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AN EMPIRICAL STUDY OF THE RELATIONSHIP BETWEEN METACOGNITIVE SKILLS, PERFORMANCE IN A BAR PREP COURSE AND BAR PASSAGE

Jennifer A. Gundlach and Jessica R. Santangelo*

ABSTRACT

This article builds on our prior research about metacognition and its importance for law students' learning. We hypothesized that given our past findings about the relationship between metacognition and academic performance during the first year of law school, it was possible that metacognition might also play an important role in success with a third-year bar preparation course and/or on the bar exam.

Our current study documents law students' metacognitive skills during a final-semester bar prep course and examines the relationship between those students' metacognitive skills and performance in the course and bar passage. We found that students are capable of gaining metacognitive knowledge and regulation skills during law school and even as late as the last semester of law school. We also found evidence that instruction and prompts to practice metacognitive regulation during the first year of law school had a long-term impact on students' continued use of those skills in their final semester. This evidence is important because we also found, as we have in prior studies, that students' success

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in a final-semester 3L bar preparation course, as well as their cumulative law school GPA, is associated with their level of metacognitive knowledge and regulation skills. While we did not find evidence of a direct relationship between metacognitive skills and bar passage, there was a relationship between bar passage and both course performance and cumulative GPA. Accordingly, we contend that metacognitive skills are an indirect support of bar passage given that they contribute to academic success, which in turn supports success on the bar exam. We conclude that, based on the relationship between metacognitive skills, academic success in law school, and bar passage, law schools have an ethical obligation to support law faculty in explicitly and intentionally incorporating metacognitive skills instruction into the law curriculum.

I. Introduction

Declining bar passage rates over the past two decades have had an increasingly important impact on law school accreditation, reputation, and ranking, not to mention the direct negative consequences they can have for law school graduates. This trend has given birth to an array of scholarly research that seeks to understand predictors of success on the bar exam in order to inform how law schools can improve passage rates. In addition to demographic and quantitative measures such as law school grade point average (“GPA”), researchers have endeavored to explore other factors that may impact student learning during law school and, perhaps consequently, their ultimate performance on the bar exam.

Our past studies, as well as those of other legal scholars, conclude that metacognition can play an important role in

lawstudents' learning and academic performance in law school.¹ This is consistent with findings in other disciplines about the benefits of teaching metacognitive skills.² Thus, we and others have shared how to integrate the teaching of metacognitive skills

¹ See, e.g., Jennifer A. Gundlach & Jessica R. Santangelo, *Understanding the Metacognitive Space and Its Implications for Law Students' Learning*, 50 HOFSTRAL REV. 769, 797–801 (2022) (reporting on an empirical study of the breakdown of first-year law students' metacognitive skills with respect to knowledge and regulation components and the correlation with academic performance) [hereinafter Gundlach & Santangelo, *Understanding*]; Jennifer A. Gundlach & Jessica R. Santangelo, *Teaching and Assessing Metacognition in Law School*, 69 J. LEGAL EDUC. 156, 163–64, 176–78, 197 (2019) (reporting on an empirical study of first-year law students, finding that students who demonstrated strong metacognitive skills were more likely to perform well) [hereinafter Gundlach & Santangelo, *Teaching*]; Andrea A. Curcio et al., *Does Practice Make Perfect? An Empirical Examination of the Impact of Practice Essays on Essay Exam Performance*, 35 FLA. ST. U. L. REV. 271, 313 (2008) (reporting on a study suggesting that “students learn better when given opportunities to practice a skill and receive feedback on that practice” and that combining metacognitive exercises with teaching methods may help to improve all student performances); Cheryl B. Preston et al., *Teaching “Thinking Like a Lawyer”: Metacognition and Law Students*, 5 B.Y.U. L. REV. 1053, 1063, 1066, 1068–69 (2014) (discussing study of first-year law students who were given the Metacognitive Awareness Inventory and noting weak metacognitive skills of many based on their responses).

² See, e.g., Marcel V.J. Veenman et al., *Metacognition & Learning: Conceptual and Methodological Considerations*, 1 METACOGNITION & LEARNING 3, 6, 9 (2006) (discussing how metacognitive skills contribute to learning performance); Tara L.R. Beziat et al., *Knowledge Monitoring Accuracy and College Success of Underprepared Students*, 26 RESEARCHER 8, 9 (2014) (study showed that metacognitive knowledge monitoring accuracy is related to academic success in college students); Howard T. Everson & Sigmund Tobias, *The Ability to Estimate Knowledge and Performance in College: A Metacognitive Analysis*, 26 INSTRUCTIONAL SCI. 65, 70 (1998) (study showed that metacognitive knowledge monitoring accuracy is related to academic success in college students).

across the law school curriculum.³ Its impact on law students' learning suggests that metacognition could also play a role in their success on the bar exam.

With this article, we further contribute to the empirical research about metacognitive skills, particularly in the context of law schools' efforts to prepare students to pass the bar exam. Our current study documents law students' metacognitive skills during a final-semester third-year ("3L") bar prep course and examines the relationship between those students' metacognitive skills and bar passage. We sought to answer several questions designed to inform our ongoing research about the knowledge and regulation components of metacognition, as well as measurements for assessing those skills.

We also wanted to determine what, if any, conclusions we could draw that might be helpful to assist law students and legal educators' support of law students' learning and subsequent success on the bar exam. Law schools owe it to their students to create curricula and employ teaching methods that position students to pass the bar exam. Moreover, bar passage rates are a component of the American Bar Association's ("ABA's")

³ See, e.g., Gundlach & Santangelo, *Understanding*, *supra* note 1, at 811–12 (discussing implications of research for law school teaching); Jaime A. Lee, *From Socrates to Selfies: Legal Education and the Metacognitive Revolution*, 12 DREXEL L. REV. 227, 237–50 (2020) (describing instruction about the "metacognitive approach" for law students); Patti Alleva & Jennifer A. Gundlach, *Learning Intentionally and the Metacognitive Task*, 65 J. LEGAL EDUC. 710, 730–31 (2016) (offering suggestions for how to integrate metacognitive instruction in civil procedure courses); Elizabeth M. Bloom, *Creating Desirable Difficulties: Strategies for Reshaping Teaching and Learning in the Law School Classroom*, 95 U. DETROIT MERCY L. REV. 115, 135–36, 141–42 (2018) (discussing use of complex learning activities that promote metacognition in the form of self-assessment and reflection skills); E. Scott Fruehwald, *How to Help Students from Disadvantaged Backgrounds Succeed in Law School*, 1 TEX. A&M L. REV. 83, 107–08, 110–12, 115–18 (2013) (discussing how to teach law students metacognitive awareness and regulatory skills to enhance self-regulated learning); Kristina L. Niedringhaus, *Teaching Better Research Skills by Teaching Metacognitive Ability*, 18 PERSPS. 113, 113, 115–17 (2010) (offering techniques for teaching metacognitive awareness in legal research classes); Robin A. Boyle, *Employing Active-Learning Techniques and Metacognition in Law School: Shifting Energy from Professor to Student*, 81 U. DETROIT MERCY L. REV. 1, 13–17, 19–20 (2003) (describing various active-learning and metacognitive techniques used in class).

assessment of law schools' program of legal education, and they are also an important factor in rankings and overall reputation. As will be discussed, our study provides useful findings from which law students, faculty, and administrators can draw in making decisions about how to bolster students' performance on the bar exam.

Specifically, students are capable of gaining metacognitive knowledge and regulation skills during law school and even as late as the last semester of law school. We also found evidence that early instruction and prompts to practice metacognitive regulation during the first year of law school can have a long-term impact on students' continued use and development of those skills. This evidence is important, because we also found, as we have in prior studies, that students' success in a final-semester 3L bar preparation course, as well as their cumulative law school GPA, is associated with their level of metacognitive knowledge and regulation skills. While we ultimately did not find evidence of a direct relationship between metacognitive skills and bar passage, there was a relationship between bar passage and both course performance and cumulative GPA. Accordingly, this suggests that strong metacognitive skills can help students succeed in law school, which can then position them to perform better on the bar exam.

Part II provides a brief review of the history of the bar exam and the importance of bar passage rates for law school accreditation.⁴ It also traces the decline of bar passage rates, highlights critiques of the bar exam and accreditation standards, and notes recent reform efforts designed to improve the licensing process. It concludes by surveying literature that seeks to determine what factors impact bar passage and law schools' efforts to respond to declining bar passage rates during the past few decades. Part III provides an overview of metacognition, its knowledge and regulation components, and a discussion about its importance to learning and correlation with academic success.⁵ Part IV discusses the empirical study, starting with our research questions, methodology, instrumentation, and coding process.⁶ Part V provides a discussion of our findings.⁷ Specifically, we analyze students' overall metacognitive skills, as well as specific evidence of the knowledge and regulation components

⁴ See *infra* Part II.

⁵ See *infra* Part III.

⁶ See *infra* Part IV.

⁷ See *infra* Part V.

demonstrated in their final semester of law school, the extent to which students' metacognition changed from their first to third year of law school, the relationship of each component as well as overall metacognitive skills with academic performance and bar performance, and the impact of instructional intervention.⁸ We also share examples from the students' unsolicited qualitative responses to provide insight regarding themes that emerged that may be helpful for legal educators to consider in connection with academic support and wellness initiatives.⁹ Drawing upon the study's findings, Part VI discusses the study's implications for how legal education can be further reformed to enhance academic support for law students' preparation to pass the bar exam, as well as resources for law schools to use to do so.¹⁰

II. The Bar Exam, Bar Passage, and Recent Reform Efforts

The bar exam has long been an important component of attorney licensing in the United States. In 1972, the National Conference of Bar Examiners ("NCBE") produced a uniform written bar exam that was used in nineteen jurisdictions.¹¹ Today, nearly all state jurisdictions require successful passage of a bar exam to be admitted to practice.¹² The ostensible purpose of the bar exam is to protect the public by ensuring that those who are admitted can demonstrate a certain level of substantive legal knowledge and skills required for entry-level practice.¹³

⁸ See *infra* Part V.

⁹ See *infra* Part V.

¹⁰ See *infra* Part VI.

¹¹ *NCBE Testing Milestones*, Nat'l Conference of Bar Examiners, <https://nextgenbarexam.ncbex.org/about/ncbe-testing-milestones/#:~:text=1931-,1931,of%20state%20bar%20admission%20boards> (last visited May 19, 2023).

¹² *Jurisdiction Information*, Nat'l Conference of Bar Examiners, <https://www.ncbex.org/jurisdiction-information> (last visited May 19, 2023).

¹³ Diane F. Bosse, *Assessing Minimum Competence in a Changing Profession: Why the UBE is Right for New York*, 87 N.Y. ST. B.J. 39, 39 (2015).

In almost every state, the bar exam includes the following components: (a) the Multistate Bar Exam (“MBE”),¹⁴ which is a 200-question multiple-choice test of six substantive areas of the law developed by the NCBE to test legal principles and reasoning applied to fact patterns; (b) the Multistate Essay Exam (“MEE”),¹⁵ which consists of six essay questions developed by the NCBE to test the ability to identify legal issues in a fact pattern, assess relevancy of material, present a reasoned analysis, and demonstrate understanding of substantive legal principles; and (c) a Multistate Performance Test (“MPT”),¹⁶ which tests the ability to complete a task by using fundamental lawyering skills of a beginner lawyer in a realistic situation. A majority of jurisdictions now administer the Uniform Bar Exam (“UBE”),¹⁷ which includes uniform administration, grading and scoring of the MBE, MEE, and two MPTs and allows portability of scores to transfer to other jurisdictions that have adopted it. However, each jurisdiction continues to have the freedom to set its own minimum passing, so-called “cut,” scores.¹⁸

Because of its importance for licensing attorneys, bar passage is one of the outcomes the ABA measures to ensure that every law school, pursuant to Standard 301, abides by its accreditation responsibility to “maintain a rigorous program of legal education that prepares its students . . . for admission to the bar”¹⁹ Beginning in 2008, the ABA required, pursuant to Interpretation 301-6, that law schools demonstrate compliance with the above by indicating that seventy-five percent of a law school’s graduates

¹⁴ *MBE*, Nat’l Conference of Bar Examiners, <https://www.ncbex.org/exams/mbe> (last visited May 19, 2023).

¹⁵ *MEE*, Nat’l Conference of Bar Examiners, <https://www.ncbex.org/exams/mee> (last visited May 19, 2023).

¹⁶ *MPT*, Nat’l Conference of Bar Examiners, <https://www.ncbex.org/exams/mpt> (last visited May 19, 2023).

¹⁷ *UBE*, Nat’l Conference of Bar Examiners, <https://www.ncbex.org/exams/ube> (last visited May 19, 2023).

¹⁸ For example, for UBE states, the minimum passing scores range from 260 to 273 on a 400–point scale. *Id.* States also have a range, from 73 to 86 out of 100, of passing scores for the MPRE; <https://worldpopulationreview.com/state-rankings/mpre-scores-by-state>.

