amp; Questions” following the cases.</td>
</tr>
<tr>
<td>I have a hard time putting the material into my own words.</td>
</tr>
<tr>
<td>When reading, I get lost in the details and have a hard time understanding the main idea.</td>
</tr>
<tr>
<td>I highlight important information as I read.</td>
</tr>
<tr>
<td>I write my own case briefs.</td>
</tr>
<tr>
<td>I look at commercial briefs to help me understand the cases.</td>
</tr>
<tr>
<td>I use commercial briefs instead of briefing the cases myself.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Note-taking &amp; In-Class:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I write or type only the important things the Professor says in class.</td>
</tr>
<tr>
<td>I review my notes after class.</td>
</tr>
<tr>
<td>I do not understand the class discussions.</td>
</tr>
<tr>
<td>I am afraid of being called on in class.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Review:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I wait too long to start reviewing.</td>
</tr>
<tr>
<td>I use practice questions and hypos to help me learn new material.</td>
</tr>
<tr>
<td>I generate my own examples when I review.</td>
</tr>
<tr>
<td>I am able to explain confusing concepts to classmates.</td>
</tr>
<tr>
<td>I review with a study group.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outlining course material:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I make my own outline using my notes, briefs, etc.</td>
</tr>
<tr>
<td>I have a hard time condensing my outline because it all seems important.</td>
</tr>
<tr>
<td>I use an outline that I received from another student.</td>
</tr>
<tr>
<td>I start my outline right before midterms or finals.</td>
</tr>
<tr>
<td>I don’t know how to make an outline.</td>
</tr>
<tr>
<td>My outline is too long.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-testing:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I understand the material better after I work through practice questions</td>
</tr>
<tr>
<td>I use practice questions to study.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exam Preparation &amp; Test-Taking:</th>
</tr>
</thead>
<tbody>
<tr>
<td>I memorize all of the rules to prepare for exams.</td>
</tr>
</tbody>
</table>

87 The Pilot Law Student Study Habits Survey was an online survey based on a 5-point Likert scale with 87 closed-ended questions. We administered the pilot Survey online using Qualtrics in the 2013-2014 academic year. We collected 143 completed Surveys, representing a wide range of GPA’s.

88 Students were instructed to choose one description of how each skill applied to them: Never, Rarely, Sometimes, Often, or Always.
I need to finish my outline before I can memorize the rules.
I get very anxious while taking tests.
I don’t know how to organize my essay answers.

**Resource Use & Outside Assistance:**
If I don’t understand the material, I ask someone for help.
I met with my Professor.

**C. Administration of the Law Student Study Habits Survey**

The Law Student Study Habits Survey was administered to first year law students following the completion of their first semester of law school at two different ABA accredited law schools. All first year law students at the two law schools were invited to participate. Participation was voluntary and was solicited via email containing a link to the online survey. Law students completed the 37-question Law Student Study Habits Survey online in approximately 5-10 minutes.

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Responses</th>
<th>LSAT</th>
<th>UGPA</th>
<th>LGPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SU</td>
<td>83</td>
<td>Range: 144-164</td>
<td>Range: 2.39-4.03</td>
<td>Range: 2.00-3.92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Median: 154</td>
<td>Median: 3.36</td>
<td>Median: 3.23</td>
</tr>
<tr>
<td>TJSL</td>
<td>135</td>
<td>Range: 139-162</td>
<td>Range: 2.19-3.99</td>
<td>Range: 1.00-4.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Median: 147</td>
<td>Median: 2.88</td>
<td>Median: 1.98</td>
</tr>
</tbody>
</table>

First, using the Statistical Package for the Social Sciences (SPSS), I conducted a Pearson correlation between all of the individual responses on the Law Student Study Habits Survey with law GPA for each data set. I have included the results of that test below in Table 3.

