The Impact of Active Learning on Law School Performance

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I. **INTRODUCTION**

The theory of active learning (“AL”) is that students learn better as active, self-reflective participants in the learning process, rather than passive recipients of information. Academic
support professionals\(^2\) have long advocated the use of AL to assist students deemed to be at risk academically.\(^3\) More recently, two influential critiques of legal education, commonly called “Best Practices” and “the Carnegie Report,” advocate the wider use of AL by all law professors in furtherance of law schools’ core mission – to help students pass the bar examination and become competent, ethical lawyers.\(^4\)

There is a growing body of empirical research examining the effectiveness of academic support programs (“ASPs”), many of which use AL techniques.\(^5\) Here, we contribute to that

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1 Gerald F. Hess, *Principle 3: Good Practices Encourages Active Learning*, 49 J. LEG. EDUC. 401, 401 (1999) ("Students learn both actively and passively. They learn passively when their primary role is to listen to an authority who organizes and presents information and concepts. Active learning occurs when students do more than listen.”). See also, e.g., Sarah Valentine, *Legal Research as a Fundamental Skill: A Lifeboat for Students and Law Schools*, 39 U. BALTIMORE L. REV. 173, 223 (2010) (“Active learning methodologies are recognized for teaching critical thinking and problem-solving skills and for teaching students to take more responsibility for their own learning experience.”);

Kate E. Bloch, *Cognition and Star Trek™: Learning and Legal Education*, 42 J. MARSHALL L. REV. 959, 969 (2009), quoting JOHN W. COLLINS III & NANCY P. O’BRIEN, eds., *THE GREENWOOD DICTIONARY OF EDUCATION* 5 (2003) (adopting definition of “active learning” as “The process of having students engage in some activity that forces them to reflect upon ideas and how they are using those ideas. Requiring students to regularly assess their own degree of understanding and skill at handling concepts or problems in a particular discipline. The attainment of knowledge by participating or contributing. The process of keeping students mentally, and often physically, active in their learning through activities that involve them in gathering information, thinking, and problem solving.”);


3 The educational theory of “active learning” has been around for decades in the undergraduate context. *E.g., CHARLES C. BONWELL & JAMES A. EISON, ACTIVE LEARNING: CREATING EXCITEMENT IN THE CLASSROOM* (1991); Bloch, *supra* note 1, at 979 n.111 (“Scholars in other disciplines . . . have been advocating active learning approaches for decades.”). Legal educators, particularly those in academic support, have recognized that “active learning” can be effectively applied to legal education. *See, e.g., Hess, supra* note 1; June Cicero, *Piercing the Socratic Veil: Adding an Active Learning Alternative in Legal Education*, 15 WM. MITCHELL L. REV. 1011 (1989); Paul T. Wangerin, *Law School Academic Support Programs*, 40 HASTINGS L.J. 771, 786-94 (1989). *See also* Ollivette E. Mencer, *New Directions in Academic Support and Legal Training: Looking Back, Forging Ahead*, 31 SOUTHERN U. L. REV. 47, 72 (2003) (“it is generally agreed that much of what is done in AS is with the intent of developing independent learners.”).

4 ROY STUCKEY ET AL., *BEST PRACTICES FOR LEGAL EDUCATION: A VISION AND A ROAD MAP* 127, 66 (2007) (“Best Practices”) (asserting that one of the goals of legal education should be that “graduates demonstrate self-reflection and lifelong learning skills” and that one of the “best practices for delivering instruction” is to “help students improve their self-directed learning skills”); WILLIAM M. SULLIVAN, ANNE COLBY, JUDITH WELCH WEGNER, LLOYD BOND, & LEE S. SHULMAN, *EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW* 179 (2007) (the “Carnegie Report”) (“What is meant [by intentional learning] are educational practices that help students become self-conscious about and self-directed in their own learning. Teaching for intentional learning aims explicitly at enabling students to become aware of what they are doing as they learn the law.”).

research, and suggest that empirical studies of the effectiveness of AL have broader implications for all law school teaching.\(^6\)

Academic support at St. Thomas University School of Law includes an extensive AL program in the first year, among other things.\(^7\) This article focuses on the first-year AL program’s effect on students’ law school grade point average (“LGPA”).

Our statistical study of three years of data on St. Thomas law students indicates a significant positive relationship between a first-year student’s attendance at AL sessions and her LGPA. AL attendance has a higher positive correlation with LGPA than either the Law School Admission Test (“LSAT”) or the undergraduate grade point average (“UGPA”).

We also conducted several multiple regression analyses to examine how LGPA might vary as a function of the percentage of AL sessions the student attended in the first year of law school. In addition to the percentage of AL sessions attended, other factors we included in the regressions included LSAT scores, UGPA, age, sex, ethnicity, tier of undergraduate college, and undergraduate major, among other factors.

As in other empirical studies of law school ASPs, our study lacks a randomly-assigned control group.\(^8\) Nonetheless, our results were encouraging. Moving from 0% to 100% attendance at AL sessions, a student’s cumulative LGPA for the first year is expected to increase by about 0.47 on a 4.0 scale. For example, a student with 0% AL attendance who would otherwise earn a 2.2 LGPA is expected to earn a 2.67 LGPA with 100% AL attendance, holding all other variables – such as LSAT -- constant. At a 95% confidence interval, this increase in LGPA could be as low as 0.33 or as high as 0.61. The probability that, by chance, AL attendance would have this large a positive relationship to LGPA is less than 0.01%, conventionally termed “statistically significant” at the 99% level.

In this article, we describe St. Thomas’ AL program and the range of statistical tests we used to evaluate its effectiveness. We offer the AL model not just to ASPs at appropriate law schools, but as further evidence that AL is beneficial in the legal academy generally.

II. ACTIVE LEARNING AND ACADEMIC SUPPORT PROGRAMS

A. In General

The term “active learning” does not seem to have a universally-accepted definition,\(^9\) and


\(^7\) St. Thomas’ first-year Active Learning program is only one part of its overall Academic Support Program, which also includes a comprehensive bar exam preparation program, a Writing Enhancement and Skills Program, and individual counseling and tutoring. See http://www.stu.edu/Academics/AcademicSupport/tabid/902/Default.aspx (last visited September 4, 2010).

\(^8\) See infra note 43.

\(^9\) Bloch, supra note 1, at 969 & n.50 (2009).
is known by other names. In the law school academic support setting, the key premise of AL is that the “guide on the side” helps many law students learn better than the traditional “sage on the stage”:

Traditional legal education assumes that a student is capable of figuring out what is required in legal coursework and making the transition from the deconstruction of cases in the classroom to the development of effective problem solving skills required on exams and in practice. Academic support assumes these skills must be taught more explicitly and that a crucial component of effective legal education is teaching students with varied learning styles and needs to become lifetime learners of the law.

Law school ASPs, with their roots in helping “at risk” students stay in law school, were quick to follow undergraduate ASPs in promoting AL to reach these students. In part, law school ASPs sprung up to comply with accreditation standards. The American Bar Association (“ABA”), the accrediting body for United States law schools, forbids a law school to “admit applicants who do not appear capable of satisfactorily completing its educational program and being admitted to the bar.” One factor the ABA considers in assessing whether the law school complies with this standard is the “effectiveness of the law school’s academic support program.”

In 2000, the Law School Admissions Council (“LSAC”) published recommendations that law schools adopt various components of ASPs as appropriate to the particular institution. Its recommendations followed a review of learning and cognitive theory that emphasized the effectiveness of AL. One of LSAC’s key recommendations for first-year ASPs was to implement bi-weekly review sessions, conducted by second-year or third-year teaching

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10 See, e.g., Camille Lamar Campbell, How to Use a Tube Top and a Dress Code to Demystify the Predictive Writing Process and Build a Framework of Hope During the First Weeks of Class, 48 DUQ. L. REV. 273, 283 & n.65 (2010) (“active learning” is often used interchangeably with “cooperative learning” or “collaborative learning,” which in turn “has been defined as ‘learning that takes place when peers share experiences and insights’ and has been described by many educational theorists as the most effective technique for engaging adult learners”) (citations omitted); Judith Welch Wegner, Reframing Legal Education’s “Wicked Problems,” 61 RUTGERS L. REV. 867, 975 (2009) (“self-directed learning”); Gerald F. Hess and Sophie M. Sparrow, What Helps Law Professors Develop as Teachers?—An Empirical Study, 14 WIDENER L. REV. 149, 168 (2008) (“independent learning”); Blaustone, supra note 1, at 150 (“self-directed learning”).


12 ABA Standards, Standard 501(b). The American Bar Association, the accrediting body for United States law schools, does not currently require a law school to create and maintain a “formal academic support program” unless that would be necessary to “provide the academic support necessary to assure each student a satisfactory opportunity to complete the [J.D.] program, graduate, and become a member of the legal profession.” 2009-2010 ABA Standards for Approval of Law School (“ABA Standards”), Interpretation 303-3. The ABA has recently proposed extensive changes to its Standards, which, if adopted, would result in moving the first sentence of Interpretation 303-3 (quoted in the preceding sentence) to newly-numbered Standard 306(d).

13 Id., Interpretation 501-3. The ABA has not proposed any change to Standard 501(b) or Interpretation 501-3.

14 Practical Guide, supra note 2; LAW SCHOOL ADMISSIONS COUNCIL, AN INTRODUCTION TO ACADEMIC ASSISTANCE PROGRAMS (2000).

15 Practical Guide, supra note 2, at 52 (“academic assistance programs are primarily designed to teach the process of learning” and to “help[ ] students understand their own metacognitive process”) (emphasis in original).
assistants, in conjunction with the first-year substantive courses.\textsuperscript{16} St. Thomas’ AL program generally follows LSAC’s recommended model.