¹⁹ Gregory G. Murphy, *Revised Bar Passage Standard 316: Evolution and Key Points*, 88 B. EXAM’R. 21 (2019) (citing ABA Section of Legal Education and Admissions to the Bar, ABA STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS 2022-03, *Standard 301* (American Bar Association, 2022)).

had to pass a bar exam within a five-year period, with additional caveats that permitted lower pass rates under certain circumstances.²⁰ In 2015, the ABA explicitly adopted Standard 316, which formalized those requirements²¹ despite concerns raised by critics of such a “one-size-fits-all” approach for an accreditation standard related to bar passage.²²

The Council of the Section of Legal Education and Admissions to the Bar (“Council”) of the ABA recently proposed a revision to Standard 316 that was ultimately adopted by the ABA House of Delegates in May 2019. This more stringent version of the standard, which now requires seventy-five percent of a law school’s graduates who sit for a bar examination to pass *within two years* of their date of graduation,²³ places further pressure on law schools to ensure that their graduates are prepared for success in this important licensing step by changing their admission policies, their programs of education, or both.²⁴

In the past few decades, bar passage rates have been on the decline,²⁵ and various theories have been offered to explain this

²⁰ *Id.*; see ABA Section of Legal Education and Admissions to the Bar, ABA STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS 2008-09, *Interpretation 301-6* (American Bar Association, 2008),

https://www.americanbar.org/content/dam/aba/publications/misc/legal_education/Standards/standardsarchive/2008_2009_standards.pdf.

²¹ ABA Section of Legal Education and Admissions to the Bar, ABA STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS 2014-15, *Standard 316* (American Bar Association, 2014), https://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the_bar/council_reports_and_resolutions/201406_revised_standards_clean_copy.authcheckdam.pdf.

²² William W. Patton, *A Blueprint for a Fairer ABA Standard for Judging Law Graduates’ Competence: How a Standard Based on Students’ Scores in Relation to the National Mean MBE Score Properly Balances Consumer Safety with Increased Diversity in the Bar*, 24 WASH. & LEE J. CIVIL RTS. & SOC. JUST. 3, 12 (2017) (discussing, for example, the unfair disadvantages for law schools in jurisdictions that have higher cut scores in relation to other ABA law schools).

²³ ABA Section of Legal Education and Admissions to the Bar, ABA STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS 2022-23, *Standard 301* (American Bar Association, 2022).

²⁴ Gregory G. Murphy, *supra* note 19, at 23.

²⁵ See Nat’l Conference of Bar Examiners, *Ten-Year Summary of Bar Passage Rates, 2004-2013*, B. EXAM’R, March 2014, at 22, 25; Nat’l Conference of Bar Examiners, *Ten-Year Summary of Bar Passage Rates, Overall and First-Time, 2009-2018*, B. EXAM’R.,

trend. In the 1990s, many states raised their cut scores, which meant that a larger percentage of test-takers did not pass.²⁶ The NCBE has blamed the decline in bar passage rates on the corresponding drop in law school applications that began in 2011 during the Great Recession, which forced many schools to dig deeper into the applicant pool and lower their GPA and/or LSAT standards for incoming students.²⁷ Across the legal academy and the profession, some have challenged the format and content of the bar exam,²⁸ while others have suggested altering the content

<https://thebarexaminer.ncbex.org/statistics/2018-statistics/ten-year-summary-of-bar-passage-rates-overall-and-first-time-2009-2018/>; Pass-Rates for First-Time Test Takers 2020-2022, https://www.americanbar.org/groups/legal_education/resources/statistics/.

²⁶ See Comm. on Bar Admissions and Lawyer Performance and Richard A. White, *AALS Survey of Law Schools on Programs and Courses Designed to Enhance Bar Examination Performance*, 52 J. LEGAL EDUC. 454 (2002) (noting that at least ten states had raised their passing scores and others were considering doing the same) [hereinafter White, *AALS Survey*].

²⁷ See Mark Hansen, *Bar Fight: Exam Passage Rates Have Fallen, but Rattles Over Why and What It Means Are Roiling Legal Education*, 102 A.B.A. J. 48, 49 (2016) (citing remarks by Erica Moeser, then president of the NCBE). But see Scott Johns, *Testing the Testers: The National Conference of Bar Examiners' LSAT Claim and a Roller Coaster Bar Exam Ride*, 35 MISS. C. L. REV. 436, 444–62 (2017) (relying on empirical evidence from data at the University of Denver Sturm School of Law to dispute the NCBE's claims that law schools' acceptance of applicants with lower LSATs is the reason for declining bar passage rates).

²⁸ See, e.g., Ben Bratman, *Improving the Performance of the Performance Test: The Key to Meaningful Bar Exam Reform*, 83 UMKC L. REV. 565, 603–09 (2015) (calling for improvement and expansion of the Multistate Performance Test (“MPT”) through adoption by more jurisdictions, the addition of more than one MPT administered on a bar exam, and an increase in the weight of the MPT); Andrea A. Curcio, *A Better Bar: Why and How the Existing Bar Exam Should Change*, 81 NEB. L. REV. 363, 373–83 (2002); Kristin B. Glen, *When and Where We Enter: Rethinking Admission to the Legal Profession*, 102 COLUM. L. REV. 1696, 1698 (2002); Steven Barkan, *Should Legal Research Be Included on the Bar Exam? An Exploration of the Question*, 99 LAW LIBR. J. 403, 405–06 (2007); Lawrence M. Grosberg, *Should We Test for Interpersonal Lawyering Skills?*, 2 CLINICAL L. REV. 349, 374 (1996); Sally Simpson & Toni Massaro, *Students with “CLAS”: An Alternative to Traditional Bar Examinations*, 20 GA. ST. U. L. REV. 813, 823–24, 837 (2004); Kristin B. Glen, *Thinking Out of the Bar Exam Box: A Proposal to “MacCrate” Entry to the Profession*, 23 PACE L. REV. 343, 355–81 (2003).

or doing away with the exam altogether.²⁹ Scholars have also pointed to research showing the disparate impact on minority test-takers' performance and resulting exclusion or delayed admission to the bar and have recommended lower and/or uniform adoption of cut scores for passage.³⁰

The NCBE and various states have made significant changes to the bar exam in recent years. In 2009, the NCBE added six doctrinal subjects to the MEE, which meant test-takers had to have a broader degree of competency.³¹ Civil Procedure, one of the more challenging courses in law school,³² was also introduced as a new subject on the MBE in 2015. Notably, the most consistent decline in overall annual bar passage rates began that year.³³ The NCBE recently announced pilot testing for “the Next Gen Bar Exam” to begin in 2026, which will purportedly test more skills and less substantive law.³⁴ Many states have also experimented with adjusting cut scores³⁵ and considering new pathways to

²⁹ Judith W. Wegner, *Rethinking Law Licensing*, 90 SEPT. N.Y. ST. B.J. 24 (2018); Joan W. Howarth & Judith W. Wegner, *Ringling Changes: Systems Thinking About Legal Licensing*, 13 FIU L. REV. 383 (2019).

³⁰ See, e.g., Christina S. J. Chong, *Battling Biases: How Can Diverse Students Overcome Test Bias on the Multistate Bar Examination*, 18 U. MD. L. J. RACE, RELIGION, GENDER & CLASS 31, 36–61 (2018) (surveying studies showing that minorities underperform on the bar exam, discussing a range of factors that can impact the validity of the exam and minorities' performance on it, and identifying test biases inherent in bar exam questions); Edna W. Handy, *Blacks, The Bell Curve, and The Bar Exam*, 10 NAT'L B.A. MAG 24, 24 (1996) (discussing historical evidence of disparate passage rates for minority test-takers in New York and other states); Michael B. Frisby et al., *Safeguard or Barrier: An Empirical Examination of Bar Exam Cut Scores*, 70 J. LEGAL EDUC. 125, 126–29 (2020) (discussing exclusionary nature of bar exam cut scores).

³¹ Marsha Griggs, *Building a Better Bar Exam*, 7 TEX. A&M L. REV. 1, 31 (2019).

³² Alleva & Gundlach, *supra* note 3, at 714–19 (discussing challenges of teaching and learning civil procedure).

³³ Griggs, *supra* note 31, at 30 (suggesting that the addition of this new challenging subject may have increased cognitive load of test-takers).

³⁴ See *NCBE Publishes Preliminary Content Scope Outlines for New Bar Exam*, NAT'L CONF. BAR EXAM'R. (Mar. 22, 2022), <https://www.ncbex.org/news/ncbe-publishes-preliminary-content-scope-outlines>.

³⁵ See Deborah J. Merritt et al., *Raising the Bar: A Social Science Critique of Recent Increases to Passing Scores on the Bar Exam*, 69 U. CIN. L. REV. 929, 929 & 936–41 (2001) (noting that “at least a dozen states have raised the score required to pass their bar exams during the

licensing that do not involve a bar exam at all, by creating apprenticeship or public service programs or diploma privileges for graduates from in-state law schools.³⁶ However, many of the same critiques persist,³⁷ and the impact, if any, these changes will have on passage rates remains unclear.

For the test-takers, failure to pass the bar exam can impact future employment opportunities, which can in turn impose financial hardship and impact their mental health.³⁸ Decreasing bar passage rates can also create greater accreditation risk for the test-takers' law schools, given the requirements of Standard 316 discussed above. Moreover, declines in bar passage rates can have negative implications for the schools' reputation among members of the bench, bar, current students, and potential future

last decade, with several more evaluating proposed increases” and remarking that some states have indicated that they need to raise their cut scores because law graduates are less competent than those from prior generations).

³⁶ See Beverly Moran, *The Wisconsin Diploma Privilege: Try It, You'll Like It*, 2000 WIS. L. REV. 645, 648 (2000); William M. Sullivan, *Align Preparation and Assessment with Practice: A New Direction for the Bar Examination*, 85 N.Y. ST. B.J. 41, 43 (2013) (discussing Daniel Webster Scholars Program at University of New Hampshire, wherein students participate in a skills-intensive program of legal education and are assessed based on a variety of performance criteria throughout in lieu of taking a bar exam); see also Eileen Kaufman, *The Lawyers Justice Corps: A Licensing Pathway to Enhance Access to Justice*, 18 U. ST. THOMAS L.J. 159 (2022) (calling for an alternative route to practice that would allow graduates who commit to one year of serving underrepresented individuals and communities to be certified to practice by supervisors without taking the bar exam); Glen, *supra* note 28 (proposing an experiential, performance-based public service alternative to the bar exam).

³⁷ See, e.g., Scott Devito et al., *Examining the Bar Exam: An Empirical Analysis of Racial Bias in the Uniform Bar Examination*, 55 U. MICH. J.L. REFORM 597 (2022) (discussing results of empirical study indicating that law schools with higher proportions of Black and Hispanic students were associated with lower first-time bar passage rates for their graduates in UBE jurisdictions); Scott Johns, *Putting the Bar Exam on Constitutional Notice: Cut Scores, Race & Ethnicity, and the Public Good*, 45 SEATTLE U. L. REV. 853 (2022) (reviewing data showing racial disparities on the bar exam and asserting constitutional challenges).

³⁸ Keith Kaufman et al., *Passing the Bar Exam: Psychological, Educational, and Demographic Predictors of Success*, 57 J. LEGAL EDUC. 205 (2007); White, *AALS Survey*, *supra* note 26, at 455.

applicants.³⁹ Disparate passage rates, as noted above, can also impact diversity in the legal profession and can discourage law schools from admitting minority students. The COVID pandemic added more fuel to the fire because it exacerbated already existing economic and psychological burdens on test-takers.⁴⁰

Consequently, law schools across the country have endeavored to discover the “silver bullet” that will unlock the secrets to improving bar passage rates of their graduates. Annual conferences, workshops, and scholarly symposia draw deans and academic success faculty engaged in this quest. Law school administrations have dramatically increased expenses for new bar support initiatives, and foundations such as AccessLex have offered grants to researchers like us to engage in empirical study of the issue.

The range of research studies and reform efforts is dizzying. There is research suggesting that LSAT scores and/or undergraduate GPAs can predict success in passing the bar,⁴¹ suggesting that schools would benefit from imposing greater restrictions on admissions requirements for incoming and/or transfer-in students.⁴² Other research has focused on predictors

³⁹ See White, *AALS Survey*, *supra* note 26, at 454–55 (discussing range of implications for a law school if its graduates’ bar passage rates decreased). In addition, lower bar passage rates may result in a drop of the law school’s U.S. News & World Report rankings, which includes a school’s bar passage rates in weighing a school’s placement success (twenty-six percent of a school’s overall rank); Robert Morse et al., *Methodology: 2023-2024 Best Law Schools Rankings*, *U.S. News* (May 10, 2023), <https://www.usnews.com/education/best-graduate-schools/articles/law-schools-methodology>.

⁴⁰ Cassandra B. Robertson, *How Should We License Lawyers?*, 89 *FORDHAM L. REV.* 1295, 1295–96 (2021) (discussing impact of COVID pandemic on test-takers).

⁴¹ See, e.g., Brian Sites, *Informed Studying Through Predictive Modeling: An MBE Regression Analysis of Bar Preparation and Curriculum Assessments*, 39 *QUINNIPIAC L. REV.* 461 (2021) (reporting on study showing relationship between bar passage, LSAT, cumulative law school GPA, final-semester MBE courses, commercial program diagnostic exams, and completion metrics).