<table>
<thead>
<tr>
<th>Law Student Study Habits Survey Questions</th>
<th>SU Results</th>
<th>TJSL Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pearson Corr. to LGPA</td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>I spread out my studying so I don’t have to cram for exams.</td>
<td>-.108</td>
<td>.332</td>
</tr>
<tr>
<td>I study the same way that I did in college</td>
<td>-.117</td>
<td>.294</td>
</tr>
<tr>
<td>I spend most of my time preparing for class and do not have time to review</td>
<td>.102</td>
<td>.360</td>
</tr>
<tr>
<td>I read all the assigned cases in the casebook</td>
<td>.047</td>
<td>.674</td>
</tr>
<tr>
<td>I read each case from beginning to end</td>
<td>-.081</td>
<td>.470</td>
</tr>
<tr>
<td>I do not understand the cases even after reading them more than once</td>
<td>-.217*</td>
<td>.049</td>
</tr>
<tr>
<td>I read the “Notes and Questions” following the cases</td>
<td>.090</td>
<td>.420</td>
</tr>
</tbody>
</table>

Table 3: Pearson Correlation with First Year Law GPA (LGPA)

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**Notes:** The Law Student Study Habits Survey was administered to first year law students at Thomas Jefferson School of Law and Seattle University School of Law. Institutional Review Board (IRB) approval was obtained through the University of Wisconsin-Green Bay, Thomas Jefferson School of Law, and Seattle University. Demographic information (gender, race, etc.) was not requested nor analyzed. The purpose of this study is to analyze broad trends across 1L’s looking for correlation to a single objective academic criteria - LGPA. The samples differ based on incoming student criteria - TJSL students had a median LSAT of 147 compared to SU’s median LSAT of 154. Further, TJSL students had a median UGPA of 2.88 compared to SU’s median UGPA of 3.36. This indicates that the TJSL students came into law school with lower levels of academic ability in general.
<table>
<thead>
<tr>
<th></th>
<th>r</th>
<th>D</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a hard time putting the material into my own words</td>
<td>-0.130</td>
<td>0.243</td>
<td>-0.151</td>
<td>0.081</td>
</tr>
<tr>
<td>When reading, I get lost in the details and have a hard time understanding the main idea</td>
<td>-0.169</td>
<td>0.126</td>
<td>-0.271**</td>
<td>0.001</td>
</tr>
<tr>
<td>I highlight important material as I read</td>
<td>-0.066</td>
<td>0.555</td>
<td>-0.188</td>
<td>0.029</td>
</tr>
<tr>
<td>I write my own case briefs</td>
<td>0.015</td>
<td>0.892</td>
<td>0.070</td>
<td>0.419</td>
</tr>
<tr>
<td>I look at commercial briefs to help me understand the cases</td>
<td>-0.165</td>
<td>0.137</td>
<td>-0.196</td>
<td>0.023</td>
</tr>
<tr>
<td>I use commercial briefs instead of briefing the cases myself</td>
<td>-0.089</td>
<td>0.424</td>
<td>-0.188</td>
<td>0.028</td>
</tr>
<tr>
<td>I write or type only the important things the Professor says in class</td>
<td>0.063</td>
<td>0.570</td>
<td>0.221</td>
<td>0.010</td>
</tr>
<tr>
<td>I review my notes after class</td>
<td>-0.147</td>
<td>0.184</td>
<td>0.020</td>
<td>0.814</td>
</tr>
<tr>
<td>I do not understand the class discussions</td>
<td>-0.157</td>
<td>0.156</td>
<td>-0.183</td>
<td>0.033</td>
</tr>
<tr>
<td>I am afraid of being called on in class</td>
<td>-0.134</td>
<td>0.228</td>
<td>-0.146</td>
<td>0.093</td>
</tr>
<tr>
<td>I understand the material during class, but I get confused when I review my notes after class</td>
<td>-0.119</td>
<td>0.285</td>
<td>-0.160</td>
<td>0.064</td>
</tr>
<tr>
<td>I wait too long to start reviewing</td>
<td>0.037</td>
<td>0.743</td>
<td>-0.239*</td>
<td>0.005</td>
</tr>
<tr>
<td>I use practice questions and hypos to help me learn new material</td>
<td>0.139</td>
<td>0.212</td>
<td>0.055</td>
<td>0.527</td>
</tr>
<tr>
<td>I generate my own examples when I review</td>
<td>0.105</td>
<td>0.346</td>
<td>0.011</td>
<td>0.898</td>
</tr>
<tr>
<td>I am able to explain confusing concepts to classmates</td>
<td>0.363**</td>
<td>0.001</td>
<td>0.322**</td>
<td>0.000</td>
</tr>
<tr>
<td>I review with a study group</td>
<td>0.109</td>
<td>0.325</td>
<td>0.068</td>
<td>0.432</td>
</tr>
<tr>
<td>I make my own outline using my notes, briefs, etc.</td>
<td>0.110</td>
<td>0.321</td>
<td>0.287**</td>
<td>0.001</td>
</tr>
<tr>
<td>I have a hard time condensing my outline because it all seems important</td>
<td>-0.140</td>
<td>0.208</td>
<td>-0.276**</td>
<td>0.001</td>
</tr>
<tr>
<td>I use an outline that I received from another student</td>
<td>-0.019</td>
<td>0.863</td>
<td>-0.243*</td>
<td>0.005</td>
</tr>
<tr>
<td>I start my outline right before midterms or finals</td>
<td>0.008</td>
<td>0.940</td>
<td>-0.174</td>
<td>0.045</td>
</tr>
<tr>
<td>I don’t know how to make an outline</td>
<td>-0.067</td>
<td>0.545</td>
<td>-0.228**</td>
<td>0.008</td>
</tr>
<tr>
<td>My outline is too long</td>
<td>-0.258*</td>
<td>0.019</td>
<td>-0.290*</td>
<td>0.001</td>
</tr>
<tr>
<td>I understand the material better after I work through practice questions</td>
<td>0.141</td>
<td>0.202</td>
<td>0.153</td>
<td>0.077</td>
</tr>
<tr>
<td>I use practice questions to study</td>
<td>0.301**</td>
<td>0.006</td>
<td>0.275**</td>
<td>0.001</td>
</tr>
<tr>
<td>I memorize all of the rules to prepare for exams</td>
<td>0.209</td>
<td>0.061</td>
<td>0.223*</td>
<td>0.009</td>
</tr>
<tr>
<td>I need to finish my outline before I can memorize the rules</td>
<td>0.074</td>
<td>0.505</td>
<td>0.124</td>
<td>0.149</td>
</tr>
<tr>
<td>I get very anxious while taking tests</td>
<td>-0.300**</td>
<td>0.006</td>
<td>-0.175*</td>
<td>0.042</td>
</tr>
<tr>
<td>I don’t know how to organize my essay answers</td>
<td>-0.294**</td>
<td>0.007</td>
<td>-0.230*</td>
<td>0.007</td>
</tr>
<tr>
<td>I have trouble writing the rules on an exam because I didn’t practice writing them out</td>
<td>-0.402**</td>
<td>0.000</td>
<td>-0.268</td>
<td>0.002</td>
</tr>
<tr>
<td>If I don’t understand the material, I ask someone for help</td>
<td>-0.004</td>
<td>0.969</td>
<td>0.170*</td>
<td>0.049</td>
</tr>
<tr>
<td>I met with my Professor</td>
<td>0.093</td>
<td>0.403</td>
<td>0.177</td>
<td>0.039</td>
</tr>
</tbody>
</table>