B. The St. Thomas AL Program

St. Thomas is a private, Catholic law school founded in 1984. Located in the Miami metropolitan area, it draws an exceptionally diverse student population. \textit{U.S. News & World Report} ranks St. Thomas in the fourth tier of United States law schools.\textsuperscript{17} Major characteristics of St. Thomas students in the database for our study are summarized below in Part IV(A).

The primary goal of St. Thomas’ AL program is to teach “skills essential to excelling in law school” to all first-year students.\textsuperscript{18} The program’s main intended quantifiable benefit is improvement in students’ grades, which leads to increased academic retention, eligibility for prestigious activities like law review or moot court, and enhanced employment opportunities.

As recommended by LSAC, the AL program consists chiefly of biweekly sessions coordinated with each of the students’ four required doctrinal courses (Civil Procedure, Contracts, Property, and Torts).\textsuperscript{19} The sessions are led by carefully-selected ALIs, who are closely supervised by the professors, the Director and Coordinator of Academic Support, and third-year student “Team Leaders.” In addition, the ALIs maintain regular office hours for the students in their sections.

Attendance at the AL sessions is optional\textsuperscript{20} and open to all first-year law students.\textsuperscript{21} Each first-year section has four ALIs. Sessions for each course held approximately five times per semester, for a total of approximately twenty ALI sessions per semester or forty for the entire first year.\textsuperscript{22} With five first-year sections (four in the fall and one in the spring), St. Thomas has run approximately 200 AL sessions per year for the past three years. The sessions are scheduled with sensitivity to doctrinal class meeting times, major Legal Writing deadlines, and optimal learning times.\textsuperscript{23}

1. Selection and training of ALIs

\textsuperscript{16} \textit{Id.}, at 52-53.
\textsuperscript{17} \url{http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools/top-law-schools/rankings/c_final_tier+4/order+college_name/page+2} (last visited September 4, 2010).
\textsuperscript{18} \textit{Id.}
\textsuperscript{19} \textit{See} Practical Guide, \textit{supra} note 2, at 52 (recommends tying ASP sessions to particular first-year courses and professors because “the learning skills needed to be successful in law school cannot be effectively taught in the abstract”); Schmidt & Iijima, \textit{supra} note 5, at 676 (“While a focus on learning legal doctrine should be avoided, it has been found that grounding the teaching of skills in material the students are already covering in their doctrinal classes is very effective.”).
\textsuperscript{20} Although a few school-year ASPs are mandatory in the first year, \textit{see} Mencer, \textit{supra} note 3, at 63 (one concern with Southern University’s program was that it was mandatory), most are voluntary. \textit{See} Practical Guide, \textit{supra} note 2, at Part 3. \textit{But see} Schmidt & Iijima, \textit{supra} note 5, at 674 (based on program at William Mitchell College of Law, suggests that participation in ASPs for at-risk students should be mandatory).
\textsuperscript{21} \textit{See} Adam G. Todd, \textit{Academic Support Programs: Effective Support Through a Systemic Approach}, 38 GONZ. L. REV. 187, 193 (2003) (“I believe that the true measure of success of an ASP is the long-term academic improvement of all the students in the law school, not just those at the very bottom of the class.”).
\textsuperscript{22} This is similar to the full-year program described at Southern University in Mencer, \textit{supra} note 3, at 51-53, except that the latter program was mandatory, and St. Thomas’ program is voluntary.
\textsuperscript{23} \textit{See} Practical Guide, \textit{supra} note 2, at 52-53.
Each year all second- and third-year law students are encouraged to apply to be an ALI. The qualities the program looks for in selecting ALIs include strong academic performance, work ethic, sense of responsibility, professionalism, personality, approachability, and most importantly, the desire to help and mentor students. Many law students do not believe they are qualified to be an ALI for a myriad of reasons such as their academic performance or their lack of experience in teaching.

The Director also seeks the first year law professors’ opinions as to which students might be good candidates for an ALI position. Some professors select one or two students they believe would be a good fit for their particular class. The current ALIs are another valuable resource in the selection process. They observe the first-year students in their section who they believe have the right qualities to become a good ALI, and encourage them to apply.

Each prospective ALI submits an application and a resume. In the initial ALI application each student ranks her preferences of the subject and professor. Every applicant is interviewed by the Director and the Coordinator of the program. Experience has shown that most applicants’ academic performance is strong; the interview is used to explore the student’s character and the reasons the student wishes to be an ALI.

Once all the initial interviews are complete, the Director and Coordinator review all the applicants, their applications, and the notes taken during the interview. The top candidates are then asked to interview with a particular professor. Typically each professor interviews two to three students. Some professors choose to select one to three students without the need to interview the student based on their interaction and observation of the student(s) during the school year. Other professors defer to the Director’s decision.

Once the professors’ interviewing is complete, the Director makes the final decisions on the sixteen to twenty ALIs to be hired and to what subject and professor the student will be assigned. The Director tries to give each student selected his first or second choice of subject and professor. If there is a strong candidate who cannot be placed with one of her top choices, the Director speaks to the student directly before making a final decision.

The selection process has been extremely successful for the past three years. For the most part, the students adapt to the position immediately. For some ALIs, this is their first professional job, so there is a steep learning curve in their professional development.

At the start of the academic year, the Director and the Coordinator conduct an initial training session for the ALIs. Detailed written instructions are provided, including information on how to construct lesson plans and exercises, write self-evaluations, keep time records, and maintain regular contact with the supervisors. Several ALIs from the previous year share their experiences.

2. Lesson plans and exercises for AL sessions

Each ALI must prepare a written lesson plan and exercises for each session.\textsuperscript{24} To assist them, the program maintains a TWEN site\textsuperscript{25} compiling all previously-approved materials used in past sessions. A sample of an ALI’s session is included in Appendix A.

The doctrinal professors review in advance all materials the ALI prepares for each session, ensuring consistency of message (and substantive accuracy).\textsuperscript{26} The ALI’s regular

\textsuperscript{24} See Practical Guide, supra note 2, at 54.

\textsuperscript{25} The West Educational Network, available through Westlaw. The TWEN site includes a bank of old exercises, lesson plans, answer keys, and evaluations, listed by subject, professor, year, and ALI.
submission of materials to the professor for approval also keeps the faculty actively engaged in the academic support program, while holding the faculty’s time commitment to a minimum.\footnote{The ALIs usually attempt, but are not required, to attend every regularly-scheduled class taught by the professor he or she is assisting.}

After receiving the professor’s approval, the ALI submits his or her materials to the section’s ALI “team leader,” a third-year student who was an ALI during his or her second year, for review. The team leaders coordinate the activities of the four ALIs for the section, in part to minimize overlap in coverage of certain skills.

While the sessions are tied to the substantive law, the emphasis is on teaching skills that will enable the students to become more effective learners generally. Such study skills include briefing cases, effectively managing time, reading statutes, writing answers to short essay questions, choosing the correct answers in multiple choice problems, working with groups to solve problems, and outlining.

Many students enter law school believing they know how to write, but that may not be the reality, especially as applied to brief writing.\footnote{Professor Hatamyar has found the time commitment involved in supervising ALIs to be minimal and well worth the effort. Last year, she taught two sections of first-year students and therefore had two ALIs per semester to supervise. Nevertheless, she estimates that she spent no more than one hour per week reviewing the ALIs’ written materials and communicating (by e-mail or in person) with the ALIs. Cf. Melissa J. Marlow, \textit{It Take a Village to Solve the Problems in Legal Education: Every Faculty Member’s Role in Academic Support}, 30 U. ARK. LITTLE ROCK L. REV. 489, 492-93 (2008)(discussing decreasing faculty time available for teaching due to scholarship expectations, while urging all faculty members to shoulder responsibility for student achievement with academic support personnel).} The first-year students’ knowledge that each ALI has been successful with that particular professor in the prior year or is working closely with that professor this year inspires confidence that the ALI is leading them in the right direction. The goal is to develop the students’ brief writing specifically tailored to each professor and each subject.

The ALIs will show the students a brief they wrote at the beginning of their first semester (which is normally very poor) and then show the students a brief they prepared for that same case now that they have a year of law school and brief writing behind them. The students are usually astounded by the difference. The ALI will then point out what he or she changed and why that improved the brief. This gives the students an idea of what their briefs should look like, while confirming that developing the skill of brief-writing is an ongoing process.

The ALI will then conduct an active learning exercise with the class to demonstrate the best way to brief a case. Some ALIs break the students into groups, each of which works on its own brief. Certain groups will present their briefs and then the ALI will take the best parts of each brief to arrive at one cohesive, well-written brief. Other ALIs will assign individual paragraphs of a case assigned for class to different groups of students for critical reading, and then have the students present their interpretation of that particular paragraph. This exercise heightens the students’ awareness of close reading\footnote{See, e.g., Abigail Salisbury, \textit{Skills Without Stigma: Using the JURIST Method to Teach Legal Research and Writing}, 59 J. LEG. EDUC. 173, 173 (2009) (describing students’ difficulties with legal writing).} and critical thinking skills.

The ALIs encourage students to write their own briefs and to avoid “canned” briefs\footnote{See Leah M. Christensen, \textit{Legal Reading and Success in Law School: An Empirical Study}, 30 SEATTLE U. L. REV. 603 (2007).} and “book briefing.”\footnote{A variety of prepared case briefs are available for purchase and free on the internet. \textit{See}, e.g., \url{http://www.4lawschool.com/casebrief.htm} (last visited October 5, 2010).} Knowing that the ALIs are all top students giving the same advice, the
students take this advice seriously. This counteracts other upperclass (non-ALI) students’ advice on how to take shortcuts – always tempting because of the overwhelming amount of work and stress the first-year law students feel. It is the ALI’s job to convince the first-year students to avoid taking bad advice.