⁴² See, e.g., Rory Bahadur et al., *Reexamining Relative Bar Performance as a Function of Non-Linearity, Heteroscedasticity, and a New Independent Variable*, 52 *N.M. L. REV.* 119, 157–203 (2022) (reporting on statistical analysis of law school data demonstrating that academic attrition and net-transfer rates likely affect law school graduates’ performance on the bar exam relative to entering credentials of matriculants).

from the law school experience to determine whether there is a relationship between bar passage and a number of factors, including (1) specific doctrinal, bar-subject⁴³ or experiential coursework;⁴⁴ (2) academic performance in the 1L year and/or cumulative GPA;⁴⁵ (3) new course offerings that “teach to the test” with respect to content and/or skills that are heavily tested on the bar exam; and (4) simulations of bar exam testing conditions during law school coursework.⁴⁶ Based on the above findings, law

⁴³ See, e.g., Robert R. Kuehn & David R. Moss, *A Study of the Relationship Between Law School Coursework and Bar Exam Outcomes*, 68 J. LEGAL EDUC. 623, 642–46 (2019) (discussing results of empirical study to determine the relationship between bar-subject courses and bar passage for students from two law schools, and finding slight correlation particularly for students in the bottom half and bottom quartile for law school GPAs, respectively).

⁴⁴ See, e.g., Scott Johns, *A Statistical Exploration: Analyzing the Relationship (If Any) Between Externship Participation and Bar Exam Scores*, 42 OKLA. CITY U.L. REV. 281, 294–307 (2018) (analyzing whether University of Denver Sturm College of Law students’ participation in externships was associated with performance on the Colorado bar exam, and finding no statistically significant evidence that it improves or hurts performance when controlling for other variables); Kuehn & Moss, *supra* note 43, at 638–41 (discussing results of empirical study to determine the relationship between experiential courses and bar passage for students from two law schools, and finding none).

⁴⁵ Sites, *supra* note 41, at 478–81 (reporting on study showing predictive effect on bar passage of LSAT and cumulative law school GPA, as well as final-semester MBE courses, commercial program diagnostic exams, and completion metrics).

⁴⁶ *Id.* (reporting on study examining impact on bar passage of LSAT and cumulative law school GPA, as well as final-semester MBE courses, commercial program diagnostic exams, and completion metrics); Sara J. Berman, *Integrating Performance Tests Into Doctrinal Courses, Skills Courses, and Institutional Benchmark Testing: A Simple Way to Enhance Student Engagement While Furthering Assessment, Bar Passage, and Other ABA Accreditation Objectives*, 42 J. LEGAL PROF. 147, 151–53 (2018) (calling for the integration of MPTs into law school courses to comply with ABA standards for assessment and bar passage); Raul Ruiz, *Leveraging Noncognitive Skills to Foster Bar Exam Success: An Analysis of the Efficacy of the Bar Passage Program at FIU Law*, 99 NEB. L. REV. 141, 181–88 (2020) (discussing integration of noncognitive skills that impact academic performance into Florida International University Law School’s Bar Exam Success Program); Denise Riebe, *Readers’ Expectations, Discourse Communities, and Effective Bar Exam Answers*, 41 GONZ. L. REV. 481, 486–503 (2006) (discussing benefits of and recommending that law students be taught the “reader expectation

schools have followed suit by creating new required courses, such as “bar prep”⁴⁷ and other academic support classes, and new methods of assessment and have adjusted GPA requirements for students to remain in law school.⁴⁸

On a broader level, legal scholars over the past few decades have sought to understand what factors can impact law students’ learning, drawing on findings about how people learn, and how to develop long-term, self-regulated learning to support bar-ready and practice-ready graduates.⁴⁹ In addition to demographic and educational influences, one study examined the variables of worry, test anxiety, personality, and time management.⁵⁰

approach” to writing to improve their performance on the bar exam); Emmeline P. Reeves, *Teaching to the Test: The Incorporation of Elements of Bar Exam Preparation in Legal Education*, 64 J. LEGAL EDUC. 645, 646 (2015) (arguing for increased emphasis on “bar exam skills” and nurturing motivation, persistence, and resilience in law students); Sabrina DeFabritiis & Kathleen E. Vinson, *Under Pressure: How Incorporating Time-Pressured Performance Tests Prepares Students for the Bar Exam and Practice*, 122 W. VA. L. REV. 107 (2019).

⁴⁷ See, e.g., Denise Riebe, *A Bar Review for Law Schools: Getting Students on Board to Pass Their Bar Exams*, 45 BRANDEIS L.J. 269, 275–341 (2007) (surveying studies about bar passage and proposing a range of bar support initiatives, including required bar prep courses); Donald H. Zeigler et al., *Curriculum Design and Bar Passage: New York Law School’s Experience*, 59 J. LEGAL EDUC. 393, 399–406 (2010) (discussing the creation and implementation of New York Law School’s Comprehensive Curriculum Program designed to respond to low bar passage rate, and assessing results); Scott Johns, *Empirical Reflections: A Statistical Evaluation of Bar Exam Program Interventions*, 54 U. LOUISVILLE L. REV. 35, 36–69 (2016) (discussing the Bar Passage Program at University of Denver Sturm College of Law and an empirical analysis of its impact on bar passage).

⁴⁸ See, e.g., Katherine A. Austin et al., *Will I Pass the Bar Exam? Predicting Student Success Using LSAT Scores and Law School Performance*, 45 HOFSTRA L. REV. 753 (2017) (reporting on statistical analysis of how entering undergraduate GPA and LSAT score, final law school GPA, 1L GPA, performance in specific law school courses, and participation in applied skills as well as extracurricular opportunities predicted bar exam success at Texas Tech Law School).

⁴⁹ See, e.g., Elizabeth A. Usman, *Making Legal Education Stick: Using Cognitive Science to Foster Long-Term Learning in the Legal Writing Classroom*, 29 GEO. J. LEGAL ETHICS 355, 360–80 (2016) (discussing findings about how people learn that are important for legal education).

⁵⁰ Kaufman et al., *supra* note 38, at 215–20 (finding that test anxiety and neuroticism in particular had a significant relationship with performance on the bar exam).

Educational and social sciences scholarship has also informed legal scholarship exploring the role of motivation, growth mindset, well-being, grit, and metacognition on learning in law school and offering pedagogical and curricular reforms.⁵¹ These findings can carry important implications for not only what to teach, but how to teach students to position them for success in law school and on the bar exam. Relying on any one factor may be fraught with complications, given the complexity of learning and the myriad interacting factors that can influence learning. We focus on metacognition as one factor of many contributing to law student success.

⁵¹ See, e.g., Megan Bess, *Grit, Growth Mindset, and the Path to Successful Lawyering*, 89 UMKC L. REV. 493, 501–15 (2021) (surveying studies of growth mindset and grit as skills important to academic success in law school and in the legal profession); Usman, *supra* note 49, at 360–80 (discussing findings about how people learn that are important for legal education); Kaci Bishop, *Framing Failure in the Legal Classroom: Techniques for Encouraging Growth and Resilience*, 70 ARK. L. REV. 959, 978–1005 (2018); Debra S. Austin, *Positive Legal Education: Flourishing Law Students and Thriving Law Students*, 77 MD. L. REV. 649, 684–709 (2018) (arguing for various well-being initiatives in legal education); Fruehwald, *supra* note 3, at 85 (proposing changes to legal education focused on teaching and instilling growth mindset, motivation to learn, metacognitive thinking, self-regulated learning, and improved study habits); Ruiz, *supra* note 46, at 163–74 (2020) (discussing a range of noncognitive skills that impact academic performance); Victor D. Quintanilla & Sam Erman, *Mindsets in Legal Education*, 69 J. LEGAL EDUC. 412, 430–39 (2020) (discussing need for various psychologically attuned interventions drawing on social psychological research); Alleva & Gundlach, *supra* note 3, at 721, 723–24, 726, 730–31 (discussing why the teaching of metacognitive skills can improve learning for law students generally and, more specifically, within the context of a civil procedure course, and offering suggestions for how to integrate such instruction); Louis N. Schulze, *Using Science to Build Better Learners: One School's Successful Efforts to Raise Its Bar Passage Rates in an Era of Decline*, 68 J. LEGAL EDUC. 230, 232–37 (2019) (discussing positive impact on Florida International University's bar passage rates from integration of metacognitive and self-regulated learning exercises, such as forced recall practice and spaced repetition).

III. Metacognition and Its Importance for Learning

A. Introduction to Metacognition and Its Components

Cognition involves the skills that constitute the learning process itself, such as encoding, memorizing, and recalling.⁵² In contrast, metacognition is “one’s knowledge concerning one’s own cognitive processes and products or anything related to them, e.g., the learning-relevant properties of information or data.”⁵³ Another way to think about metacognition is that it involves an understanding of how the learning task was performed.⁵⁴ Both cognition and metacognition are essential for self-regulated learning.⁵⁵ For our research purposes, we focused on two interdependent components of metacognition: (1) metacognitive knowledge and (2) metacognitive regulation.⁵⁶

Metacognitive knowledge is the awareness of the different learning strategies available, how to use them, and in what

⁵² See Gregory Schraw et al., *Promoting Self-Regulation in Science Education: Metacognition as Part of a Broader Perspective on Learning*, 36 RSCH. SCI. EDUC. 111, 112 (2006); John S. Kendall et al., THINKING & LEARNING SKILLS: WHAT DO WE EXPECT OF STUDENTS? 2, 7–9 (2008) (cognition involves the actual component skills that constitute the learning process, such as retrieval, comprehension, analysis, and knowledge utilization), <http://eric.ed.gov/?id=ED544689>.

⁵³ John H. Flavell, *Metacognitive Aspects of Problem Solving*, in THE NATURE OF INTELLIGENCE 231, 232 (Lauren B. Resnick ed., 1976).

⁵⁴ Gregory Schraw, *Promoting General Metacognitive Awareness*, 26 INSTRUCTIONAL SCI. 113, 113 (1998) [hereinafter Schraw, 1998].

⁵⁵ See Schraw et al., *supra* note 52 at 112; Kendall et al., *supra* note 52, at 2, 27.

⁵⁶ John H. Flavell, *Metacognition and Cognitive Monitoring: A New Area of Cognitive-Developmental Inquiry*, 34 AM. PSYCH. 906, 906–08 (1979); Paul R. Pintrich et al., *Assessing Metacognition and Self-Regulated Learning*, in ISSUES IN THE MEASUREMENT OF METACOGNITION 43, 44 (Gregory Schraw & James C. Impara eds., 2000) (discussing knowledge and regulation components of metacognition); Gregory Schraw & Rayne S. Dennison, *Assessing Metacognitive Awareness*, 19 CONTEMP. EDUC. PSYCH. 460, 460 (1994); Schraw, 1998, *supra* note 54, at 113–14.

contexts they can be useful.⁵⁷ This knowledge involves declarative, procedural, and conditional knowledge.⁵⁸ Declarative knowledge is what one knows about oneself as a learner and what factors influence one's performance.⁵⁹ Procedural knowledge is what one knows about strategies or heuristics for the learning task.⁶⁰ Conditional knowledge is knowing when and why to use declarative and procedural knowledge.⁶¹ Thus, knowledge of a range of learning strategies, understanding of their application and effectiveness, and appropriate selection of strategies for a specific learning task are all aspects of this component of metacognition.⁶²

Metacognitive regulation can be described as "regulating one's problem-solving and learning activities."⁶³ This component has been described as involving a range of processes around planning, monitoring, and evaluating one's learning, making decisions about strategies to use and when to change strategies that aren't working, controlling and regulating time, effort, and pace of learning, and controlling motivation, emotion, and environment.⁶⁴ Planning involves the actual selection of appropriate strategies and the allocation of resources that affect performance.⁶⁵ Monitoring is one's awareness of comprehension and task performance, such as self-testing while learning.⁶⁶ Evaluating

⁵⁷ Pintrich et al., *supra* note 56, at 45; Schraw & Dennison, *supra* note 56, at 460 (describing the metacognitive knowledge component as including declarative, procedural, and conditional knowledge).

⁵⁸ Schraw & Dennison, *supra* note 56, at 460 (describing the metacognitive knowledge component as including declarative, procedural, and conditional knowledge).

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² See John G. Borkowski et al., *A Process-Oriented Model of Metacognition: Links Between Motivation and Executive Functioning*, in ISSUES IN THE MEASUREMENT OF METACOGNITION 1, 5–9 (Gregory Schraw & James C. Impara eds., 2000) (discussing development of metacognitive knowledge); see also Pintrich et al., *supra* note 56, at 46–48 (discussing aspects of metacognitive knowledge).

⁶³ See Marcel V.J. Veenman et al., *supra* note 2, at 4.

⁶⁴ Pintrich et al., *supra* note 56, at 50–53 (discussing aspects of metacognitive knowledge); Schraw & Dennison, *supra* note 56, at 460 (describing metacognitive regulation as having five components: planning, information management strategies, comprehension monitoring, debugging strategies, and evaluation).

⁶⁵ Schraw, 1998, *supra* note 54, at 115.