*. Correlation is significant at the 0.05 level (2-tailed)

**. Correlation is significant at the 0.01 level (2-tailed)

### Part IV: Results of the Law Student Study Habits Survey

My main research question was which law student study and learning behaviors are positively and negatively correlated with law GPA.
A. Positive Correlation with Law GPA

The following law study and learning behaviors were positively correlated with law school GPA (LGPA) in both datasets: the ability to explain confusing concepts to classmates, and using practice questions to study.

There is a statistically significant positive relationship between LGPA and the ability to explain concepts. The ability to explain confusing concepts to classmates is positively correlated with LGPA in both datasets: SU, \( r (83) = .36, p = .001 \); TJSL, \( r (135) = .32, p = .000 \).

Table 4: Boxplots of responses to “I am able to explain confusing concepts to classmates”

There is a statistically significant relationship between LGPA and a student’s use of practice questions to study. Using practice questions to study is positively correlated with LGPA in both datasets: SU, \( r (83) = .30, p = .006 \); TJSL, \( r (135) = .27, p = .001 \).

Table 5: Boxplot of responses for “I use practice questions to study.”

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\(^90\) In the following charts, the Y-axis represents the first year law GPA (LGPA) and the X-axis represents the student’s response on the 5-point Likert scale.
B. Negative Correlation with Law GPA

The following law study and learning behaviors were negatively correlated with law school GPA in both datasets: the inability to organize essay answers, difficulty writing rules on exams because of lack of practice, weak critical reading skills, and weak synthesis skills.