As another example of explicitly teaching a student to develop an important study skill, the program also addresses time management early in the first semester. Most of the students quickly get into some sort of study routine, but most likely it is not as effective and efficient as possible. For optimal impact the ALIs schedule small group sessions of up to five students to address time management in a more personal manner. This is more time-consuming, but far more effective in addressing the individual students’ needs and circumstances. The ALIs distribute sample study schedules and review their own schedule and how they study. The sample study schedules are developed specifically for that section’s class schedule for the semester. Different types of study schedules are presented so that a student can identify with at least one sample. The sample schedules contain blocks of time to study for each class, work on legal writing or other written projects, and for leisure activities. The ALIs stress the importance of taking breaks to avoid burnout. The breaks suggested are healthy or restful such as athletic activity, a night out for dinner and/or a movie, television, and so forth. The students are encouraged to meet with any of the ALIs to help tailor their unique schedule of responsibilities to be as productive as possible.

One of the first things new law students hear rumors about are “outlines” – almost invariably a mysterious concept. To combat some students’ tendency to rush to collect prior students’ old outlines and commercial outlines, the ALIs expose the students to outlining for their classes fairly early in the first semester. The ALIs strongly encourage the students to create their own outlines, explaining that the process of creating an outline (an active learning process) is a far more effective way to master the material than simply to obtain someone else’s outline (a passive learning process).

The ALIs then teach how to outline. They are prohibited from distributing their outlines directly or indirectly to the first-year students, but they may show excerpts from their outlines for illustration purposes. To incrementally build the outline, the ALIs teach students that reviewing the material immediately before class and soon after class with their class notes is an extremely effective way of learning and retaining the material. The ALIs have many different exercises for outlining for each class. Appendix A contains an illustration of an outlining session demonstrating the same topic using two different approaches -- a traditional outline of the rules and a flow chart.

Another important skill taught during the AL sessions is essay writing. This process is taught over a course of several weeks. The process is carefully and strategically taught among the different AL sessions for individual subjects. Each professor’s own requirements and preferences as to how an essay should be written is taken into account (although the process does not differ greatly among faculty members).

The ALIs start out by distributing essay fact patterns on materials the students have already covered in class. First, the ALIs teach the students how to spot issues. The students read the fact pattern indicating important words and or phrases that indicate a possible issue to discuss in the fact pattern. Then the group as a whole comes up with the specific issues to be discussed. Because most students have not memorized the law at that point, the ALI will provide specific

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31 This is a process in which students simply underline, highlight, or label the various parts of a brief (facts, issue, etc.) directly in the pages of their casebooks.
rule statements that address the issue at hand. Finally, the ALI has the students identify the relevant facts for an appropriate analysis, which is then discussed.

In a following session, an ALI may give another fact pattern identifying the issues and rules and have each student write his or her own analysis based on the facts. The answer to each issue is then discussed as a group. Once the students become comfortable with the IRAC (Issue, Rule, Analysis and Conclusion) format, the ALIs and/or the professor will distribute essay questions for students individually to submit written answers for prompt written feedback by the ALI and/or the professor.

In addition to essay writing skills, many sessions also develop skills in answering multiple-choice questions. The ALIs carefully select questions used in past years, or draft new questions, to demonstrate the different types of multiple choice questions specifically tailored to the individual professor’s testing style. The ALIs deconstruct each multiple choice question prior to the session to illustrate how to effectively answer each question. Most bar-like multiple choice questions are treated like mini essays. The ALIs walk the students through spotting the issue, actively thinking about the law that applies, and then applying the law to the facts to arrive at the correct answer. In the session the ALIs encourage the students to circle or underline the key words and phrases and to write notes in the margins so the students hone in on the skill of reading the questions critically rather than passively.

The introduction of the “i-clicker” classroom response system has proven to be a valuable tool in teaching how to answer multiple-choice questions. The students are given clickers to register their answers to a question and then the ALI will reveal a graph depicting the distribution of the answers chosen by the group. As the semester progresses, the students gain a better idea of where they stand as compared to the rest of the class. It also allows the ALI to assess the group’s performance without being invasive or embarrassing to individual students. Based on the graph the ALI can then discuss with the students the reasoning for the correct and incorrect answers. With the new multistate bar examination multiple-choice question format, there are little to no tricks involved, so the students learn that the knowledge of the law is key to answering these type questions. The overall goal is to teach students how to read multiple-choice questions more carefully and approach them more logically.

One final, though far from exhaustive, example of another skill taught in AL sessions is how to read a statute. Using the context of Civil Procedure, this would include what the ALIs sometimes call “breaking down” the Federal Rules of Civil Procedure. The ALI might prepare a handout with three numbered blank lines requiring the students to fill in “the three requirements” of a particular rule, then pose a series of simple questions requiring application of the rule. Of course, many professors teach statutory construction, but it has been our experience that it is impossible for those of us who are twenty years or more out of law school to imagine how basic the analysis actually needs to be to reach today’s first-year law students.

32 Many St. Thomas students, as evidenced by their LSAT scores, are not comfortable with or proficient in answering multiple-choice questions. Learning to improve performance on multiple-choice questions – which comprise a portion of many first-year examinations, and ultimately constitute up to half of the bar examination – is an important skill taught in the sessions.
33 See http://www.iclicker.com/dmn/.
34 See Beth E. Donahue, Recent Changes in NCBE’s Multiple-Choice Examination Programs (on the National Conference of Bar Examiners’ web site at http://www.ncbex.org/uploads/user_docrepos/770308_donahue.pdf) (last visited October 5, 2010), for a description of the recent changes to the requirements for multiple choice questions for the multistate portion of the bar examination.
3. Overall benefits of the AL sessions

Several features of St. Thomas’ program follow successful strategies used in other ASPs and recommended by LSAC. First, ASPs that rely heavily on peer or student instruction have been found to be more successful than those relying on professional counselors. It is probably easier to arrange frequent contact between students than between students and faculty or professional staff members. In addition, the first-year students usually identify more closely with their second-year student ALIs than with their professors. One former ALI recalls his experience with the AL program as a first-year law student thus:

For me personally, the benefit of attending these sessions was twofold: first, the sessions gave me an opportunity to revisit concepts covered in class, but from different perspectives, and, second, the sessions would first teach and then reinforce skills necessary to success. The opportunity to revisit the concepts already covered in class was absolutely priceless. I was instructed by senior students who spoke from a position of authority, based either on their success in the subject matter, their success with the professor, or both. The credibility that their words, suggestions, and advice carried was immense, especially on a nervous and impressionable first-year law student. Most often, I would understand a concept more clearly from the student instructor than from the professor, because of the student’s ability to relate the issues more clearly to me. In essence, they provided a bridge that gapped the ravine between the professor’s explanation and my own personal understanding.

Second, successful ASPs often involve “multiple learning systems” using “different approaches at different times with the students” to account for diverse learning styles. The different types of AL sessions allow opportunities for students with different learning styles to find what learning strategies work best for them. In the AL sessions, the ALIs strive to cover the material in a different way than the professor used in class, in order to reach students who have a different learning style than that reached by the professor’s teaching method. Perhaps more importantly, the AL sessions provide repeated feedback to students on their understanding of course materials before the final examination, while there is still an opportunity

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35 Wangerin, supra note 3, at 783 (citation omitted). See also Mencer, supra note 3, at 52 (“In program evaluations, students indicate that they benefit significantly from student or teaching assistant led sessions.”).

36 Michael Vera, AL Program Experience (essay on file with authors).

37 Wangerin, supra note 3, at 783-84 (“good counseling programs should involve a mixture of formal lecture, group discussion, reading assignments, and written work”). See Practical Guide, supra note 2, at 21; Eric A. DeGroff & Kathleen A. McKee, Learning Like Lawyers: Addressing the Differences in Law Student Learning Styles, 2006 B.Y.U. EDUC. & L.J. 499 (exploring relationship between learning styles and academic achievement).

38 The students’ evaluations of the AL sessions last year included the following key factors that the students judged “good” about the sessions or the ALIs themselves: “[the AL] attended every [regular] class [taught by the professor]”; “organized”; “approachable”; “helped clarify material”; “enthusiasm”; “charts, diagrams, board, note cards”; “didn’t waste time”; “insight into professor”; “confidence”; “office hours very helpful”; “practice exams”; “free writes”; and “goals [written] on board.” The factors that the students judged “bad” about the sessions or the ALIs themselves included “not prepared”; “didn’t keep control of sessions”; “[used] Socratic method”; “didn’t coordinate with professor”; “didn’t really answer questions”; “confused people”; “overtalks, long winded answers”; “arrogance”; and “not enough feedback on essays.” (Student comments on file with authors.)
to remedy any deficiencies. The lack of meaningful feedback to students before the final exam has been identified as one of the key deficiencies in current legal education.39

In addition, while it may not be a benefit that immediately contributes to an improvement in law school grades, the AL sessions provide first-year students an early opportunity to observe and model the professional behavior of the ALIs. The ALIs, although largely self-motivated, are closely monitored and encouraged to maintain high professional standards. The students are admonished to check their school e-mail boxes frequently for messages from the ALIs, to arrive on time for sessions, to participate actively, and to ask their ALIs about other law-school related matters.