⁶⁶ *Id.*

refers to the appraisal of products and the efficiency of one's learning, such as reevaluating one's learning goals and conclusions.⁶⁷

Students with strong metacognitive skills demonstrate both the knowledge and regulation components,⁶⁸ but understanding the relationship between the two can be complicated. There is some support for the idea that metacognitive knowledge is a foundational prerequisite to metacognitive regulation.⁶⁹ However, even if students have knowledge of strategies that are aligned with a learning task, they might not always regulate effectively.⁷⁰ It may also be the case that students possess the ability to regulate their learning but lack knowledge about appropriate strategies and how and when to use them.⁷¹

B. The Relationship Between Students' Metacognitive Skills and Academic Success in Law School

Over the past several years, legal educators have grown more interested in understanding the role that metacognitive skills might play in improving law students' learning.⁷² It stands to

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ See Schraw, 1998, *supra* note 54, at 115; Julie D. Stanton et al., *Differences in Metacognitive Regulation in Introductory Biology Students: When Prompts Are Not Enough*, 14 LIFE SCI. EDUC. 1, 7, 9 (2015) (when focusing on 'metacognitive-regulation skills,' hypothesizing that some students do not regulate due to lack of knowledge); Jessica R. Santangelo et al., *Developing Student Metacognitive Skills Using Active Learning with Embedded Metacognition Instruction*, 22 J. STEM EDUC. 51, 52, 58 (2021) (discussing development of a continuum of metacognition).

⁷⁰ Schraw, 1998, *supra* note 54, at *Promoting General Metacognitive Awareness*, 26 INSTRUCTIONAL SCI. 113, 121 (1998).

⁷¹ Stanton et al., *supra* note 69, 11.

⁷² See, e.g., Alleva & Gundlach, *supra* note 3, at 723–24 (discussing why the teaching of metacognitive skills can improve learning for law students generally and, more specifically, within the context of a civil procedure course, and offering suggestions for how to integrate such instruction); Anthony Niedwiecki, *Teaching for Lifelong Learning: Improving the Metacognitive Skills of Law Students Through More Effective Formative Assessment Techniques*, 40 CAP. U. L. REV. 149, 155 (2012) (asserting that “[t]he most important skills law schools can teach students to make them better lifelong learners are metacognitive strategies”). Cf. Nelson P. Miller, *Mapping Lawyer Competencies onto*

reason that the knowledge and regulation components of metacognition would be important for the critical-thinking skills required of lawyers.⁷³ In fact, early studies found a relationship between metacognitive skills and law students' academic performance.⁷⁴

We too have reported on our studies showing a correlation between law students' metacognitive skills and academic success in the first semester of law school.⁷⁵ In our first study, we analyzed the impact of teaching metacognitive skills to first-year law students and whether there was a correlation between our quantitative and qualitative measures of students' metacognitive skills and their academic performance in law school.⁷⁶ We found a relationship between law students' metacognitive skills and academic performance, but, likely due to the small size of our pool, there was no statistically significant evidence that instruction about metacognition and its role in learning, as well as repeated prompts to practice metacognitive skills during a civil procedure course in the first semester of law school, immediately impacted

the Law School Curriculum to Confirm that Graduates Are Prepared for Law Practice (June 30, 2011), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2461037 (listing metacognition as a lawyer competency).

⁷³ See Cheryl B. Preston et al., *supra* note 1, at 1057–62 (2014) (noting that “metacognition is important for the execution of higher-level thinking skills, such as analysis and synthesis” and describing how metacognition enhances basic lawyering skills, relieves anxiety, and boosts confidence); Ruth Vance & Susan Stuart, *Of Moby Dick and Tartar Sauce: The Academically Underprepared Law Student and the Curse of Overconfidence*, 53 DUQ. L. REV. 133, 148, 160 (2015) (asserting that “[m]etacognition is critical to advancing the skills basic to being a lawyer, critical thinking and problem solving” and “[l]awyering requires accurate self-assessment”).

⁷⁴ See, e.g., Andrea A. Curcio et al., *supra* note 1, at 313 (reporting on a study suggesting “that students learn better when given opportunities to practice a skill and receive feedback on that practice, and that” combining metacognitive exercises with teaching methods may help to improve all student performances); Cheryl B. Preston et al., *supra* note 1, at 1063, 1066, 1068–69 (discussing study of first-year law students who were given the Metacognitive Awareness Inventory and noting weak metacognitive skills of many based on their responses).

⁷⁵ See Gundlach & Santangelo, *Understanding*, *supra* note 1, at 777–78; Gundlach & Santangelo, *Teaching*, *supra* note 1, at 157–58 (finding that first-year law students with strong metacognitive skills were more likely to perform well in their first-semester civil procedure course).

⁷⁶ See Gundlach & Santangelo, *Teaching*, *supra* note 1, at 159, 165.

students' development of those skills.⁷⁷ However, instruction did have the positive impact of increasing the number of active-learning strategies that students reported using. In addition, students reported that the questionnaires we distributed and the professor's feedback for students on their midterms were useful pedagogical tools to encourage metacognitive practice.⁷⁸

In a later study, we examined the interplay of the metacognitive components of knowledge and regulation and their impact, individually and collectively, on law students' academic performance in a first-year first-semester civil procedure course.⁷⁹ Specifically, we set out to learn what level of metacognitive knowledge and regulation law students demonstrate when they enter law school, the degree to which their skill levels change during the first semester, the impact of each component on their academic performance, and again, the degree to which instructional intervention had an immediate impact on students' metacognitive skills over the course of a semester.⁸⁰

With respect to metacognitive knowledge, we concluded that while almost all entering law students could generally explain how various learning strategies support specific learning tasks, the majority were unaware of active-learning strategies⁸¹ that support academic success in law school.⁸² While most students did not come to law school with comprehensive metacognitive knowledge, most law students' metacognitive knowledge increased during the first semester of law school, regardless of whether these strategies were explicitly taught by their professor or not.⁸³ Notably, as discussed in the prior section about the

⁷⁷ *Id.* at 159.

⁷⁸ *See id.* at 176–91.

⁷⁹ Gundlach & Santangelo, *Understanding*, *supra* note 1, at 795–810.

⁸⁰ *Id.* at 779–80.

⁸¹ A range of active-learning strategies are found to be effective in law school, such as creating visual aids and rubrics to synthesize and connect concepts, self-testing through practice multiple-choice and essay questions, and talking through and teaching the material with peers. *See, e.g.*, Jennifer M. Cooper & Regan A.R. Gurung, *Smarter Law Study Habits: An Empirical Analysis of Law Learning Strategies and Relationship with Law GPA*, 62 ST. LOUIS UNIV. L. J. 361, 367–74 (2018) (surveying studies that have shown such links and reporting on consistent findings from law school empirical study); Boyle, *supra* note 3, at 13–17, 19–20 (describing various active-learning and metacognitive techniques used in class).

⁸² Gundlach & Santangelo, *Understanding*, *supra* note 1, at 795.

⁸³ *Id.* at 795–96.

interplay between the two components of metacognition, we found that metacognitive knowledge on its own was not associated with students' academic performance.⁸⁴

With respect to metacognitive regulation, we found that after students received feedback on their first graded assessment, all demonstrated at least some metacognitive regulation, and by the end of the first semester of law school, a little over one-third of the students showed increases in metacognitive regulation, almost two-thirds remained the same, and few regressed.⁸⁵ Only the reported use of active strategies, one qualitative measurement of metacognitive regulation, was associated with students' academic performance in the course, and students who added an active strategy during the semester were better situated to earn a higher grade than those who did not use an active strategy.⁸⁶ Students who evidenced full regulation, and particularly those who made multiple adjustments to their learning strategies, had the greatest academic success.⁸⁷ Although we again found no evidence that instructional intervention impacted metacognitive regulation, continuous reinforcement to practice with specific active strategies did result in more students reporting use of these strategies.⁸⁸

Our studies have repeatedly shown a correlation between law students' metacognitive skills, particularly with respect to regulation, and their academic performance in a first-semester first-year law school course. And although we have seen evidence of students' improving in overall metacognitive skills during their first semester of law school, before this study we had not yet seen clear evidence that instructional intervention can improve metacognitive skills over the course of a semester.⁸⁹

⁸⁴ *Id.* at 796.

⁸⁵ *Id.* at 797.

⁸⁶ *Id.* at 797–801.

⁸⁷ *Id.* at 800.

⁸⁸ *Id.* at 801–02.

⁸⁹ *Id.* at 802–04.

IV. Empirical Study of the Metacognition Skills of Third-Year Law Students

A. Research Questions

In this study, we follow up on our prior work by exploring multiple aspects of metacognition. We benefited here from drawing on data we collected in connection with our previous study, because a substantial number of students in the current cohort participated in the previous study during their 1L year.

Specifically, we were interested in: (1) understanding whether metacognitive skills can change during students' time in law school and/or during their enrollment in a final-semester third-year bar preparation course; (2) analyzing the impact, if any, of the 1L intervention on students' metacognitive skills demonstrated in the 3L year; (3) examining any relationship between metacognitive skills and success in law school, and/or bar passage; and (4) analyzing other metrics that might be associated with bar passage, such as course performance, LSAT score, and cumulative law school GPA.

B. Methodology and Instrumentation

1. *Participants*

This study was conducted during 2021–2022 with third-year law students at the Maurice A. Deane School of Law at Hofstra University (“Law School”). All of the 252 students were enrolled in one of four sections of a course titled Perspectives in Legal Writing and Analysis (“Perspectives”). One small section of twenty-five students was taught during the fall semester of the third year and included students who graduated or were finishing their course work in December of their third year and would sit for the February bar exam. The remaining 227 students were enrolled in sections offered during the spring semester of the third year, with seventy-nine, fifty-eight, and ninety students, respectively.

The Perspectives course is required for almost all third-year law students, as only a small percentage of people are permitted to opt out of taking it based on their high rank in the class. The course is designed to prepare students for the bar exam by

focusing on developing successful exam and law practice skills. It involves in-depth skill instruction on rapid reading comprehension, issue identification, rule mastery, critical thinking, including the recognition of distractors, and legal analysis all in the context of working bar exam-style problems. It also provides instruction and review of highly tested doctrines, with emphasis on how to develop, use, and apply a flexible but strong analytical framework to solve bar exam problems. Simulated bar exam questions, including MEE, MBE, and MPTs, are used throughout as summative and formative graded assessments.

Given that the students were enrolled in the course in their final semester before sitting for the bar exam, we felt it offered the best timing to assess what, if any, relationship there was between their metacognitive skills in that course and their performance on the bar exam. Moreover, we did not want to negatively impact their bar preparation outside of law school by asking them to respond to a series of surveys to collect our data, and if we had done so, we would likely have significantly decreased the response rate. In addition, because some of these students participated in our most recent study when they were first-year law students, we could explore the extent to which a subset of these students had retained, gained, or lost metacognitive skills demonstrated during their first year of law school.

Hofstra University's Institutional Review Board declared this study exempt. Students in all sections were informed about the study and were offered the opportunity to consent (or not) to participate and have their data included. Instructors did not know which students consented to participate, nor were instructors given access to student survey responses. All responses were de-identified before analysis. Of the 252 students enrolled across the four sections, 225 consented to participate in the study.

2. Instrumentation and Instructional Intervention

We used several questionnaires⁹⁰ distributed electronically over the course of the semester, modified slightly from past

⁹⁰ See *infra* App. A.

research studies,⁹¹ which provided us with narrative responses that we used for qualitative data analysis.⁹² The first questionnaire, completed by all participating students during the first day of the course, was a Learning Strategies Plan (“LSP”), wherein students were asked to list up to fifteen learning strategies they intended to use in connection with the course and explain why each strategy would be effective.⁹³ This questionnaire provided baseline data about students’ metacognitive knowledge before any instructional intervention in the course so we could assess: (1) awareness of effective learning strategies relevant to the course and bar preparation, and (2) understanding of why and how those strategies support learning. Immediately following completion of the LSP, students listened to a lecture that provided an overview of effective learning strategies and an introduction to metacognition and its importance to learning.⁹⁴

During the semester, the students completed three additional questionnaires during class time. Survey 1 was completed after students received feedback from the first graded assessment and before that assessment was discussed in class.

⁹¹ See Gundlach & Santangelo, *Teaching*, *supra* note 1, at 168–71 (discussing use of qualitative instruments distributed to law students); Gundlach & Santangelo, *Understanding*, *supra* note 1, at 781–87.

⁹² See *infra* Table 1.

⁹³ See *infra* App. A.

⁹⁴ Students were instructed about a range of effective learning strategies for law school, with primary emphasis on active-learning strategies such as creation of visual aids and rubrics to synthesize and connect concepts, self-testing through practice multiple-choice and essay questions, and talking through and teaching the material with peers.