There was a statistically significant negative relationship between LGPA and the difficulty organizing essay answers in both datasets. I don’t know how to organize my essay answers is negatively correlated with law GPA in both datasets: SU, $r (83) = - .29, p = .007$; TJSL, $r (135) = - .23, p = .007$.

Table 6: Responses for “I don’t know how to organize my essay answers.”

There was also a statistically significant negative relationship with difficulty writing rules on exams due to lack of practice writing them in both datasets. I have trouble writing the rules on exams because I didn’t practice is negatively correlated with law GPA in both datasets: SU, $r (83) = - .40, p = .000$; TJSL, $r (135) = - .27, p = .002$.

Table 7: Responses for “I have trouble writing the rules on exams because I didn’t practice.”
There was also a statistically significant negative relationship between LGPA and weak critical reading skills seen in each dataset, although demonstrated by different prompts. Not understanding the cases - either failing to understand despite multiple readings\(^91\) or not understanding the main point\(^92\) - was negatively correlated with law GPA.

Table 8: Responses showing negative correlation between LGPA and weak critical reading skills.

There was also a statistically significant negative relationship between LGPA and weak synthesis skills seen in each dataset, although demonstrated by different prompts. Weak synthesis skills when a student’s course outline is too long\(^93\) or the student is unable to condense the course material because he or she may be unable to distinguish relevant from irrelevant information was also negatively correlated with law GPA.

Table 9: Responses showing negative correlation between LGPA and weak synthesis skills.

C. Discussion of Results

The main research question of the Law Student Study Habits Survey was which law student study and learning behaviors were positively and negatively correlated with first year law

\(^91\) I do not understand the cases even after reading them more than once. SU, \(r \ (83) = -.22, p = .049\).

\(^92\) When reading, I get lost in the details and have a hard time understanding the main point. TJSL, \(r \ (135) = -.22, p = .001\).

\(^93\) My outline is too long. SU, \(r \ (83) = -.26, p = .019\); TJSL, \(r \ (135) = -.29, p = .001\). I have a hard time condensing my outline because it all seems important. TJSL, \(r \ (135) = -.28, p = .001\).
GPA. In other words, which law student study and learning behaviors demonstrated a statistically significant relationship with academic success in law school.

My two key hypotheses were that: (1) retrieval, self-testing, and periodic review would be positively correlated with LGPA, and (2) relying solely on reading and briefing cases without review or self-testing would be negatively correlated with LGPA. Both hypotheses were supported by the survey results, although no statistically significant relationship was demonstrated between LGPA and periodic review by these results.

Retrieval and self-testing skills were positively correlated with law GPA, demonstrating a statistically significant positive relationship with academic success in law school. This finding is supported by both data sets explicitly (“I use practice questions to study”) and implicitly by survey responses demonstrating negative correlation of lack of retrieval and self-testing with first year law GPA (“I have trouble writing the rules on exams because I didn’t practice” and “I don’t know how to organize my essay exams.”). As shown in Tables 5, 6, and 7 above, students with higher LGPA were more likely to respond that they always or often used retrieval and practice testing to learn or study materials and respond that they never or rarely had trouble writing rules on exams or difficulty organizing essay exams.

Both data sets also demonstrate that elaboration is highly positively correlated with first year law GPA explicitly by survey responses (“I am able to explain confusing concepts to classmates”). Table 4 shows that students with higher LGPA were more likely to be able to explain confusing concepts to classmates. The ability to explain confusing concepts to classmates illustrates several different cognitive processes and effective learning strategies. The student explaining the confusing concept must engage in retrieval to recall relevant information from memory and elaborate the information in a clear and meaningful way. Elaboration is the process of putting information into your own words and connecting new information to prior knowledge. Elaboration “improves your mastery of new material and multiplies the mental cues available to you for later recall and application.”94

While this positive correlation with LGPA and elaboration was not part of my original hypothesis, it is logical and encouraging. Law school final exams are typically closed-book essay exams that present students with hypothetical problems based on material learned during the semester.95 Students are expected to apply rules learned in the course to new factual situations, to spot the legal issues raised by the facts, and to explain how the law applies to the facts.96 To be successful in this task, students must not only have read and understood the cases, but must have distilled the legal principles from the cases into a coherent structure of legal rules, connecting new rules to previously learned course material, and must be adept at applying this new knowledge structure to new factual situations in order to excel on final exams.