Finally, one of the intangible benefits of the AL program is that it helps the ALIs themselves as much as the first-year students attending the sessions. The ALIs take pride in their work and their ability to help those who are in the same position they were in just a year or two earlier. Recognizing that his experience taught him valuable professional skills, one former ALI writes:

I hadn’t taught, I hadn’t made a lesson plan, I hadn’t had to think on my feet and explain an answer that already made sense to me in three or four different ways. [T]he program taught me how to speak and teach. I did not anticipate how much I would enjoy this and was thrilled when I was able to help so many people understand future interests.40

III. STUDY DESIGN

The outcome variables of interest in this study are the student’s law school grade point average (“LGPA”) for the first semester of law school, the second semester of law school, and cumulatively for the first year of law school. The primary research question we examined was whether the student’s attendance at the approximately forty ALI sessions available to him or her during the first year of law school had any measurable relationship to the student’s LGPA. Some subsidiary questions, such as the effect of AL attendance on retention, were also examined. We also examined the relationship, if any, between a student’s attendance in ALI sessions for a particular course, such as Torts, and his or her final grade in that course.

A student’s grades in law school are only one measure of how well the student has learned the material. Indeed, a student’s grades may be a very imperfect measure of whether the student will be a successful practicing lawyer. However, it cannot be denied that law school grades, particularly in the first year, are used for numerous important purposes such as employment opportunities and membership in law review – and, less happily, for maintaining academic standing in the school. Indeed, it has been found that law school grades are “the most significant predictor of success” in passing the bar examination.41 Thus, it is reasonable to assess

39 See, e.g., Carnegie Report, supra note 4, at 164-67; Best Practices, supra note 4, at 125-27.
40 Nick Reed, Reflections on the AL Program (essay on file with authors).
the effectiveness of the AL program in accord with its stated goal of improving academic performance.\footnote{See Kevin H. Smith, *Program Evaluation: Defining and Measuring “Success” in Academic Support Programs*, 2003 L. REV. MICH. ST. U. DET. C.L. 177, 199 (““success” must be defined in terms of a program’s goals and objectives”).}

As mentioned earlier, attendance at ALI sessions is optional and open to all first-year law students.\footnote{Ideally (in the statistical sense), we would have randomly assigned half the students to a control group that did not participate in any ALI sessions and the other half to a “treatment” group offered full participation in the ALI sessions. See, e.g., Andrew Gelman & Jennifer Hill, *Data Analysis Using Regression and Multilevel/Hierarchical Models* 172-173 (2007). This is obviously infeasible in a real-world law school. See Practical Guide, supra note 2, at 98; Jonathan L. Entin, *Scholarship About Teaching*, 73 CHI-KENT L. REV. 847, 856 (1998) (“For practical or ethical reasons, randomization might be impossible to achieve in studies of law students.”); Knapland & Sander, supra note 5.}

The ALIs keep attendance records by individual student for each session. The resulting attendance records for three years have enabled us to conduct this study.

To isolate the possible effect of AL attendance on LGPA in regression analyses, we hypothesized numerous other factors that could also potentially bear on a student’s LGPA. The factors that we believe are quantifiable and for which we had records are the student’s:

- Law School Admissions Test (“LSAT”) score;
- Undergraduate grade-point average (“UGPA”),\footnote{We used the UGPA converted to a 4.0 scale (if necessary) by the Law School Admissions Council (“LSAC”).}
- Age;
- Gender;
- Ethnicity;
- Undergraduate major;
- Undergraduate degree;
- Type of undergraduate institution attended;\footnote{The web site for the *U.S. News & World Report* college rankings describes the four types of undergraduate institutions that we used in this study as follows:}
  - National Universities. There are 262 national universities in the country (164 public, 98 private), based on categories developed by the Carnegie Foundation for the Advancement of Teaching. The universities offer a full range of undergraduate majors, as well as master’s and doctoral degrees; many strongly emphasize research.
  - Liberal Arts Colleges. The 266 liberal arts colleges emphasize undergraduate education and award at least 50 percent of their degrees in the liberal arts.
  - Universities-Master’s. Like the national universities, universities-master’s (as defined by the Carnegie Foundation) provide a full range of undergraduate programs and some master’s level programs. They offer few, if any, doctoral programs. The 572 universities-master’s are ranked within four geographic areas: North, South, Midwest, and West. . . .
  - Baccalaureate Colleges. These institutions focus primarily on undergraduate education, just as the liberal arts colleges do, but grant fewer than 50 percent of their degrees in liberal arts disciplines. At these schools, at least 10 percent of undergraduate degrees awarded are bachelor’s degrees. There are 319 baccalaureate colleges, ranked within four regions: North, South, Midwest, and West.

- Ranked tier\footnote{U.S. News & World Report ranks the schools within each type of undergraduate institution into four tiers. See id.} of undergraduate institution attended;
- State of student’s permanent residence;
- Whether the student was a summer conditional admittee;\footnote{See id.}
• Number of female doctrinal professors; and
• Number of practicum courses the student was required to take.

These outcome measures (LGPAs and grades in individual courses) and factors potentially bearing on the outcome measures were compiled in a database. All analyses and graphs were performed in Stata, a commercially-available statistical software package.

IV. RESULTS

A. Characteristics of Students in the Database

There are 806 students in our database. This includes the last six groups of entering students at St. Thomas -- Fall 2007, Spring 2008, Fall 2008, Spring 2009, Fall 2009, and Spring 2010 – who completed and received grades for at least the first semester. We began with Fall 2007 because this is the first class that participated in the redesigned ALI program and the first class for which detailed attendance records for the ALI sessions were kept.

Figures 1A, 1B, and 1C below depict various characteristics of the students in the database.

47“The Summer Conditional Program permits invited students lacking the traditional indicia of success to demonstrate that their ability transcends their quantitative credentials. Applicants possessing credentials close to those of accepted students may be invited to participate in a three-week set of week-long units on various topics beginning in mid-June... At the end of each week, students will be tested on the material covered during that week. Students will be graded on a point-scale system; students in the top 20% of the class will be admitted to the fall entering class.” St. Thomas University School of Law web site, available at http://www.stu.edu/AdmissionsFinancialAid/ApplyingtoStThomas/tabid/908/SummerConditionalProgram/tabid/911/Default.aspx (last visited September 1, 2010).

48Since Fall 2008, some first-year law professors have assigned written graded skills exercises in addition to the standard end-of-term final examination. At St. Thomas, such a course is called a “practicum.”

49Through Spring 2010, St. Thomas admitted a spring entrance class.
The fall entering classes constitute the bulk of students in the database: 88% of students in the database entered in the fall, while only 12% entered in the spring. Fifty-two percent of the students were male; 48% were female. Students self-identified as “white” comprised 50% of the database; 32% were “Hispanic”; 8% self-identified as “black”; 4% were Asian; and 5% were either unknown or some other ethnicity (for example, Native American).

The mean age of the students in the database was 26; the median age was 24. Only 11% of the students were admitted to St. Thomas through the Summer Conditional Program.

50 We reclassified as “Hispanic” all students who self-identified as Hispanic, Puerto Rican, Chicano, or Mexican.
51 This includes both Americans and non-Americans who self-identified as black.
These St. Thomas students’ LSAT scores and UGPAs are relatively compressed around the mean. Fifty percent of the students in the sample had an LSAT between 147 and 151. Fifty percent of the students in the sample had a UGPA between 2.65 and 3.28. This compression may be one reason that the ALI program at St. Thomas appears particularly successful in helping students increase their LGPA. The differences in the students’ indicators are generally so small that in a sense most of them are on a level playing field.

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52 The mean and median LSAT (149) has increased slightly over the three-year period studied: Fall 2007 (mean 149, median 148); Spring 2008 (mean 151, median 150), Fall 2008 (149), Spring 2009 (mean 149, median 150), Fall 2009 (150), Spring 2010 (150).

53 The mean UGPA (2.97) did not vary materially by incoming section over the three-year period studied: Fall 2007 (3.06); Spring 2008 (2.91), Fall 2008 (2.98), Spring 2009 (2.90), Fall 2009 (2.90), Spring 2010 (2.87).
The vast majority (83\%) of the students in the database attended what *U.S. News & World Report* classifies as a “National University.”\(^{54}\) Within that category, the largest percentage of students (36\%) had attended a National University in Tier 4.\(^{55}\)

Based upon the reports received from LSAC about incoming admitted students, there seems to be no universal method for undergraduate institutions to label undergraduate majors or even to link particular undergraduate majors to particular degrees. For example, of the six students in the database whose undergraduate major was recorded as “accounting,” one student earned a B.A., two students earned a B.S., and three students earned a B.B.A.

We used the exact degree designated in the LSAC reports as the degree reported for that student in the database. We recategorized the undergraduate majors into seven broad categories: pre-law,\(^{56}\) liberal arts,\(^{57}\) business,\(^{58}\) English,\(^{59}\) communications,\(^{60}\) science/math,\(^{61}\) and other.\(^{62}\)

\(^{54}\) See *supra* note 45.

\(^{55}\) See *supra* note 46.

\(^{56}\) The category “pre-law” includes majors recorded on students’ transcripts as criminal justice, criminology, government/service, international relations, political science, and pre-law.

\(^{57}\) The category “liberal arts” includes majors recorded on students’ transcripts as American civilization, anthropology, economics, foreign languages, French, geography, history, humanities, interdisciplinary studies, liberal arts, linguistics, philosophy, policy studies, psychology, religion/religious studies, social sciences/other, sociology, Spanish, and theology.
Based on our reclassification, the most prevalent undergraduate major of the students in the database was pre-law (35%), followed by liberal arts (26%) and business (18%).