Table 1: Overview of Instruments and Instruction

| Intervention | Assessment | Instrument | Description | Distribution Timing |
|--------------------------------------|-------------------|---|---|---|
| | | LSP Questionnaire Prompt (All Students) | Prompt to determine students' metacognitive knowledge before intervention | First day of class |
| Lecture | | | Overview of effective study strategies and introduction to metacognitive skills | First day of class |
| | MIDTERM | | | Midsemester |
| Survey #1 Post-Midterm Questionnaire | | Survey #1 Post-Midterm Questionnaire | Prompts to determine students' metacognitive knowledge of study strategies and regulation before intervention | In class before instructional intervention/ after midterm is returned |
| In-Class Discussion | | | Feedback on midterm and revisiting effective learning strategies & metacognitive skills, reflections about changes to make with | In class after midterm is returned |

| | | | | |
|--|---------------|--|--|---|
| | | | study strategies | |
| Survey #2 Post-Midterm Questionnaire | | Survey #2 Post-Midterm I Questionnaire | Prompts focused on ID of any additional strategies with explanations post-discussion to determine whether further metacognition is shown | In class after Survey 1 and midterm review & discussion are completed |
| Survey #3 | | Survey #3 Post-Essay Assessment Questionnaire | Prompts to determine students' metacognitive knowledge and regulation | In class after essay assignment is returned |
| | FINAL EXAM | | | End of semester |
| | | Final Reflective Questionnaire | Prompts to determine students' metacognitive knowledge and regulation and future plans for bar prep | End of semester, after final exam is taken |
| | | Consent Form | | End of semester, after final exam is taken |

The questionnaire asked them to:

- Review each strategy they had listed on their LSP;
- Identify any of those strategies used to prepare for the graded assessment;
- Provide additional insights to explain how any of those strategies helped with learning the material;
- List any additional strategies used and for each, explain how it helped (or did not help) prepare for the graded assessment;
- Identify areas for improvement based on their review of the feedback on the graded assessment; and
- Describe any plans to make changes to their learning strategies going forward, identifying any new strategies and why they thought they would improve their performance; or, if they did not plan to make any changes or were unsure about making any changes, to explain why.⁹⁵

The students' responses provided data about their metacognitive knowledge of effective study strategies at this point in the semester, as well as evidence of their metacognitive regulation, i.e., whether they executed on their planned strategies, used effective strategies, understood areas for improvement, and identified appropriate changes, if any, to make. It also gave us information about whether and to what extent students retained what they heard from the instructional intervention they received at the beginning of the semester.

Immediately following students' completion of Survey 1, the professor provided feedback to the class about the graded assessment and revisited the concepts about effective learning strategies and metacognitive skills introduced during the orientation session earlier in the semester. Survey 2 was completed immediately following that in-class lecture. Survey 2 asked students to:

- Indicate whether, based on what they heard, they planned to make any changes to their learning strategies; and
- If so, list strategies they planned to use to improve their performance and explain why those strategies would help.⁹⁶

These questions were designed to provide data about whether students' metacognitive knowledge and regulation increased immediately after the instructional intervention.

⁹⁵ See *infra* App. A.

⁹⁶ See *infra* App. A.

Survey 3 was completed after the professor provided feedback to the class about their performance on another graded assessment later in the semester, again reminded students about effective learning strategies and metacognitive skills, and encouraged them to reflect on their performance. Survey 3 was almost identical to Survey 1, except that it included prepopulated information about learning strategies identified by the students in Survey 1 or Survey 2 that had not been previously identified on the LSP.⁹⁷ This questionnaire provided us with data about students' metacognitive knowledge and regulation similar to that in Survey 1.

At the end of the semester, following completion of the final exam, students were asked to complete a final reflective survey ("FRS"). Here we asked for students to:

- Review each strategy listed on prior surveys and identify which, if any, were used to prepare for the final exam;
- Provide any additional insights about how each strategy helped with learning;
- Identify any additional strategies used and explain how each helped (or did not help) the student prepare for the final exam;
- Report any changes made to their learning strategies during the semester and explain why, or if no changes were made, explain why;
- If they used a study group, provide details about the methods they used with that group; and
- Explain how they planned to prepare for the bar exam and why they would take that approach.⁹⁸

These questions were designed to provide data about students' metacognitive knowledge of study strategies by the end of the semester, as well as evidence of metacognitive regulation—that is, whether the students understood their learning challenges and whether they selected appropriate strategies and followed through with them by that time. We included the question about their use, if any, of study groups because simply indicating that they were using a study group did not provide sufficient information for us to determine what strategies were employed in the group.

⁹⁷ See *infra* App. A.

⁹⁸ See *infra* App. A.

C. The Coding Process

For this study, we relied on a slightly modified version of a prior codebook that we developed in connection with our previous research⁹⁹ to review students' responses to the questionnaires and assess their reported levels of metacognitive knowledge and regulation at various points during the semester. The codebook included descriptions of the evidence needed to demonstrate the skills associated with metacognitive knowledge and regulation.¹⁰⁰

1. Evidence of Metacognitive Knowledge

As noted *supra* in Part III, metacognitive knowledge involves the awareness of different learning strategies, how to use them, and in what contexts they can be useful.¹⁰¹ Therefore, our codebook dictates that to demonstrate metacognitive knowledge, students must know effective learning strategies for bar preparation and understand when, where, and why such strategies are important.

Our first task was to identify what students need to be able to do to accomplish the learning task—namely, success on the bar exam. As noted *supra* in Part II, the bar exam, like many law school exams, is designed to assess (1) knowledge of substantive legal principles; (2) the ability to apply that substantive knowledge by identifying legal issues in a fact pattern, assessing and analyzing the material, and using legal reasoning to draw conclusions; and (3) completion of a task through the use of fundamental lawyering skills of a beginner lawyer in a realistic situation.¹⁰² The knowledge and skills for passing the bar exam

⁹⁹ Gundlach & Santangelo, *Teaching*, *supra* note 1, at 171–76 (discussing codebook and coding process); Gundlach & Santangelo, *Understanding*, *supra* note 1, at 787–95 (discussing codebook and coding process).

¹⁰⁰ See *infra* App. B.

¹⁰¹ Pintrich et al., *supra* note 56, at 45; Schraw & Dennison, *supra* note 56, at 460 (describing the metacognitive knowledge component as including declarative, procedural, and conditional knowledge).

¹⁰² See Nat'l Conference of Bar Examiners, *MBE*, <https://www.ncbex.org/exams/mbe/>; *MEE*, <https://www.ncbex.org/exams/mee/>; *MPT*, <https://www.ncbex.org/exams/mpt/>.

are consistent with the learning outcomes expected in law school.¹⁰³

Based on these learning expectations, we drew on our research and that of others to compile a list of effective strategies for success in law school and on the bar exam, including both “active” and “passive” methods.¹⁰⁴ Active strategies are those that require a student “to manipulate and process information in his or her own way in order to fully understand it.”¹⁰⁵ In the law school setting, active strategies such as answering practice multiple-choice questions can help with long-term retention and promote critical-thinking skills, such as analysis, synthesis, and evaluation.¹⁰⁶ Alternatively, passive strategies such as rereading or using flashcards are less effective for long-term retention when used on their own.¹⁰⁷

¹⁰³ See ABA STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS 2022-23, Standard 302 at 17 (2022-23) (American Bar Association, 2022),

https://www.americanbar.org/content/dam/aba/administrative/legal_education_and_admissions_to_the_bar/standards/2022-2023/22-23-standard-ch3.pdf.

¹⁰⁴ See *infra* Table 2.

¹⁰⁵ Paula Lustbader, *From Dreams to Reality: The Emerging Role of Law School Academic Support Programs*, 31 U.S.F. L. REV. 839, 855 (1997).

¹⁰⁶ See, e.g., Gerald F. Hess, *Listening to Our Students: Obstructing and Enhancing Learning in Law School*, 31 U.S.F. L. REV. 941, 943 (1997); Bloom, *supra* note 3, at 135–50 (discussing active strategies to prompt metacognition, such as creating and practicing multiple-choice questions, creating visual organizers, and practicing essay questions); Boyle, *supra* note 3, at 3–7 (discussing a range of active-learning strategies that can be effective in law school); Cooper & Gurung, *supra* note 81, at 385–90 (discussing a survey of law students’ study habits and the positive correlation with law school GPA between reported use of practice questions and ability to explain concepts to others).

¹⁰⁷ See James McGrath, *Planning Your Class to Take Advantage of Highly Effective Learning Techniques*, 95 UNIV. DET. MERCY L. REV. 153, 168–78 (2018) (surveying effective and ineffective learning strategies); Cooper & Gurung, *supra* note 81, at 388–90 (reporting on empirical findings that passive strategies like reading and rereading without practice applying the law are negatively correlated with law school academic success).

Table 2: Strategies Aligned with Learning Expectations in Law School

| |
|--|
| PASSIVE: |
| Outline (with no explanation and/or no reference to supplementing/synthesizing material) |
| Briefing cases |
| Reviewing & rereading in book/notes/topics/retyping notes |
| Taking notes/color-coding/rewriting/highlighting |
| Mnemonics/memorization |
| Research |
| Read for class/read ahead/complete assignments on time/study daily |
| Flashcards/Index cards/Note cards |
| Study scheduling/time management |
| Listen to class podcast recordings |
| Create vocab sheet |
| Supplements/Secondary sources (no hypos mentioned) |
| Review sessions (no description) |
| Attend exam skills workshops/meet with academic support |
| Going to professor's office hours (no discussion of what is being done, no hypos, etc.) |
| Study groups & talk/review with peers (no hypos/just review cases, one-way help from others) |
| Analogies |
| Review answers they got wrong (not retaking the question) |
| ACTIVE |
| Practicing fact patterns/hypos/problems/practice tests (inc. in supplemental sources) |
| Review session (hypos or creation of new material like flow charts) |
| Study groups doing active strategies (hypos, visual aids, etc.) and/or two-way practice |

| |
|--|
| Self-testing, speaking to self, asking self what was learned & what you know/don't know |
| Creating flowcharts/tables/road maps of key concepts/study guides |
| Creating scripts or rubrics for approaching fact patterns |
| Reviewing questions in book |
| Teaching to someone |
| Outlining or note-taking (showing synthesis, conceptualizing, annotating with own work/thoughts) |
| Rewriting in own words |
| Retaking questions from a prior midterm, etc. |

According to our codebook,¹⁰⁸ we looked for evidence of the two components of metacognitive knowledge specific to law school and bar preparation in the students' questionnaire responses.¹⁰⁹ In addition to the individual components, we also monitored students' overall metacognitive knowledge.¹¹⁰ For example, we would conclude that a student demonstrated full metacognitive knowledge if they identified "self-testing with sample multiple-choice questions" as a strategy and explained that this method would help them apply the substantive law principles. Given the short time frame in distribution of the various questionnaires during the semester, we further concluded that once students demonstrated metacognitive knowledge at any point in the semester, they would not lose it.¹¹¹

¹⁰⁸ See *infra* App. B.

¹⁰⁹ See *infra* Table 3.

¹¹⁰ See *infra* Table 3.

¹¹¹ Cf. Schraw, 1998, *supra* note 54, at 117 (noting that as students acquire more metacognitive knowledge in a number of domains, they may have general metacognitive knowledge that they can use in a more flexible manner, particularly in new areas of learning).

Table 3: Codebook Definitions of Knowledge and Regulation

| Knowledge | |
|------------|---|
| K1 | Awareness of at least one active-learning strategy, given the importance of active strategies to learning in law school and for bar preparation |
| K2 | Stated understanding of how specific learning strategies support specific learning tasks |
| Overall | None—demonstrated neither K1 nor K2 Some—demonstrated one component Full—demonstrated both components |
| Regulation | |
| R1 | Report of use of at least one active-learning strategy |
| R2 | Identification of an area of struggle with the learning task based on instructor feedback on an assessment |
| R3 | Identification of at least one strategy to improve performance that is responsive to the student's learning struggle |
| R4 | Articulation of one or more past or future changes to the student's learning strategies |
| | None—demonstrated no components of regulation Some—demonstrated 1–3 components in any combination over all Full—demonstrated all 4 components Extensive—demonstrated all 4 components plus evidence of use of multiple active strategies and multiple adjustments to strategies through time |

2. Evidence of Metacognitive Regulation

As noted above in Part III, the regulation components of metacognition involve making appropriate decisions about which strategies to use for a learning task, as well as monitoring and evaluating the learning process based on feedback.¹¹² Within the context of legal education, a law student regulates learning by using one or more effective strategies and then, based on formative assessment and performance feedback received from the instructor, self-assesses areas for improvement and makes adjustments to learning strategies to achieve that.

Our codebook reflects previous findings that have indicated how metacognitive regulation can be evidenced in students' narrative responses to the questionnaires.¹¹³ For R2-R4, we alternatively found evidence of regulation if a student opted not to make any changes because they accurately identified that they had performed well as a result of their use of effective strategies.¹¹⁴ Similarly, we recognized that dropping an *ineffective* strategy could be evidence of regulation if the student was able to appropriately explain why it wasn't working.¹¹⁵ In addition to the individual components, we also monitored those students who evidenced overall metacognitive regulation.¹¹⁶ For example, we would conclude that a student demonstrated full metacognitive regulation if they reported use of one or more active strategies such as self-testing, identified that they struggled with structuring their essay responses effectively based on feedback they received on a midterm, and indicated that they planned to start practicing hypos with essay responses. It also bears noting that, unlike demonstrating evidence of knowledge, students could inconsistently demonstrate *regulation* at various times throughout the semester.

¹¹² Schraw & Dennison, *supra* note 56, at 460 (describing metacognitive regulation as having five components: planning, information management strategies, comprehension monitoring, debugging strategies, and evaluation).

¹¹³ Gundlach & Santangelo, *Understanding*, *supra* note 1, at 791 (discussing codebook relating to metacognitive regulation).

¹¹⁴ See *supra* Table 3.

¹¹⁵ See McGrath, *supra* note 107, at 167.

¹¹⁶ See *supra* Table 3.