However, a more troubling finding for law students and legal educators is the negative statistically significant relationship between LGPA and relying on reading, rereading, and briefing cases without retrieval or practice application of the law. Relying solely on reading and briefing cases without engaging in retrieval and self-testing is negatively correlated with law GPA and academic success in law school and leads to a law school learning trap. Because reading and briefing cases is time consuming and difficult, students often reported that they only had time to

94 Make It Stick, at 207.
96 Friedland at 164-165.
read and brief cases to keep up for class.\textsuperscript{97} Reading and briefing cases creates a false sense of fluency with the material, where students mistake class preparation for studying for the course. This law school learning trap tricks students into believing that reading and briefing cases to prepare for class without engaging in self-testing or retrieval is sufficient for learning in law school.\textsuperscript{98}

Relying on reading and briefing cases without retrieval or self-testing is negatively correlated with first year law GPA and is explicitly supported by several responses demonstrating a lack of practice applying the material: “I have trouble writing the rules on exams because I didn’t practice” and “I don’t know how to organize my essay answers.” This finding is also implicitly supported by negative correlation to the prompt, “I use practice questions to study,” which was highly statistically significant for high law GPA and academic success. The results also show statistically significant negative relationships between LGPA and weak critical reading and synthesis skills, also very troubling for law students and legal educators.

Without testing their own comprehension by using retrieval, self-testing, or elaborative study strategies, students develop illusions of competence due to familiarity with material. Students also miss opportunities to refine, synthesize and consolidate their knowledge when they actively engage in retrieval and self-testing. When law students wait until right before the final exam to practice, the practice itself will likely feel hard leadings students to instead engage in easier passive learning tasks like rereading outlines, rote memorization, and other massed strategies that feel easier, but create illusions of competence.\textsuperscript{99}

**Part V: Recommendations**

Law students need to know what material to learn, what material they have learned, and what they have not yet learned \textit{weeks or months}, not days or hours, before an exam.\textsuperscript{100} The \textit{Law Student Study Habits Survey} results align with findings from cognitive science and question the accuracy of the non-empirical “tried and true” study advice found in law school success resources.\textsuperscript{101} Law students need to spend less time relying on passive learning strategies and more time incorporating active learning strategies that yield formative self-assessment.

\textsuperscript{97} The first year law students that I worked with in Academic Success were adamant that they read and briefed every case, outlined the course, memorized the rules and understood the material. But, when asked if they had tried to apply the new information by working through practice questions or hypotheticals, they reported that they barely had enough time to read and brief cases for class and did not have time to practice applying the material. These students did not understand how critical practice testing was for learning, developing comprehension, or calibrating their own understanding of the material.

\textsuperscript{98} This illusion is often dispelled when students are offered course midterms, whether graded or ungraded. Midterms force students to engage in more learning activities than just reading and briefing cases, but also often reveals large understanding and knowledge gaps as well as exam writing deficits.

\textsuperscript{99} Many of the low performing students that I worked with in Academic Support described their law school routine as: read and brief cases for class, go to class and take notes, immediately start reading and briefing cases for the next class, start course outline right before exams, read and study outline, use flashcards to memorize rules, many would rewrite their outline or even rewrite their notes, and many would read through the professor’s past essay exams and mentally issue spot, but not write out answers.

\textsuperscript{100} Many law school success guides incorrectly stress the importance of reading and briefing cases without emphasizing the importance of testing one’s comprehension and applying the concepts extracted from reading and briefing. Some explicitly tell students not to look at a Professor’s past exams until beginning test preparation late in the semester. One even warns law students that “[e]arly in the semester, when you haven’t covered much of what will appear on an exam, you’ll become discouraged if you read an exam that covers the entire course. Your belief in your ability to succeed on exams is crucial...looking at old tests before you have the knowledge to tackle them can deflate your self-confidence, so it’s better not to do it too early.” \textit{See, e.g.} Kim Alayne Walton & Lazar Emanuel, \textit{Strategies & Tactics for the First Year Law Student: Maximize Your Grades} (2004) at 21.