B. Overall Attendance at ALI Sessions During the Three Years Studied

Again, attendance is optional and open to all first-year students. The AL program was first offered in Fall 2007. Attendance was lowest during the first year of the program’s operation, partially due to unfamiliarity with both the program and its director. In prior years the school offered multiple academic assistance options, causing confusion among the students about which options to pursue. A sense of apprehension of the new program trickled down from the upper-level students to the first-year students. In addition, sessions during the program’s first year of operation were scheduled on Friday nights and Saturday mornings -- not popular times for a mostly-commuter law school. Beginning with Fall 2008, sessions were scheduled at more convenient times throughout the week. As word of mouth about the benefits of the program spread, attendance increased.

During the first semester of law school, the average St. Thomas student now attends about 68% of the scheduled sessions. This amounts to about seventeen extra classroom hours of instruction per semester (out of a possible twenty-five, more or less). Unsurprisingly, overall attendance at the sessions falls off during the second semester of law school. The average St. Thomas law student now attends about 37% of the scheduled sessions during the second semester. This amounts to about nine extra classroom hours of instruction per semester.

Figure 2 shows overall AL attendance by the students in the database for each semester.

58 The category “business” includes majors recorded on students’ transcripts as accounting, advertising, agriculture, business administration, business management, finance, hotel/restaurant management, industrial management/relations, international business, marketing, real estate, and recreation management. 59 The category “English” includes majors recorded on students’ transcripts as English and literature. 60 The category “communications” includes majors recorded on students’ transcripts as communications, journalism, and speech. 61 The category “science/math” includes majors recorded on students’ transcripts as biology, chemistry, computer science, construction engineering, electrical engineering, engineering/other, environmental sciences, industrial engineering, mathematics, and premedical/medicine. 62 The category “other” includes majors recorded on students’ transcripts as “any area not listed,” art/design, elementary education, family relations/child development, film production, fine arts, health/kinesiology, library studies, music, performing arts, secondary education, and social work. 63 Students who began law school in the spring semester (“Spring Ls”) are not included in any calculations for the second semester of the ALI program. The second semester for the Spring Ls occurs over the summer, and the course load for fall admittees and spring admittees is materially different in the second semester.
AL attendance does not materially differ by race, although black students in our database attended the AL sessions less frequently than either white or Hispanic students, both first and second semesters. The relatively small number of black students in the database – 63 – may account for some of this difference.

Female students’ attendance, though, was significantly (at the 95% confidence level) higher than that of male students in the first semester. In the second semester, female students still attended the sessions at a higher rate than male students, but the difference was not statistically significant.

Figure 3 shows attendance at AL sessions by ethnicity and gender.

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64 A one-sample t-test yielded no statistically significant differences (at the 95% confidence level) in AL attendance by race, in either semester.

C. Relationship Between AL attendance and First-Year LGPA

Having surveyed the general characteristics and overall attendance patterns of the students in our database, we now turn to our research questions: is there a positive relationship between AL attendance and the students’ first-year grades? We found that by every statistical method we used, the answer is yes.

Two important points should be noted at the outset. First, as was true in other studies of the effectiveness of ASPs, our study lacks the statistical ideal of a randomized control group. Highly motivated students may (and probably do) self-select to attend more ALI sessions than unmotivated students, and the motivated students might have performed better than the unmotivated students without the AL sessions. Thus, self-selection may overstate the effect of the AL program.

Spring admittees excluded from second semester calculations.

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66 See, e.g., Jellum & Reeves, supra note 5, at 678.
67 See supra note 43.
68 Self-selection may also understate the effect of the AL program. See Jellum & Reeves, supra note 5, at n.189 (“If those students who are aware that they are likely to have difficulty on the bar examination - due to weakness on standardized tests, test-taking anxiety, or lower class ranking - self-select into the [bar support] program, then the bar support program might have an even stronger impact than the numbers indicate”).
Second, St. Thomas has a mandatory grading curve on a four-point scale. In each first-year class, the mean grade must fall between 2.25 and 2.50 (between a C and a C+). Grades below a C- are not included in computing this mean (absent the approval of the Associate Dean for Academic Affairs). In addition, fifteen percent of the grades must fall below a C.69

1. Correlations

Our study finds that students’ attendance at AL sessions is positively correlated with their law school grade point averages. Table 1 shows these correlations.

In the first semester, the correlation between LGPA and AL attendance is a positive 0.25 (meaning that as the percentage of AL sessions attended increases, so does first-semester law grade point average). The correlation is statistically significant (p < 0.0001); there is less than one chance in 10,000 that the relationship could have appeared by chance.

In the second semester,70 the correlation between LGPA and AL attendance is a positive 0.21. Again, the correlation is statistically significant (p < 0.0001). For the entire first year, the correlation between the LGPA and the AL attendance is a positive 0.24; again, this is statistically significant (p < 0.0001).

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Correlation with first-semester LGPA</th>
<th>Correlation with second-semester LGPA</th>
<th>Correlation with first-year cumulative LGPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSAT</td>
<td>0.23 (p &lt; 0.0001)</td>
<td>0.15 (p &lt; 0.001)</td>
<td>0.20 (p &lt; 0.0001)</td>
</tr>
<tr>
<td>UGPA</td>
<td>0.18 (p &lt; 0.0001)</td>
<td>0.19 (p &lt; 0.0001)</td>
<td>0.19 (p &lt; 0.0001)</td>
</tr>
<tr>
<td>Percentage of ALI</td>
<td>0.25 (p &lt; 0.0001)</td>
<td>0.21 (p &lt; 0.0001)</td>
<td>0.24 (p &lt; 0.0001)</td>
</tr>
<tr>
<td>sessions attended</td>
<td>(first semester AL attendance)</td>
<td>(second semester AL attendance)</td>
<td>(full year AL attendance)</td>
</tr>
</tbody>
</table>

Interestingly, although both UGPA and LSAT are positively associated with LGPA at a high significance level (p < 0.0001), the percentage of ALI sessions attended has the highest positive correlation with LGPA, as shown in Table 1.71

2. Comparison of means of LGPA based on level of AL attendance

The positive relationship between AL attendance and LGPA can be seen graphically in Figure 4 by comparing the mean LGPA for groups of students based on their AL attendance. We

69 In addition, at least 15% of all grades assigned must be higher than C+ and at least 15% of the grades assigned must be lower than C. Grades below C- are excluded from calculation the mean GPA for a course. Legal Writing grades are not subject to the mandatory curve. St. Thomas University School of Law, Student Handbook 2010-2011, at 12-13 (available at http://www.stu.edu/IMG/pdf/Student_Handbook_PDF.pdf; last visited September 5, 2010).

70 Spring admittees are excluded from second semester and entire-year calculations.

71 A somewhat analogous result was found in Leah M. Christensen, The Power of Skills: An Empirical Study of Lawyering Skills Grades as the Strongest Predictor of Law School Success, 83 ST. JOHN’S L. REV. 795 (2009) (study at one law school finding that students’ grade in a Lawyering Skills class was a stronger predictor of LGPA than either UGPA or LSAT).
categorized the students in the database into three groups: those who attended less than 33% of the ALI sessions, those who attended between 33% and 66% of the ALI sessions, and those who attended more than 66% of the ALI sessions.

For each of the two semesters and for the cumulative first year, the mean LGPA for the group of students who attended more than 66% of the ALI sessions is higher than the overall mean LGPA. Further, the mean LGPA for the group of students who attended less than 33% of the ALI sessions is less than the overall mean LGPA.

These are not just visually appealing graphs. Most of the differences in means shown in Figure 4 are statistically significant. We used a standard statistical test (a one-sample t-test) to compare the overall mean LGPA to the mean LGPA of the three attendance groups. The results are shown in Tables 2A, 2B, and 2C.

For each of the two semesters and for the cumulative first year, the mean LGPA for the group of students who attended more than 66% of the ALI sessions is higher than the overall mean LGPA. Further, the mean LGPA for the group of students who attended less than 33% of the ALI sessions is less than the overall mean LGPA.

These are not just visually appealing graphs. Most of the differences in means shown in Figure 4 are statistically significant. We used a standard statistical test (a one-sample t-test) to compare the overall mean LGPA to the mean LGPA of the three attendance groups. The results are shown in Tables 2A, 2B, and 2C.

### Table 2A

**Comparison of Overall Mean LGPA (2.48) to Mean LGPA of Groups Based on AL attendance (first semester)**

<table>
<thead>
<tr>
<th>Group based on AL attendance</th>
<th>Number of</th>
<th>Mean LSAT&lt;sup&gt;72&lt;/sup&gt;</th>
<th>Mean UGPA</th>
<th>t-value</th>
<th>Mean LGPA</th>
<th>95% confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>72</sup> The mean LSAT and UGPA in Tables 2A, 2B, and 2C are based only on the students for whom we have this information (788 students for LSAT, 765 students for UGPA). St. Thomas, located in the Miami metropolitan area, has a large population of foreign students, especially from South America and the Caribbean.
For Group 1, the group with the lowest AL attendance (less than 33% of the sessions), the mean LGPA is 2.27, significantly less than the overall mean LGPA of 2.48 (p < 0.0001). For Group 2, the group that attended between 33% and 66% of the sessions, the mean LGPA is 2.44, which does not differ significantly from the overall mean of 2.48. For Group 3, the group that attended more than 66% of the sessions, the mean LGPA is 2.60, significantly higher than the overall mean of 2.48 (p < 0.0001).