3. Qualitative Codes

The following process was applied to each survey. We coded all students' responses to one questionnaire, beginning with the LSP, before continuing to the next questionnaire distributed during the semester. Based on students' anonymized questionnaire responses, each member of our research team used the codebook as a guide to individually review a subset of students' responses to a questionnaire. We then discussed the codes we assigned, resolved disagreements, and revised the codes and codebook as necessary. Previously coded responses were reexamined with each codebook revision. Once we had assigned codes for all the students' responses for all questionnaires, we reexamined everything one final time using our final version of the codebook for reference.

As can be the case with qualitative data, students' narrative answers were not always clear. For example, their responses did not always match the question being asked but might still provide useful data. As a result, at times we needed to look holistically at all responses provided by a student within a questionnaire, or across some or all of a student's questionnaires during the semester. For example, if a student stated that they were not using any active strategies but reported later in the questionnaire that they were actually using an active strategy, we accepted this as evidence of metacognitive regulation and would assign a code accordingly.¹¹⁷ If we ultimately concluded that we had insufficient information from the responses in a student's questionnaires, we would assign a code of "Can't Categorize" and remove that student's responses from the data set. Ultimately, we removed twenty-nine students from the dataset for this reason.

For those students who indicated that they were not making changes because they believed that their methods were working, we needed to determine whether their assessment of how they were doing was accurate to find evidence of metacognitive regulation. During the coding process, we initially assigned these students (N=41) a "double code," which included a "lower" code, assuming they were inaccurately reflecting, and a "higher" code, assuming they were accurately reflecting. Once all coding was

¹¹⁷ See Stanton et al., *supra* note 69, at 3 (noting that students were given the benefit of the doubt when they were not certain what the answers reflected).

complete, we resolved the code by checking the relevant graded assessments or final exam score.¹¹⁸

V. Analysis and Results

All analyses were conducted using R statistical software.¹¹⁹ When running cross-tabulations, R auto-selected a Fisher's exact test or a chi-square because of small cell sample sizes in some categories. We specify which test was used in reporting each result.

Some of the 196 students included in the dataset had missing data. For example, a student might complete all research instruments yet provide an incomplete or unclear survey response that precluded assignment of a code for a specific component of knowledge or regulation. We opted to include students with missing data in the study, excluding from any analysis those students missing data relevant to that analysis. Therefore, sample sizes vary across analyses. This allowed us to maximize sample size for each research question.

For longitudinal questions from the 1L to 3L year, 174 of the 196 3L students included in the dataset also participated in the study as 1L students. Of the students who participated as 1Ls, fifty-eight received the metacognition intervention and 116 did not.

A. Metacognitive Skills Can Change Through Time

1. *Students Gained Metacognitive Knowledge Both During Law School and in Perspectives*

In our prior study of students in their 1L year, we found that

¹¹⁸ See *infra* App. B. For the first graded assessment, we determined that students “performed well” if they scored 91 (A-) or better. For the second graded assessment, “performing well” meant that students scored 4 out of 6 points or better. For the final grade for the course, students “performed well” if they scored a A- or better. The distribution of final grades was similar across the sections (Fisher's Exact Test N=225, p=0.184).

¹¹⁹ R: A LANGUAGE AND ENVIRONMENT FOR STATISTICAL COMPUTING (R Foundation for Statistical Computing, Vienna, Austria), <https://www.R-project.org/>.

only 35.1% of them began law school with awareness of at least one active strategy that supports success in law school.¹²⁰ Awareness of active strategies provides evidence of the K1 component of metacognitive knowledge.¹²¹ At the start of their 1L year, roughly 90% of students could accurately explain why or how the strategies they identified support specific learning tasks, evidence of the K2 component of metacognitive knowledge.¹²² Thus, most students entered law school that year with some, but not full, metacognitive knowledge.

In the Perspectives course in the 3L year, 76% of Perspectives students [143 of 188] demonstrated evidence of the K1 component of metacognitive knowledge at the beginning of the semester, and by the end of the semester, 93.6% [176 of 188] had evidence of the K1 component. Additionally, 80.9% [152 of 188] of Perspectives students demonstrated evidence of K2 at the beginning of the semester, whereas 91.5% [172 of 188] showed evidence of K2 at the end of the semester. In fact, most 3L students [123 of 188, or 65%] entered Perspectives with evidence of full metacognitive knowledge.

The growth of both components of metacognitive knowledge in students from the start of law school to the beginning of the last semester suggests that law students can learn these skills during law school. Moreover, these skills can be learned during a one-semester course, even in their final semester of law school. Given the substantial number of students who demonstrated metacognitive knowledge at the outset of Perspectives as compared to the start of law school, it appears that once they gain metacognitive knowledge, students tend to retain it over time. This is consistent with our prior findings.¹²³

¹²⁰ See Gundlach & Santangelo, *Understanding*, *supra* note 1, at 795.

¹²¹ See *supra* Part IVC.

¹²² See Gundlach & Santangelo, *Understanding*, *supra* note 1, at 795; *supra* Part IVC. (MAYBE SWAP ORDER?: *Id.*; Gundlach, etc)

¹²³ See *supra* Part IVC1; see also Gundlach & Santangelo, *Understanding*, *supra* note 1, at 795. Cf. Schraw, 1998, *supra* note 54, at 117 (noting that as students acquire more metacognitive knowledge in a number of domains, they may have general metacognitive knowledge that they can use in a more flexible manner, particularly in new areas of learning).

2. Most Students Maintained or Gained Metacognitive Regulation Both During Law School and in Perspectives

We similarly found long-term maintenance and even improvement in most students' metacognitive regulation over time. Of the eighty-nine students for whom we could track overall metacognitive regulation level from the end of the first semester of law school to the end of the 3L year, most students (61.8%) either maintained or gained metacognitive regulation.¹²⁴

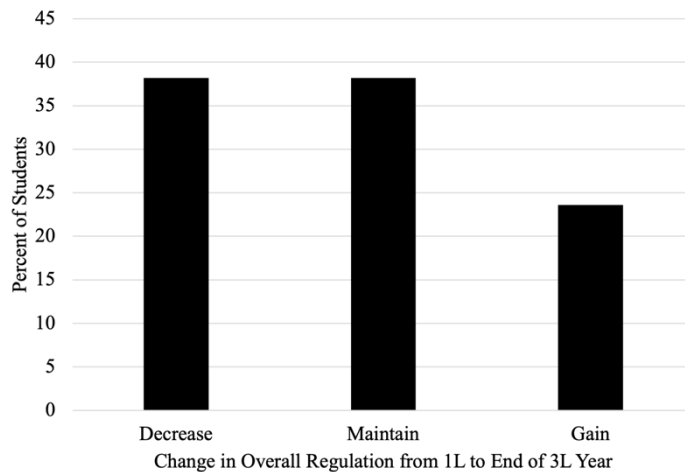


Figure A. Percent of students (N=89) who decreased, maintained, or gained regulation from the 1L year to the end of Perspectives in the 3L year.

Likewise, most students maintained or gained metacognitive regulation even during the one-semester Perspectives course in their final semester of law school. Of the 196 students in the course for whom we have regulation data at both Survey 1 (the first survey where we could gather evidence of metacognitive regulation) and the final survey, 79.1% maintained or gained

¹²⁴ See *infra* Figure A

regulation.¹²⁵

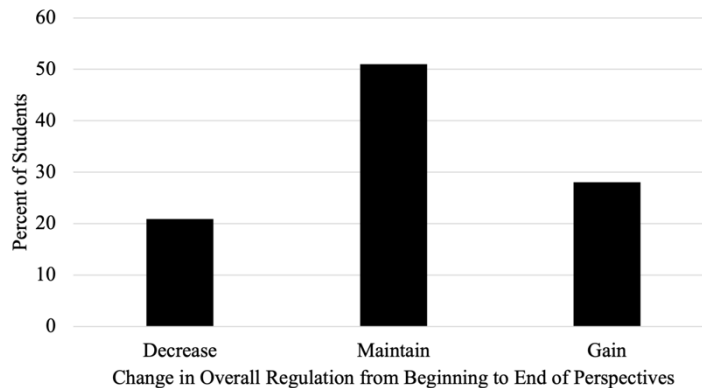


Figure B. Percent of students (N=196) who decreased, maintained, or gained regulation from the beginning to the end of Perspectives in the 3L year.

As compared with metacognitive knowledge, metacognitive regulation skills are more variable both in time and across contexts.¹²⁶ These results indicate that, as with metacognitive knowledge, students can gain metacognitive regulation throughout law school. In fact, it is heartening that such skills can be learned even in a final-semester bar preparation course. Given our findings that metacognitive regulation supports academic performance,¹²⁷ law faculty should be encouraged to integrate instruction and facilitation of metacognitive skills in their courses throughout law school. This includes providing regular feedback on student performance through formative assessments, combined with prompts to adjust learning strategies to meet the academic expectations of law school, both of which support students' development and continued use of metacognitive regulation skills.¹²⁸

¹²⁵ See *infra* Figure B.

¹²⁶ See Pintrich et al., *supra* note 56, at 45.

¹²⁷ See *infra* Part IVC.

¹²⁸ See Gundlach & Santangelo, *Understanding*, *supra* note 1, at 808; Gundlach & Santangelo, *Teaching*, *supra* note 1, at 191–92.

B. The 1L Metacognition Intervention Affected Development of Some Metacognitive Skills Through Time

1. *The 1L Metacognition Intervention Did Not Affect Metacognitive Knowledge*

Despite students' gains in metacognitive knowledge over time as discussed above, we found no evidence that the metacognition intervention that students received during the 1L year impacted their demonstration of the K1 or K2 components of metacognitive knowledge in the 3L year. At the start of Perspectives, students who had a metacognition intervention in the first semester of the 1L year were no more likely to be aware of learning strategies that support success in law school than peers who did not receive the intervention (chi-square: $N=166$, $X^2=3.055$, $df=1$, $p=0.08$). Nor was there any effect of the 1L metacognition intervention on the ability of 3L students at the start of Perspectives to explain how strategies they identified contributed to learning (chi-square: $N=166$, $X^2=0$, $df=1$, $p=1$).

These findings are consistent with those in our prior studies.¹²⁹ We posit that law students can gain metacognitive knowledge from a variety of sources, including peers, professors, and outside sources. However they learn it, repeated exposure throughout law school about active-learning strategies and how active strategies can enhance academic performance may facilitate development of metacognitive knowledge.

2. *The 1L Metacognition Intervention Did Affect Metacognitive Regulation*

In contrast to metacognitive knowledge, the 1L metacognition intervention was associated with one component of metacognitive regulation in particular: the use of active strategies, what we delineated as the R1 component of metacognitive regulation. Students who experienced the 1L metacognition intervention were more likely to be using active strategies at the beginning of Perspectives relative to peers who did not experience the 1L

¹²⁹ See Gundlach & Santangelo, *Understanding*, *supra* note 1, at 796; Gundlach & Santangelo, *Teaching*, *supra* note 1, at 183–84.

intervention (chi-square: $N=173$, $X^2=6.480$, $df=1$, $p=0.011$).¹³⁰ By the end of Perspectives, there was no difference in use of active strategies between those who experienced versus those who did not experience the 1L intervention (chi-square: $N=169$, $X^2=0.005$, $df=1$, $p=0.946$).¹³¹

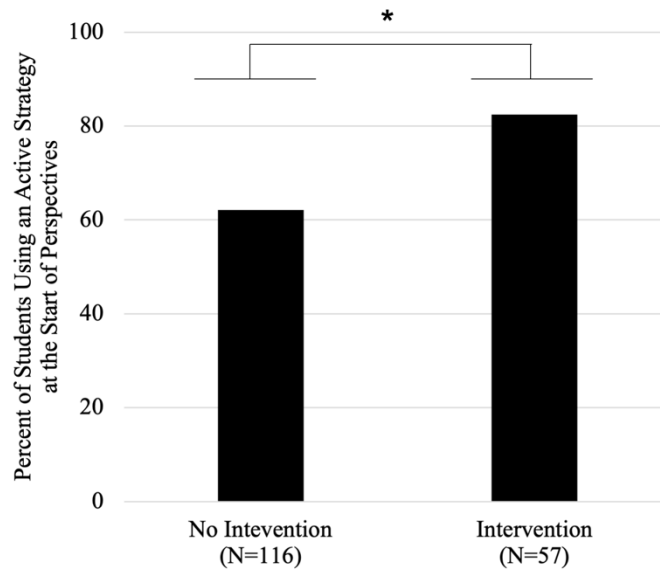


Figure C. Percent of students using an active strategy at the start of Perspectives in the 3L year. A larger proportion of students who received a metacognition intervention in the 1L year reported using active strategies at the start of Perspectives relative to peers who did not receive the intervention (chi-square: $N=173$, $X^2=6.480$, $df=1$,

The R1 component of metacognitive regulation was the only one associated with the 1L metacognitive intervention. The 1L intervention was associated with neither changes in students' overall metacognitive regulation from their first semester to their last semester of law school (chi-square: $N=89$, $X^2=0.674$, $df=2$, $p=0.714$) nor in students' overall level of metacognitive regulation at the beginning or the end of Perspectives (Fisher's exact tests: $N=174$, $p=0.322$ and 0.482 , respectively).

As discussed above, metacognitive regulation comprises four components.¹³² The intervention that some students received in their 1L civil procedure course provided early instruction and reminders about all four components of metacognitive regulation. Our findings indicate that the only long-term effect of that

¹³⁰ See *infra* Figure C.