\textsuperscript{101} Law school success resources devote the vast majority of time on reading, briefing, and outlining, and introduce practice as test preparation before exams, not as a learning strategy during the term.
A. Recommendations for Legal Educators

This research proves that formative assessment through practice application of the law is critical law student learning and academic success in law school. Ideally, legal educators would incorporate frequent formative assessment in the law school curriculum to assist students in learning material and gauging their own understanding with frequent low stakes quizzing, including suggested hypos and practice questions in the course syllabus, and graded midterms.102

Yet, law faculty may be daunted by providing individual feedback to large sections of students or the prospects of critiquing and grading multiple essay assignments per term. But, law faculty do not need to provide individual comments on student papers in order to provide effective feedback to large sections. In A Law School Game Changer: (Trans)formative Feedback, Elizabeth Bloom discusses several options for providing effective feedback and formative assessment in large group sections with structured cooperative learning exercises using rubrics and sample answers (both weak and strong), self-assessments, and multiple low-stakes assessments beginning early in the course.103

Formative assessment does not need to be in essay form to be effective for student learning. Multiple choice and short answer questions are effective for providing formative assessment and doubles student learning over relying on reading and rereading.104 Faculty can leverage teaching and research assistants as well as hypos provided in teacher’s manuals of assigned casebooks for writing hypothetical essay or multiple choice questions that cover single topics.

Due to the critical nature of formative assessment and practice application of the law to student learning, students will require resources outside of assigned casebooks. When law faculty tell students not to use anything except their assigned casebook or materials, they limit students’ autonomy, self-regulated learning, and ability to gauge learning and understanding. Instead, law faculty should recommend resources that complement the assigned materials and make more practice questions and resources available.

B. Recommendations for Law Students

Law students also need to incorporate early and frequent formative self-assessment using retrieval and self-testing to calibrate their understanding, form deeper connections to material, synthesize information, develop complex knowledge structures, and better prepare for exams.

Reading and briefing cases, going to class and taking notes, and outlining course material, are not sufficient for academic success in law school. Relying solely on reading and briefing cases and going to class without testing one’s knowledge creates the same fluency and illusions of competence as rereading. Without testing comprehension with practice questions and hypotheticals, law students are falling into the same learning trap as researchers found in undergraduate students.

102 Carol Springer Sargent and Andrea A. Curcio, Empirical Evidence that Formative Assessments Improve Final Exams, 61 J. LEGAL EDUC. 379 (2012) (Springer Sargent and Curcio used formative assessments both in class and outside of class, including short-essay and short-answer ungraded quizzes, a graded midterm, and self-reflective exercises. The authors found these formative assessments helped law student performance on a cumulative final exam). See also Elizabeth M. Bloom, A Law School Game Changer: (Trans)formative Feedback, 41 OHIO NORTHERN U. L. REV. 227, 231 (2015) (encouraging legal educators to help students take responsibility for their own learning through development of self-teaching skills and providing concrete suggestions to legal educators to create formative assessments to enable students to become self-regulated learners).

103 Megan A. Smith and Jeffrey D. Karpicke, Retrieval practice with short-answer, multiple-choice, and hybrid tests, 22 MEMORY 784 (2014).
Law students must incorporate retrieval and self-testing at every learning step to develop deep understanding, build complex knowledge structures, and most importantly, to understand what they know and what they don’t know. Using practice questions to study and learn doubles students’ performance over just relying on reading and rereading.\textsuperscript{105} Multiple-choice practice questions are just as effective as short-answer questions.\textsuperscript{106} For retrieval and self-testing to be the most beneficial for student learning, feedback must also be available in the form of a correct answer or an answer with explanation after the student works through the practice question herself.\textsuperscript{107}

Smarter law learning is using empirically proven study strategies to learn, like retrieval, self-testing, and elaboration. Smarter law learning requires students to read and brief cases to prepare for class and immediately engage in retrieval and self-testing to gauge their understanding of the material. Smarter law learning involves elaboration. For example, when reading and briefing cases to prepare for class, students should make the effort to put the case material into their own language without looking at the text or their notes, rather than relying on passive copy & paste into one’s brief. Students should also use the same elaborative strategies to synthesize multiple case rules, synthesizing multiple individual case rules into one synthesized rule, and developing their course outlines.