Table 2B
Comparison of Overall Mean LGPA (2.47) to Mean LGPA of Groups Based on AL attendance (second semester)

<table>
<thead>
<tr>
<th>Group based on AL attendance</th>
<th>Number of students</th>
<th>Mean LSAT of group</th>
<th>Mean UGPA of group</th>
<th>t-value</th>
<th>Mean LGPA for second semester</th>
<th>95% confidence interval of LGPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Attended less than 33% of sessions</td>
<td>372</td>
<td>149.16</td>
<td>2.98</td>
<td>-3.8103</td>
<td>2.37</td>
<td>2.32 to 2.42</td>
</tr>
<tr>
<td>Group 2: Attended between 33% and 66% of sessions</td>
<td>175</td>
<td>149.49</td>
<td>3.01</td>
<td>2.8454</td>
<td>2.58</td>
<td>2.51 to 2.68</td>
</tr>
<tr>
<td>Group 3: Attended more than 66% of sessions</td>
<td>105</td>
<td>149.16</td>
<td>3.02</td>
<td>2.5747</td>
<td>2.63</td>
<td>2.50 to 2.72</td>
</tr>
</tbody>
</table>

The number of students in the database used for the second-semester calculations dropped to 652 (from 806 in the first semester). A small number of students are academically dismissed after the first semester if they do not achieve a semester GPA of at least 2.0. But most of the drop in the number of students in our database from first to second semester results from our choice to exclude second-semester “Spring Ls” (students who begin law school in the spring semester). The second semester for the Spring Ls occurs over the summer, when they are required to take Contracts II and Torts II. Thus, the course load for fall admittees and spring admittees is materially different in the second semester, and we judged it best to exclude Spring Ls from our second-semester results.

For Group 1, the group with the lowest AL attendance (less than 33% of the sessions), the mean LGPA is 2.37, significantly less than the overall mean LGPA of 2.47 (p = 0.0001). For Group 2, the group that attended between 33% and 66% of the sessions, the mean LGPA is 2.58, significantly higher than the overall mean of 2.47 (p = 0.0025). For Group 3, the group that attended more than 66% of the sessions, the mean LGPA is 2.63, also significantly higher than the overall mean of 2.47 (p = 0.0057).

73 The Spring Ls take Civil Procedure II and Property II in their third semester, the fall of the same year they started.
### Table 2C
Comparison of Overall Mean LGPA (2.51) to Mean LGPA of Groups Based on AL attendance (entire first year)

<table>
<thead>
<tr>
<th>Group based on AL attendance</th>
<th>Number of students</th>
<th>Mean LSAT of group</th>
<th>Mean UGPA of group</th>
<th>t-value</th>
<th>Mean LGPA for entire first year</th>
<th>95% confidence interval of LGPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Attended less than 33% of sessions</td>
<td>229</td>
<td>149.16</td>
<td>2.98</td>
<td>-3.8022</td>
<td>2.40</td>
<td>2.34 2.46</td>
</tr>
<tr>
<td>Group 2: Attended between 33% and 66% of sessions</td>
<td>241</td>
<td>149.49</td>
<td>3.01</td>
<td>-1.1176</td>
<td>2.48</td>
<td>2.42 2.53</td>
</tr>
<tr>
<td>Group 3: Attended more than 66% of sessions</td>
<td>181</td>
<td>149.16</td>
<td>3.02</td>
<td>4.4324</td>
<td>2.68</td>
<td>2.60 2.76</td>
</tr>
</tbody>
</table>

N = 651

For Group 1, the group with the lowest AL attendance (less than 33% of the sessions), the mean LGPA is 2.40, significantly less than the overall mean LGPA of 2.51 (p = 0.0001). For Group 2, the group that attended between 33% and 66% of the sessions, the mean LGPA is 2.48, which does not differ significantly from the overall mean of 2.51. For Group 3, the group that attended more than 66% of the sessions, the mean LGPA is 2.68, significantly higher than the overall mean of 2.51 (p < 0.0001).

3. Linear regression using AL attendance as only independent variable

We performed both simple and multivariate linear regressions using LGPA as the dependent (outcome) variable. We treat the simple linear regressions first.

The linear regression models analyze only the relationship between LGPA and AL attendance, without considering the possible effect on LGPA of any other variable (such as LSAT score, UGPA, gender, and the like). The multilinear regression models, treated in the following section, analyze the effect of numerous factors on LGPA.

We regressed AL attendance on first semester LGPA, second semester LGPA, and cumulative first-year LGPA. In each of these regressions, the percent attendance in ALI sessions is statistically significant at the 99% level and is positively related to LGPA.

Figure 5 shows the fitted regression line over a scatterplot of the data points for the first semester.

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74 Thus, the proportion of variance in the dependent variable, LGPA, that can be explained by one independent variable, such as AL attendance, is smaller than the variance that can be explained by numerous independent variables. Roughly speaking, this is known as the model’s “R-Squared,” which is an overall measure of the strength of association and does not reflect the extent to which any particular independent variable, such as the percent of ALI sessions attended, is associated with first-semester GPA. Statistical Computing, UCLA: Academic Technology Services, Statistical Consulting Group, available at [http://www.ats.ucla.edu/stat/stata/output/reg_output.htm](http://www.ats.ucla.edu/stat/stata/output/reg_output.htm) (accessed July 23, 2010). The R-squared of our linear regressions using AL attendance as the only independent variable is lower than the R-squared of our multivariate regressions, using numerous independent variables. Generally, the more factors are included in the model, the more variance in LGPA the model will explain.
Figure 5 reflects only the relationship between a student’s attendance at ALI sessions in the first semester and his or her first-semester LGPA. The points on Figure 5 are data plots of each student in the database, showing his or her LGPA and percentage of AL attendance for the first semester. For example, the point at the bottom left corner of the graph reflects a student who attended 0% of the ALI sessions and earned an LGPA slightly above 1.0. As can be seen from the upward-sloping fitted regression line, the predicted values of first-semester LGPA increase as the percentage of ALI sessions attended increases.

Moving from 0% to 100% attendance, LGPA is expected to increase by about 0.47 points (nearly half a grade point on a four-point scale). A student with 0% AL attendance would be predicted to earn a 2.21 LGPA in the first semester, while a student with 100% AL attendance would be predicted to earn a 2.68 LGPA. At a 95% confidence interval, this increase could be as low as 0.34 (a 2.55 LGPA) or as high as 0.59 (a 2.80 LGPA).

The R-squared of this single-variable model (the proportion of the variance in students’ LGPA that is explained solely by AL attendance) is low – about 6.35%. Nevertheless, the model meaningfully identifies a relationship between the predictor variable (percentage of ALI sessions attended), and the outcome variable, LGPA. The probability that the relationship identified by

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75 The coefficient for the percent-ALI-attended variable is 0.466; the standard error is 0.062. The t-value is 7.53, which is significant at 99.9%. The coefficient for the constant is 2.206.
this model is due to chance is less than 0.0001 (one in ten thousand), which is highly statistically
significant.76

Figure 6 shows the results of a regression of entire-year AL attendance on cumulative
LGPA for the first year.

Figure 6 shows how the predicted values of the cumulative first-year LGPA vary as a
function of the percentage of ALI sessions attended in over the entire first year.77 Moving from
0% to 100% attendance, LGPA is expected to increase by about 0.43 (almost half a grade point
on a four-point scale). For example, a student with 0% AL attendance who would otherwise earn
a 2.31 cumulative LGPA is expected to earn a 2.74 LGPA with 100% AL attendance.78 At a
95% confidence interval, this increase could be as low as 0.30 (in the example, a 2.61 LGPA) or
as high as 0.57 (a 2.88 LGPA).

4. Multiple regressions

---

76 With 805 observations, F(1,803) = 56.69, Prob > F is less than 0.0001.
77 The single factor, entire-year AL attendance, explains only about 6% of the variance in students’ second-semester
LGPA (R-squared = 0.0599). Still, the probability that the relationship identified by this model is due to chance is
less than 0.0001 (one in ten thousand). With 652 observations, F(1,650) = 38.94, Prob > F is less than 0.0001.
78 The coefficient for the percent-ALI-attended variable is 0.434; standard error is 0.070; t is 6.24; P < 0.001.

a. Multiple regressions on entire database

We also ran multivariate regressions\(^\text{79}\) for each semester and for the entire first year, using numerous possible factors predicting LGPA. In each of these regressions, the percent attendance in ALI sessions is statistically significant at the 99.99\% level and is positively related to LGPA.

For the first-semester regression, the dependent (or resulting) variable is the student’s first-semester law grade point average. The independent (or predictor) variables were:

- The percentage of ALI sessions the student attended in the first semester;
- UGPA;
- LSAT;
- Age;
- Sex (male is the reference category);
- Ethnicity (white is the reference category);
- Whether the student was a summer conditional admittee (‘no’ is the reference category);
- Undergraduate major (pre-law is the reference category);
- Degree (B.A. is the reference category);
- Type of undergraduate institution (National University is the reference category);
- Tier of undergraduate institution (Tier 1 is the reference category);
- Number of practicum courses student was required to take that semester; and
- Number of female doctrinal professors the student had that semester.

The R-Squared for this model is 0.227, which means that this group of independent variables explains about 23\% of the variances in students’ first-semester law school grade point averages.\(^\text{80}\) This is somewhat low. It is likely that a given student’s LGPA results from many factors in addition to those we could measure here – for example, the student’s study habits and test-taking ability, the identity of individual professors and ALIs, and the format and validity of individual final examinations.\(^\text{81}\)

Nevertheless, the model meaningfully identifies the relationship between these predictor variables, such as the percentage of ALI sessions attended, and the outcome variable, which is first-semester law school GPA. Roughly speaking, the probability that the relationship identified by this model is due to chance is less than 0.01\%, which is highly statistically significant.\(^\text{82}\)

Table 3A shows how the predicted values of first-semester LGPA vary as a function of the percentage of first-semester ALI sessions attended, holding all other variables used in the

\(^{79}\) See Practical Guide, \textit{supra} note 2, at 99-100, for a good explanation of multiple regression in this context.