¹³¹ See *infra* Figure C.

¹³² See *supra* Part IVC2.

instruction was with respect to the R1 component of regulation: the use of active-learning strategies. It is possible that despite an awareness of active strategies as effective learning tools, law students may not use them perhaps because they are more comfortable relying on strategies that have worked in the past or in other contexts or because they find active strategies more challenging to implement. This emphasizes the value of early interventions combined with continuous reinforcement throughout law school to increase students' use of active strategies and development of metacognitive regulation skills.

C. There Is an Association Between Metacognitive Skills and Success in Perspectives and Law School

1. *Metacognitive Knowledge at the End of Perspectives, But Not the Beginning, Is Associated with Success in the Course*

Metacognitive knowledge at the beginning of Perspectives was not associated with success in the course, which we defined as an A- or better.¹³³ This was true both for the K1 component alone, i.e., knowledge of at least one active-learning strategy (chi-square: $N=188$, $X^2=3.748$, $df=1$, $p=0.053$) and for overall metacognitive knowledge (chi-square: $N=188$, $X^2=3.550$, $df=2$, $p=0.169$). However, metacognitive knowledge at the end of Perspectives was associated with success in the course. This was true both with respect to the K1 component alone (Fisher's exact test: $N=188$, $p=0.030$) and with overall metacognitive knowledge (Fisher's exact test: $N=188$, $p=0.021$).¹³⁴

These findings suggest that students can compensate for their lack of metacognitive knowledge at the start of the course and still finish strong if they become aware of one or more active strategies during the semester. This tracks our findings that students can gain metacognitive skills even during the short span of a semester, further emphasizing the benefit to students of receiving continuous reminders and reinforcement about effective learning strategies and how those strategies support success in law school.

¹³³ See *infra* n. 139.

¹³⁴ See *infra* Figure D.

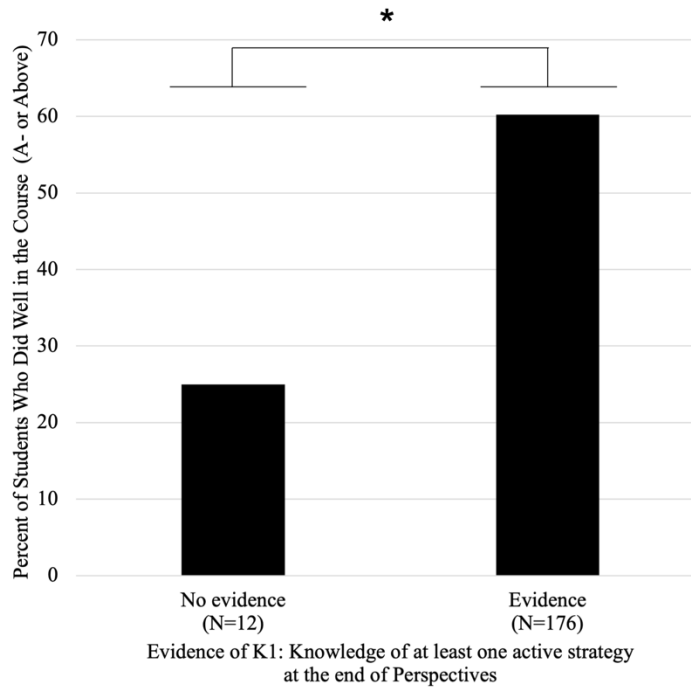


Figure D. Percent of students who did well in Perspectives (A- or better). Students with K1 (evidence of knowledge of at least one active strategy) at the end of Perspectives were more likely to do well in the course relative to peers with no evidence of knowledge of at least one active strategy (Fisher's Exact Test: N=188, $p=0.030$).

2. Metacognitive Regulation Was Associated with Success in Perspectives

We considered separately overall regulation, as well as each of the four components of metacognitive regulation, to determine whether there was any association with success in Perspectives. Overall regulation was associated with success in the course. Those students with full or extensive regulation, i.e., with evidence of all four regulation components, at the end of Perspectives were more likely to do well in the course relative to students with none or some regulation (chi-square N=188, $X^2=9.768$, $df=3$, $p=0.024$; post hoc chi-square pairwise testing, Benjamini and Hochberg adjustment: adjusted $p < 0.05$).¹³⁵

¹³⁵ See *infra* Figure E.

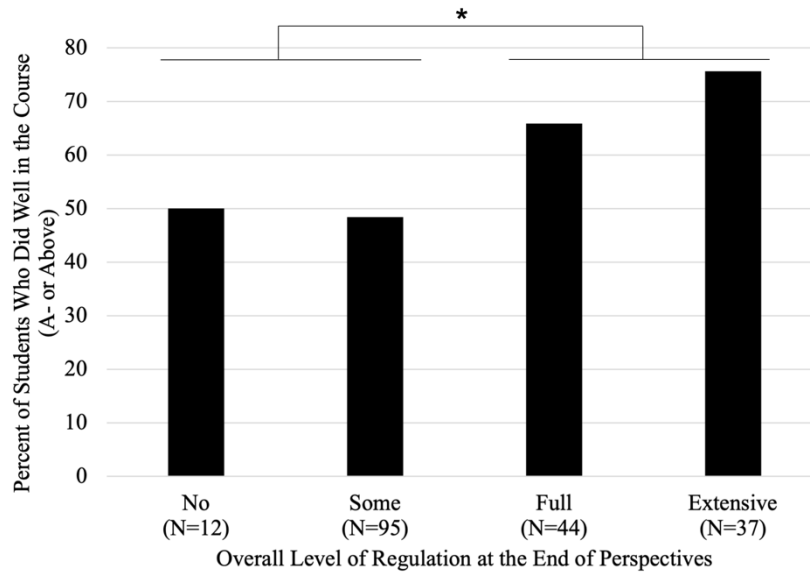


Figure E. Percent of students who did well in the course as a function of overall level of regulation at the end of Perspectives. A larger proportion of students with Full and Extensive regulation did well in the course relative to students with No and Some regulation (chi-square: $N=188$ $X^2=9.768$, $df=3$, $p=0.024$; Post hoc pairwise testing, Benjamini and Hochberg adjustment: adjusted $p < 0.05$).

We also examined each of the four regulation components separately at two time points during the semester to determine whether and how regulation at the beginning versus the end of Perspectives was associated with success. We used Survey 1, the first time point at which students could evidence regulation, and the final survey at the end of the semester.¹³⁶ Students who had evidence of components R1, R3, or R4 on Survey 1 were more likely to succeed in the course relative to peers without evidence of these regulation components.¹³⁷ By the end of the semester at the final reflective survey, R1 was the only regulation component associated with success in the course.¹³⁸

¹³⁶ See *supra* Part IVB2, Table 1.

¹³⁷ See *infra* Table 4.

¹³⁸ See *infra* Table 4.

Table 4. Fisher's exact tests regarding likelihood of success in the course if evidencing each component of regulation. Sample sizes vary across each component, as only students with complete, unambiguous responses related to a regulation component were included in analysis of that component. Italics indicate that students with the component were more likely to succeed relative to those without the component.

| Regulation Component | Survey (Reflecting Midterm 1) | | 1 | Final Survey (Reflecting on the Final Exam) | |
|--|-------------------------------------|-------------------|---|--|-------------|
| | N | p | | N | p |
| R1: Use of an active strategy to prepare for the exam | 187 | <i>0.011</i> | | 184 | <i>0.03</i> |
| R2: Identified an issue they encountered on the exam | 179 | 0.786 | | 150 | 0.778 |
| R3: Identified strategies to address an issue they encountered on the exam | 178 | <i><0.0001</i> | | 152 | 0.153 |
| R4: Made or planned to make adjustments to learning strategies | 187 | <i>0.001</i> | | 188 | 0.083 |

These findings are consistent with our prior study, in which we found that one component of regulation, R1, was associated with academic success in a 1L civil procedure course.¹³⁹ Here again, in

¹³⁹ See Gundlach & Santangelo, *Understanding*, *supra* note 1, at 797–801.

a final-semester 3L bar preparation course, we found that R1, use of at least one active-learning strategy, was associated with success on both the midterm and final exams in the course. Our results emphasize the importance of explicitly teaching and consistently reinforcing the use of active-learning strategies. These results also emphasize the value to students of having skills to self-identify strategies to address issues that become apparent when receiving feedback on assessments (R3) and making or planning to make changes in response (R4). Students with evidence of these regulation skills on the midterm were more likely to succeed in Perspectives than those without evidence of R3 and R4 at that time point. This further illustrates how assessments prompt use of metacognitive skills which can in turn support academic success. But for the feedback, it may be challenging for students to effectively regulate. The lack of impact of R3 and R4 on the final survey is likely due to students' not yet receiving their final exam grade. To the previous point, lack of feedback presents a barrier to reflection.

3. Metacognitive Skills Were Associated with Success in Law School

We examined the impact of students' overall metacognitive knowledge and regulation in connection with their cumulative law school GPA, an indicator of success in law school. Students' demonstration of full or extensive metacognitive regulation at the end of the 3L year was associated with cumulative law school GPA (one-way ANOVA: $N=196$, $F(3, 192)=4.07$, $p=0.0079$), with this pattern driven by a difference between students with Extensive and Some regulation (Tukey HSD adj $p=0.0064$).¹⁴⁰ These results could be explained by the relatively small sample sizes within each regulation level and the amount of variation in cumulative law school GPA within each regulation level. In contrast, students' overall level of metacognitive knowledge at the end of the 3L year was not associated with cumulative law school GPA (one-way ANOVA: $N=196$ ($F(2, 193)=1.365$, $p=0.258$)).

¹⁴⁰ See *infra* Figure F.

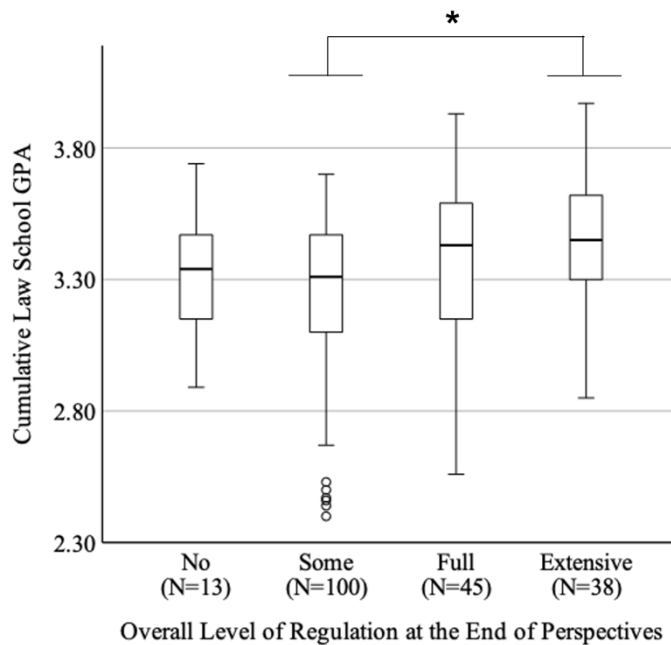


Figure F. Cumulative law school GPA as a function of overall level of regulation at the end of Perspectives. Cumulative law school GPA varies across overall level of regulation, with extensive regulation associated with higher GPA relative to some regulation (One-way ANOVA: $N=196$, $F(3, 192)=4.07$, $p=0.0079$; Tukey HSD adj $p=0.0064$).

While we interpret the results of students' overall metacognitive regulation with caution, the results are consistent with prior work showing that while knowledge is a prerequisite for regulation, it is the *use* of active-learning strategies that matters, not simply knowledge of them.¹⁴¹ This again emphasizes the importance of continuous reminders to use active strategies throughout law school.

D. Metacognitive Skills Were Not Directly Associated with Bar Passage

We also examined whether there was an association between bar passage and students' overall metacognitive knowledge or regulation, as well as the individual components of

¹⁴¹ See Santangelo, et al., *supra* note 69, at 75 (discussing how monitoring and knowledge are prerequisites for regulation).

each. We found no relationship between bar passage and overall metacognitive knowledge or regulation at either the beginning or end of Perspectives (Fisher's exact tests: Knowledge N= 178, Regulation N=178, $p>0.05$). Nor did we find an association between bar passage and the individual components of knowledge or regulation (Fisher's exact tests: K1 N=178, K2 N=176, R2 N=170, $p>0.05$; chi-square: R1 N=177, R3 N=169, R4 N=177, $p>0.05$). Finally, there was no difference in bar passage between students who experienced the 1L intervention and those who did not (chi-square: N=159, $p=0.344$).

Although metacognitive skills were not directly related with bar passage, our findings do indicate that metacognitive skills *are* related to academic performance in law school and to the Perspectives class in particular. As discussed *infra* in the next section, academic performance in law school and in the Perspectives course is directly related to performance on the bar exam. This apparent incongruity may be explained by the fact that metacognitive skills, particularly regulation skills, help students maximize content knowledge during law school so that they are better positioned to succeed on the bar exam.

E. Other Metrics Were Associated with Bar Passage

In addition to metacognitive skills, we also examined other metrics that might be associated with bar passage, given the findings in other studies discussed above.¹⁴² For example, the addition of bar preparation courses in the final semester can positively impact bar passage rates.¹⁴³ Therefore, we examined whether the same would be true in our own study. Given prior findings of an association between bar passage, cumulative law

¹⁴² See *supra* Part II.E.