Law students can use several commercially available study aids for practice questions to self-test their knowledge and comprehension as they learn each topic. For example, the Examples & Explanations series provides both narrative summaries of substantive law organized by topic and hypothetical questions accompanied with detailed explanations that allow students to test their comprehension.\textsuperscript{108} The Questions & Answers (Q&A) series does not include narrative summaries, but features many multiple-choice and short-answer questions arranged by topic as well as practice essay questions with explanations and correct answers.\textsuperscript{109} Other commercial series provide outlines or checklists as well as multiple-choice, short-answer, and essay practice questions.\textsuperscript{110}

These commercial materials do have limits in their effectiveness. They may fail to identify the nuances highlighted by the doctrinal professor or even contradict the professor’s materials. They may also focus more on black letter law and fail to cover policy and theory that may be very important to the particular professor. These commercial resources are supplements, not replacements, to in-class materials, a student’s own notes, and materials provided by the professor. Law students may find a more effective solution is to blend commercial materials with their professor’s assignments and materials to make their own hypotheticals that more effectively mirror what they are learning in the classroom.

Law students should also seek out their professors’ past exams early in the term. There may be some limitations on using professors’ past exams to study. First, the professor’s past exam may not cover every topic the student has learned. Second, the professor may not provide a rubric, grading criteria, or “model” answer. The professor may only provide a sample student

\textsuperscript{105} Megan A. Smith and Jeffrey D. Karpicke, Retrieval practice with short-answer, multiple-choice, and hybrid tests, 22 MEMORY 784 (2014).
\textsuperscript{106} Id.
\textsuperscript{107} Id.
\textsuperscript{108} The Examples & Explanations series is published by Wolters Kluwer and features titles for every first year law subject, i.e., Contracts, Civil Procedure, Torts, Property, Criminal Law, Constitutional Law, etc.
\textsuperscript{109} The Questions & Answers (Q&A) series is published by LexisNexis and covers all of the first year subjects. The Q&A series does not include a narrative summary.
\textsuperscript{110} The Gilberts and Emmanuels series are black letter law outlines that also contain some practice questions. The Exam Pro and Acing series are published by West Academic and also cover all of the first year subjects.
answer that may contain errors or may not provide any answer at all. Law students can still get feedback when using a professor’s past exam by working through the past exam (retrieval and self-testing) and asking the professor to review the practice in office hours. Nevertheless, professors’ past exams are a valuable asset to students learning and should be exploited after the student has covered enough material in the course.

Another source of hypotheticals is the “Notes & Questions” section in most casebooks after cases or topics. These are written by the casebook authors to highlight important issues or information in the cases or topics. Some law professors go through the Notes & Questions in detail or may use them to generate questions. These provide excellent opportunities to test out your understanding, but students will need to meet with their professor in office hours to discuss the answers because correct answers and explanations are not typically provided in the law student version of the casebook.

Effective learning is difficult and often involves mistakes and setbacks. These are part of the learning process and are signs of effort, not failure. If you are trying through retrieval and self-testing strategies and make mistakes, do not despair. Each mistake is a learning opportunity. Get feedback, find the correct answer, analyze why you make the mistake and correct your misunderstanding. Still confused? Get help. Ask your study partner, find more information in a treatise or study aid, ask the T.A., visit your academic success department, or visit your professor in office hours.

C. Future of the Law Student Study Habits Survey

The Law Student Study Habits Survey is a preliminary tool in understanding which study and learning strategies our students actually use and which strategies are correlated to academic success for our students. The results above are based on only two administrations of the survey at two law schools, yielding a small sample of student data. A next goal is to make the survey available to other law schools to administer to their students, across regions and tiers. The ultimate goal is to collect data on law student study habits, to better understand law student study habits, to identify students needing assistance, to develop meaningful interventions, and to provide sound, evidence-based advice to law students.

Legal educators need more reliable data on effective law student study and learning behavior, for individual institutions as well as across the academy. This is a call to action to any law school interested in administering the Law Student Study Habits Survey to its students. The Law Student Study Habits Survey is available to interested law schools. Survey administration is online and takes students 5-10 minutes to complete. Law schools would need to provide the author a letter of institutional support and engagement for the IRB approval. Each institution would be responsible for providing the required academic data for each student submitting a survey response that researchers would then correlate with the Survey responses.111 If interested in participating in the Law Student Study Habits Survey, please contact Jennifer M. Cooper at jcoope9@tulane.edu.

111 Academic & objective test scores: LSAT, UGPA, LGPA, course grades, etc.