\(^{80}\) R-Squared = 0.2274. Technically, R-Squared is the proportion of variance in the dependent variable, \textit{lgpa1} (first semester law school grade point average) that can be explained by the independent variables in the model, including the percent of ALI sessions attended in the first semester. R-Squared is an overall measure of the strength of association and does not reflect the extent to which any particular independent variable, such as the percent of ALI sessions attended, is associated with first-semester GPA. Statistical Computing, UCLA: Academic Technology Services, Statistical Consulting Group, available at \url{http://www.ats.ucla.edu/stat/stata/output/reg_output.htm} (accessed July 23, 2010).

\(^{81}\) See also Garfield & Levi, \textit{supra} note 5, at 17 (some participants in the ASP could have developed the skills emphasized in the ASP by other means, such as study guides or study groups).

\(^{82}\) Prob > F = 0.0000. This is used in testing the null hypothesis that all of the model coefficients are 0, or in other words, that none of the independent variables are related to the outcome variable. Statistical Computing, \textit{supra} note 80.
Table 3A
Multiple Regression on First-Semester LGPA
(only independent variables with significance of at least 95% are listed)

| Independent variable                  | Coefficient (robust) | Standard error (robust) | t    | P>|t| | 95% confidence interval: effect could be |
|--------------------------------------|----------------------|-------------------------|------|------|----------------------|
| Percentage of ALI sessions attended  | 0.53                 | 0.07                    | 8.03 | 0.000| 0.40 to 0.66          |
| UGPA                                 | 0.31                 | 0.05                    | 6.02 | 0.000| 0.21 to 0.41          |
| LSAT                                 | 0.05                 | 0.01                    | 7.10 | 0.000| 0.03 to 0.06          |
| Age                                  | -0.01                | 0.00                    | -2.09| 0.037| 0.00 to -0.02         |
| Master’s University as compared to National University | -0.18                | 0.06                    | -2.84| 0.005| -0.05 to -0.30        |
| Number of practicum courses          | -0.08                | 0.03                    | -2.60| 0.009| -0.02 to -0.14        |

N = 693; F(30,662) = 8.32; Prob > F = 0.0001; R-squared = 0.2258.

Moving from 0% to 100% attendance at ALI sessions, first-semester LGPA is expected to increase by about 0.53. For example, a student with 0% AL attendance who would otherwise earn a 2.2 LGPA is expected to earn a 2.73 LGPA with 100% AL attendance. At a 95% confidence interval, this increase could be as low as 0.40 and as high as 0.65.

The probability that, by chance, AL attendance would have a positive relationship of this magnitude to LGPA is less than 0.01%, conventionally termed “statistically significant” at the 99.9% level.

For each unit increase in UGPA (e.g., moving from a 2.0 to a 3.0 UGPA), first-semester LGPA is expected to increase by 0.32, holding all other variables constant at their mean. This effect could be as low as 0.22 and as high as 0.42, at the 95% confidence interval. The positive correlation between UGPA and law school performance has been noted in other studies.

For each unit increase in LSAT score (e.g., moving from a 150 to a 151), LGPA1 is expected to increase by 0.05, holding all other variables constant at their mean. This effect could be as low as 0.03 and as high as 0.06, at the 95% confidence interval.

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83 The full results for all regressions described in this article are available on request from the authors.
84 The coefficient for the percent-ALI-attended variable is 0.527; standard error is 0.064; t is 8.20; P>|t| = 0.000.
85 Similar results were obtained running the same regression without the spring-admit students (results obtained from authors on request).
86 See, e.g., David A. Thomas, Predicting Law School Academic Performance from LSAT Scores and Undergraduate Grade Point Averages: A Comprehensive Study, 35 ARIZ. ST. L.J. 1007, 1021 (2003) (study of twenty-seven years of data from Brigham Young University J. Reuben Clark Law School concluded that the “LSAT score is a better predictor for first-year academic performance than is undergraduate GPA, but undergraduate GPA is a better predictor than the LSAT score for third-year academic performance”; note that average LSAT scores at BYU are at least fifteen points higher than at St. Thomas); Jeffrey S. Kinsler, The LSAT Myth, 20 ST. LOUIS U. PUB. L. REV. 393, 393 (2001) (study of two graduating classes at Marquette University Law School found that UGPA was a better predictor of law school performance than LSAT).
The factors that were not found to be statistically significant predictors of first-semester LGPA were: gender, ethnicity, summer alternate admittee status, geographical region, undergraduate major, college tier, degree type, and number of non-LRW female professors.

Table 3B presents the results of a similar regression of various factors on second-semester LGPA. The independent variables are the same as for first semester, except that both the percentage of ALI sessions attended first semester and the percentage of ALI sessions attended second semester are included as separate variables.

Table 3B
Multiple Regression on Second-Semester LGPA
(only independent variables with significance of at least 95% are listed)

| Independent variable                                      | Coefficient (robust) | Standard error (robust) | t       | P>|t| | 95% confidence interval: effect could be |
|-----------------------------------------------------------|----------------------|-------------------------|---------|------|-----------------------------|
|                                                            |                      |                         |         |      | as low as | as high as |
| Percentage of ALI sessions attended in first semester     | 0.28                 | 0.09                    | 3.03    | 0.003| 0.10 | 0.47 |
| Percentage of ALI sessions attended in second semester    | 0.23                 | 0.09                    | 2.65    | 0.008| 0.06 | 0.40 |
| UGPA                                                      | 0.27                 | 0.06                    | 4.39    | 0.000| 0.15 | 0.39 |
| LSAT                                                      | 0.04                 | 0.01                    | 4.65    | 0.000| 0.02 | 0.05 |
| Age                                                       | -0.01                | 0.005                   | -2.08   | 0.038| -0.001 | -0.02 |
| Black as compared to white                                | -0.25                | 0.10                    | -2.51   | 0.012| -0.05 | -0.44 |
| Master’s University as compared to National University    | -0.14                | 0.07                    | -2.06   | 0.040| -0.01 | -0.27 |
| “Other” major as compared to pre-law                      | 0.24                 | 0.07                    | 3.25    | 0.001| 0.10 | 0.39 |

N = 577; F(27,549) = 5.16; Prob > F = 0.0001; R-squared = 0.1917. No spring admittees included.

The positive effect of attendance at ALI sessions in the first semester appears to continue on into the second semester. Moving from 0% to 100% attendance at first-semester ALI sessions, second-semester LGPA is expected to increase by about 0.28. For example, a student with 0% first-semester AL attendance who would otherwise earn a 2.2 LGPA in the second semester is expected to earn a 2.48 second-semester LGPA with 100% first-semester AL attendance. At a 95% confidence interval, this increase could be as low as 0.10 and as high as 0.47.

In addition, second-semester AL attendance has a separate positive relationship to second-semester LGPA. Moving from 0% to 100% attendance at second-semester ALI sessions, second-semester LGPA is expected to increase by about 0.23 grade points. UGPA and LSAT continue to have a significant, though somewhat lessened, positive relationship to second-semester LGPA.

87 An earlier small study, although coded somewhat differently than our study, also found no significant predictive effect of a student’s undergraduate major on LGPA. See Kinsler, supra note 86, at 414-415. But see Mark Graham & Bryan Adamson, Law Students’ Undergraduate Major: Implications for Law School Academic Support Programs, 69 UMKC L. Rev. 533, 553 (2001)(in study of approximately 100 law students at two law schools, students with undergraduate majors in mathematics, engineering, and philosophy scored higher than those with majors in economics, English, history, and political science on general deductive reasoning problems).

88 No collinearity between these two variables was detected.
Table 3C shows the results of a similar regression on the students’ cumulative LGPA for the entire first year. Here, the only independent variable that has changed from the previous regressions is that instead of AL attendance by semester, we used AL attendance for the entire year.

Table 3C

| Independent variable                                               | Coefficient (robust) | Standard error (robust) | t      | P>|t|  | 95% confidence interval: effect could be as low as as high as |
|--------------------------------------------------------------------|----------------------|-------------------------|--------|------|-----------------------------|
| Percentage of ALI sessions attended in entire year                 | 0.47                 | 0.07                    | 6.60   | 0.000| 0.33 0.61                   |
| UGPA                                                              | 0.27                 | 0.05                    | 5.12   | 0.000| 0.16 0.37                   |
| LSAT                                                              | 0.04                 | 0.01                    | 6.03   | 0.000| 0.03 0.05                   |
| Age                                                               | -0.01                | 0.004                   | -2.20  | 0.028| -0.001 -0.02                |
| Black as compared to white                                        | -0.17                | 0.08                    | -2.13  | 0.034| -0.32 -0.01                 |
| Master’s University as compared to National University             | -0.14                | 0.06                    | -2.25  | 0.025| -0.02 -0.25                 |
| “Other” major as compared to pre-law                              | 0.18                 | 0.06                    | 2.81   | 0.005| 0.05 0.31                   |

N = 578; F(26,551) = 6.11; Prob > F = 0.0001; R-squared = 0.2148. No spring admittees included.