¹⁴³ See *supra* n. 54, e.g., Riebe, *supra* note 47, at 275–341 (surveying studies about bar passage and proposing range of bar support initiatives, including required bar prep course); Zeigler et al., *supra* note 47, at 399–406 (discussing the creation and implementation of New York Law School's Comprehensive Curriculum Program designed to respond to low bar passage rate, and assessing results); Johns, *supra* note 47, at 36–69 (discussion Bar Passage Program at University of Denver Sturm College of Law and empirical analysis of its impact on bar passage).

school GPA and, to a lesser extent, LSAT scores, we also considered these.¹⁴⁴

We found that students who succeeded in Perspectives by earning an A- or higher had higher bar passage rates than those who did not perform well in Perspectives (chi-square: $N=178$, $X^2=37.417$, $df=1$, $p<0.0001$).¹⁴⁵ Only fifty percent of students who underperformed (i.e., earned a B+ or lower) in Perspectives ($N=70$) passed the bar on the first attempt, compared with ninety-two percent of students who did well in the course ($N=108$). These results were expected, given that the purpose, substantive content, and assessments in the Perspectives course are designed to prepare students for success on the bar exam.

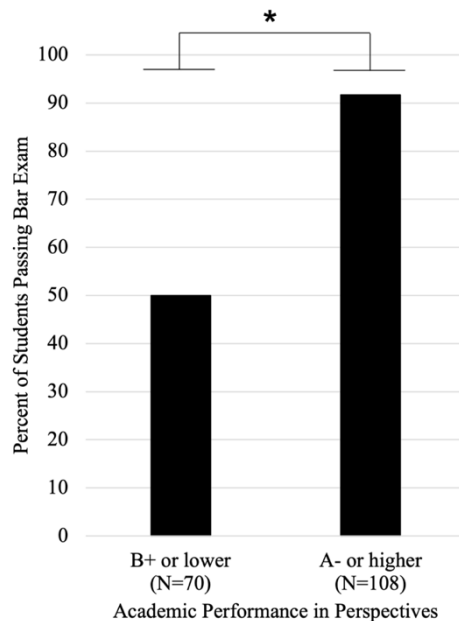


Figure G. Percent of students passing the bar exam as a function of academic performance in Perspectives. Students who did well in Perspectives had higher bar passage rates than those who did not perform well in Perspectives (chi-square: $N=178$, $X^2=37.417$, $df=1$, $p<0.0001$).

Consistent with prior studies, bar passage was also associated

¹⁴⁴ See *supra* n. 48; e.g., Sites, *supra* note 41 (reporting on a study that shows the relationship between bar passage, LSAT, cumulative law school GPA, final-semester MBE courses, commercial program diagnostic exams, and completion metrics).

¹⁴⁵ See *infra* Figure G.

with LSAT scores (Pearson product-moment correlation: $r=0.31$ $N=164$ $p<0.0001$) and law school cumulative GPA (point-biserial correlation, $r_{pb}=0.621$, $N=178$, $p<0.0001$).¹⁴⁶

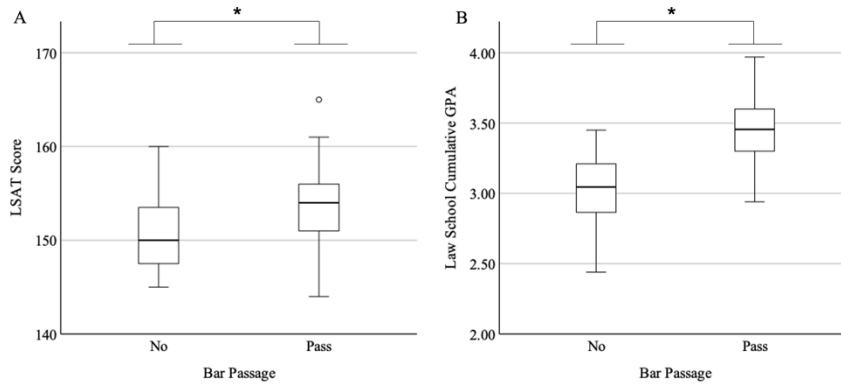


Figure H. LSAT score (A) and law school cumulative GPA (B) as a function of bar passage. Bar passage was associated both with LSAT score (Pearson product-moment correlation: $r=0.31$ $N=164$ $p<0.0001$) and law school cumulative GPA (pointbiserial correlation, $r_{pb}=0.621$, $N=178$, $p<0.0001$).

Given that the LSAT and bar exam are both standardized tests, those students who generally perform well on standardized tests may continue to have strong performance as they continue to take standardized tests. Law school cumulative GPA, on the other hand, is an assessment of students' overall learning during the three years of coursework. Given that the bar exam purports to assess the substantive knowledge and fundamental lawyering skills that students learn in law school, a positive relationship between law school academic success and bar passage is expected.¹⁴⁷

¹⁴⁶ See *infra* Figure H.

¹⁴⁷ See *supra* Part II.A.

F. Additional Observations from the Qualitative Responses

In addition to our empirical findings discussed above, the qualitative questionnaire responses provided important insights about students' learning and approach to the Perspectives course and bar preparation. We have included illustrative examples of the themes that emerged from students' questionnaire responses.

As noted above, the vast majority of the students identified a range of effective learning strategies, passive and active, at the outset of the semester, such that their plans appeared to be off to a solid start. Specifically, 77.8% (147 of 189 students to whom we were able to assign a value for K1 on the LSP) identified one or more active strategies that they planned to use. Of those students who planned to use an active strategy (of the 147 students with LSPK1=Yes) twelve (8.2%) did not follow through until the final, and six (4.1%) never followed through. For example, one might recognize the need to "commit myself to my strategies" and acknowledge that "I know what works . . . I just need to commit the time" but not do so. Others discussed lack of motivation and/or lack of time to commit to the work. This is consistent with anecdotal reports from academic support and bar prep faculty and staff that students' bar prep work drops off as the weeks progress toward the bar exam. Therefore, it would be helpful to proactively focus on that study fatigue with students to better prepare them for sustainable study practices.

We did not ask students about time management skills, although this can be a component of metacognitive regulation.¹⁴⁸ However, many students recognized that time management, given the depth and breadth of the material they would need to learn, was an important feature of their overall bar preparation strategy. For example, they would note their desire to employ "to-do" lists and "disciplined" study schedules to stay on track with their work and avoid "burning out." And yet students reported that they struggled to maintain time management skills, noting, for example, "I need to be a bit better about sticking to my schedule." Perhaps relatedly, students frequently commented on their desire to be freed from distractions of family and friends, as well as social media and their phones. To respond to these concerns, they discussed the need to "move into a new space away

¹⁴⁸ See *supra* Part III.A.

from my family” or “put my phone in a different room” or on “do not disturb.” It would be helpful for academic support faculty to remind students about methods for improving their time management and ideas for reducing distractions.

Although we did not seek to elicit information about students’ health and wellness, many gratuitously reported to us about the importance of maintaining physical and mental health routines. For example, students noted the importance of getting sufficient sleep to help with “focus” and “better brain functions” and the need to eat well, exercise, and “maintain a healthy environment.” This may reflect the increased focus on these issues in law schools. However, we were also concerned about the range of mental health issues reported by students, which can impact their performance in school and on the bar exam. Throughout the semester, we noted an increased number of student responses referencing anxiety, stress, and lack of sleep. Some exhibited helplessness, such as “I’m too tired to keep trying.” Using “check-in” mental health questionnaires with students during law school and/or during bar prep may be an effective tool to intervene and support students’ mental health.

VI. Recommendations for Legal Education and Future Research on Factors that Influence Bar Passage Rates

Our findings bear important lessons for law schools as they seek to enhance students’ learning and best position students for passing the bar exam. This is a critical juncture for legal education, given the considerable pressure points that many schools are experiencing with respect to their bar passage rates and the increasing expectations imposed by changing accreditation standards for the program of legal education and learning outcomes.¹⁴⁹ Now is the time for greater recognition that law schools have an ethical obligation to do more to support the academic success of our students, especially those who are paying full tuition and may be more at risk.

¹⁴⁹ See *supra* Part II.C and II.E.

The results of our study build on our prior work¹⁵⁰ and offer new insights to aid law schools' efforts to respond to these challenges. Firstly, we now have three studies that establish a relationship between metacognitive skills, particularly metacognitive regulation, and academic performance in 1L and 3L courses, as well as overall law school success.¹⁵¹ Moreover, our findings establish that students can benefit from instruction and develop metacognitive skills not only within one semester but throughout law school.¹⁵² And we now have evidence that when students are taught metacognitive skills in their first semester of law school, particularly regulation skills, the learning "sticks," and they will continue to use those skills throughout law school.¹⁵³ Accordingly, law schools can and should enhance their students' academic success by incorporating instruction about metacognitive skills into the first-year curriculum. Furthermore, students should receive continued instruction and prompts to practice metacognition during all three years of law school.

Fostering metacognitive skills to help students succeed in law school may better position them for success on the bar exam, given the relationship we found between academic success and bar passage.¹⁵⁴ A primary mission of all law schools is to prepare students for practice, which in most cases requires that they first pass the bar exam. The substantive law and skills they learn in law school should ideally be aligned with what is assessed on the bar exam. Therefore, having strong metacognitive skills can help students succeed in law school, which in turn helps them perform better on the bar exam.

Although many students enter law school with a solid base of metacognitive knowledge,¹⁵⁵ they can still benefit from further instruction about the specific strategies that will help them succeed with learning the substantive law and legal skills necessary for success. Even more so, they need repeated opportunities to learn and practice metacognitive regulation

¹⁵⁰ See Gundlach & Santangelo, *Understanding*, *supra* note 1; Gundlach & Santangelo, *Teaching*, *supra* note 1.

¹⁵¹ See *supra* Parts V.C and V.D.; see also Gundlach & Santangelo, *Understanding*, *supra* note 1, at 797–801; Gundlach & Santangelo, *Teaching*, *supra* note 1, at 179–83.

¹⁵² See *supra* Part V.A.

¹⁵³ See *supra* Part V.B.

¹⁵⁴ See *supra* Part V.C. and V.D.

¹⁵⁵ See *supra* Part VI and V.A.1.; see also Gundlach & Santangelo, *Understanding*, *supra* note 1, at 795.

throughout law school. It is therefore incumbent upon law faculty to incorporate considerably more opportunities for students to receive feedback through formative and summative assessments.¹⁵⁶ We caution that reliance on final grades alone, many of which are curved, is insufficient to provide the necessary feedback for students to engage in metacognitive regulation.

We recommend that law schools offer resources and training for faculty about how to incorporate the teaching of metacognitive skills across the curriculum. Law professors who have not received specialized training as educators can particularly benefit from encouragement to engage in metacognition about their teaching, and their students can benefit from this modeling.¹⁵⁷ Existing materials created by us and others can be used to easily supply faculty with instructional materials and exercises for use in their classes to teach of metacognitive skills, ideally dovetailing with the use of formative assessments to encourage metacognitive regulation.¹⁵⁸ In addition, law professors can do more to incorporate the use of active-learning teaching methods in and out of the classroom. For example, they might use more hypothetical fact patterns during class to test students' understanding and application of doctrine or create asynchronous assignments for self-testing. Simulated experiential exercises can also be used to provide feedback for students about their knowledge of substantive law and demonstration of lawyering skills. Given the responses that were volunteered by students about the impact of health and well-being stressors¹⁵⁹ on their learning during Perspectives, law schools should also remember the importance of incorporating wellness programming.¹⁶⁰

¹⁵⁶ See also Gundlach & Santangelo, *Understanding*, *supra* note 1, at 808, 810.

¹⁵⁷ See generally Mackenzie Stephens & Jessica R. Santangelo, *A Continuum to Promote College Instructor Metacognition about Teaching*, 70 COLLEGE TEACHING 46–56 (2021); see also Alleva & Gundlach, *supra* note 3, at 737–39 (discussing the practice of metacognitive skills with teaching).

¹⁵⁸ The authors have on file various materials for teachers to use for instruction about metacognitive skills. See also Alleva & Gundlach, *supra* note 3, at 726–33 (discussing various teaching strategies for incorporating metacognitive instruction into a first-year civil procedure course).

¹⁵⁹ See *supra* at Part V.F.

¹⁶⁰ In connection with Standard 303(b)(3), which requires law schools to include “substantial opportunities” for “professional identity development,” the ABA recently added language to Interpretation 303-5

Multiple factors are at play in learning, and therefore, law schools need to embrace a multi-strategy approach to facilitate student learning. This involves the support and encouragement of continuing research about metacognition and other factors that enhance students' learning and bar passage. Given the ever-increasing costs of legal education, law schools owe it to their students to provide them with the broadest array of resources to position them for success not just during school but also for entry into the profession. Our ethical obligation requires nothing less.

to explicitly include “well-being practices” within the development of professional identity and notes that “[b]ecause developing a professional identity requires reflection and growth over time, students should have frequent opportunities for such development during each year of law school and in a variety of courses and co-curricular and professional development activities.” See ABA Section of Legal Education and Admissions to the Bar, ABA STANDARDS AND RULES OF PROCEDURE FOR APPROVAL OF LAW SCHOOLS 2022-03, *Standard 303 and Interpretation 303-5* (American Bar Association, 2022).