Again, moving from 0% to 100% attendance at ALI sessions for the year, a student’s cumulative LGPA is expected to increase by about 0.47. For example, a student with 0% AL attendance who would otherwise earn a 2.2 cumulative LGPA is expected to earn a 2.67 cumulative LGPA with 100% AL attendance. At a 95% confidence interval, this increase could be as low as 0.10 and as high as 0.47.

b. Multiple regressions by each entering class (fall entrants only)

The previous multiple regressions were performed using all students in the three years covered in the study. To isolate any differences there may have been between classes, such as differences in mean LSAT and UGPA, minor tweaks (hopefully improvements) in the ALI program over the years, and differences in the “personality” of different classes, we also performed similar multiple regressions on each entering class separately. Tables 4A and 4B present the results of these regressions.
Table 4A
Multivariate Regression Results by Entering Class (First Semester);
Outcome Variable is First-Semester LGPA

<table>
<thead>
<tr>
<th>Entering class</th>
<th>No.</th>
<th>R-squared*</th>
<th>Independent variable (only listed if significant at 95% or higher)</th>
<th>Statistics on independent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Coefficient</td>
<td>Stan. error</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2007</td>
<td>198</td>
<td>0.40</td>
<td>AL attendance</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UGPA</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LSAT</td>
<td>0.04</td>
</tr>
<tr>
<td>Fall 2008</td>
<td>205</td>
<td>0.27</td>
<td>AL attendance</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UGPA</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LSAT</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Master’s university**</td>
<td>-0.29</td>
</tr>
<tr>
<td>Fall 2009</td>
<td>215</td>
<td>0.29</td>
<td>AL attendance</td>
<td>0.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UGPA</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LSAT</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Age</td>
<td>-0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Summer admittee</td>
<td>-0.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>North region***</td>
<td>-0.31</td>
</tr>
</tbody>
</table>

*All models are significant at 99.9% (P > F is 0.001 or less).
**As compared to National University.
***As compared to Florida.

AL attendance had the strongest relationship to first-semester LGPA for the entering classes of Fall 2007 and Fall 2008. Moving from 0% AL attendance to 100% AL attendance, students in those entering classes were expected to raise their first-semester LGPA by almost three-fourths of a grade point (0.72 in Fall 2007 and 0.76 in Fall 2008). The expected increase for Fall 2009 students was 0.36 points. One reason for the decline may be that attendance at the sessions has substantially increased over the years. When attendance was relatively low, the advantage to an individual student in attending may have been enhanced due to lower class size.

Other unique results are seen for the Fall 2009 entering class. Students who were summer conditional admittees were predicted to have first-semester LGPAs 0.35 grade points above conventionally-admitted students. Yet summer conditional admittees, almost by definition, have lower entering predictors than conventionally-admitted students.89

89 For students entering Fall 2007, the mean LSAT and UGPA for regular admittees were 149 and 3.04; for summer admittees, 145 and 3.18. For students entering Fall 2008, the mean LSAT and UGPA for regular admittees were 150 and 2.99; for summer admittees, 144 and 2.89. For students entering Fall 2009, the mean LSAT and UGPA for regular admittees were 150 and 2.91; for summer admittees, 145 and 2.85. The effectiveness of the summer program is beyond this article’s scope, but active learning techniques are also employed in that program. See
Table 4B  
Multivariate Regression Results by Entering Class (Entire First Year);  
Outcome Variable is Cumulative First-Year LGPA

<table>
<thead>
<tr>
<th>Entering class</th>
<th>No.</th>
<th>R-squared*</th>
<th>Independent variable (only listed if significant at 95% or higher, unless noted)**</th>
<th>Statistics on independent variables</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coefficient</td>
<td>Stan. error</td>
</tr>
<tr>
<td>Fall 2007</td>
<td>184</td>
<td>0.33</td>
<td></td>
<td>AL attendance</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UGPA</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSAT</td>
<td>0.03</td>
</tr>
<tr>
<td>Fall 2008</td>
<td>188</td>
<td>0.26</td>
<td></td>
<td>AL attendance</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UGPA</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSAT</td>
<td>0.04</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Tier 3 college†</td>
<td>-0.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Master’s university‡</td>
<td>-0.28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Business major§</td>
<td>0.19</td>
</tr>
<tr>
<td>Fall 2009</td>
<td>206</td>
<td>0.30</td>
<td></td>
<td>AL attendance</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UGPA</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSAT</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Age</td>
<td>-0.01</td>
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<td></td>
<td></td>
<td></td>
<td>Summer</td>
<td>0.32</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>“Other” major‖</td>
<td>0.25</td>
</tr>
</tbody>
</table>

* All models are significant at minimum of 99.8% (P > F is 0.002 or less).
**The independent variables in this regression were: percent AL attendance for entire year; UGPA; LSAT; age; gender; ethnicity; whether summer alternate admitte e; college type; college tier; undergraduate major; degree type; number of practicum courses in year; number of female professors (non-LRW) in year.
† Not statistically significant.
‡ As compared to Tier 1 college.
§ As compared to National University.
‖ As compared to pre-law major.

We performed the same multiple regression (using percentage AL attendance for the full year) on each fall entering class alone. Again, as a student moves from 0% to 100% AL attendance, his or her cumulative first-year LGPA is predicted to increase by 0.69 points (Fall 2007 entering class), 0.51 points (Fall 2008 entering class), and 0.45 points (Fall 2009 entering class). These results are also significant at 99%.

D. Effect of AL Sessions on Retention

generally Practical Guide, supra note 2, for an overview of ASPs that include summer programs during the summer before the first year of law school.
The goal of St. Thomas’ AL program is to help all first-year students maximize their academic achievement. In other words, the primary target of the program is not so-called “at risk” students, although these students certainly can be and are helped.

Based on the results thus far, AL attendance should be expected to increase retention. We have already seen that a student’s AL attendance in the first semester increases, her first-semester LGPA is predicted to increase significantly – by almost half a grade point. At St. Thomas, students below a first-semester LGPA of 1.65 (slightly above a C-) are academically dismissed, and students between a 1.65 and 2.0 LGPA are placed on academic probation. At the end of the second semester, students must have a cumulative LGPA of at least 2.0 (a C) to remain in good academic standing.90

1. Academic dismissal or probation at end of first semester

We examined only those students who were either dismissed or placed on probation after the first semester to see whether AL attendance had a relationship to their academic standing. Figure 7 shows the difference in first-semester AL attendance rates for students in academic difficulty after the first semester.

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Students who were dismissed at the end of the first semester attended fewer first-semester ALI sessions (55%) than average (59%), but the difference was not significantly significant.\textsuperscript{91} Students who were placed on academic probation at the end of the first semester also attended fewer first-semester ALI sessions (45%) than average (59%), and here, the difference was significant at more than 99.9%.\textsuperscript{92}

We considered next how numerous factors -- a student’s UGPA, LSAT, age, gender, ethnicity, and first-semester AL attendance -- might bear on whether the student would be academically dismissed or put on probation after the first semester. First-semester AL attendance lowered the predicted odds that a student would be academically dismissed, but not by a statistically significant amount. The only factors that were statistically significant in lowering the odds that a student would be academically dismissed after the first semester were UGPA and LSAT.\textsuperscript{93}

However, first-semester AL attendance did significantly lower the predicted odds that a student would be placed on academic probation after the first semester, when holding all other factors (UGPA, LSAT, age, gender, and ethnicity) constant. UGPA and LSAT remained significant factors, as they increased, in lowering the predicted odds of first-semester probation. In addition, as a student’s age increases, the odds of first-semester academic probation also significantly increases, holding all other factors constant.\textsuperscript{94}

2. Academic dismissal or probation at end of second semester

Students’ cumulative LGPA declined an average of 0.03 grade points from the first semester to the second semester (for example, from a 2.50 to a 2.47). One reason for the decline may be that the students with the lowest LGPAs in the first semester were academically dismissed, and thus were not included in the computation of the mean cumulative LGPA for the second semester.

Does attending more ALI sessions the second semester increase a student’s cumulative LGPA from the first semester, and thus improve his chances of retention? There is a significant and positive relationship between second-semester AL attendance and a change in cumulative first-year LGPA. As a student moves from 0% to 100% attendance in second-semester ALI sessions, her cumulative LGPA is expected to increase 0.09 grade points from first to second semester (for example, from a 2.50 to a 2.59).\textsuperscript{95} At a 95% confidence level, this increase in

\textsuperscript{91} A one-sample t-test of means of first-semester AL attendance of 805 students was performed between students who ultimately were (45 students) and were not (760 students) academically dismissed at the semester’s end. The overall mean attendance was 58.8%; the mean attendance for the group that was academically dismissed was 55.2%; and the mean attendance for the group that was not academically dismissed was 59.0%. Neither difference from the overall mean was statistically significant.

\textsuperscript{92} A one-sample t-test of means of first-semester AL attendance of 760 students was performed between students who ultimately were (81 students) and were not (679 students) placed on academic probation at the semester’s end. The overall mean attendance was 58.8%; the mean attendance for the group that was put on academic probation was 45.0% (difference from overall mean significant at 99.9%); and the mean attendance for the group that was not put on academic probation was 60.1% (difference from overall mean significant at 96%).

\textsuperscript{93} See Appendix B, Table 1.

\textsuperscript{94} See Appendix B, Table 2.

\textsuperscript{95} A simple linear regression was performed of the percentage of second-semester ALI sessions attended (“alipercent2”) on the difference in a student’s cumulative LGPA between first and second semester. There were 651 students included in the regression, and the model was significant at 99.9%, although it explained only a small amount of the variance between students (R-squared = 0.0215). The coefficient of alipercent2 is 0.0896, its standard error is 0.237, t is 3.78, and P > |t| is less than 0.001.
cumulative LGPA could be as low as 0.04 or as high as 0.14 (for example, from 2.50 to as low as 2.54 or as high as 2.64).

Another way of looking at the question of whether second-semester AL attendance may improve retention at the end of the first year is through a comparison of the average second-semester AL attendance of the students on academic probation who were and were not academically dismissed at year’s end. Figure 8 shows the results.

There were sixty-six students in the database who were placed on academic probation at the end of the first semester; overall, this group attended an average of 43% of second-semester ALI sessions. Of the sixty-six, eighteen were not dismissed at year’s end, and those eighteen students attended 58% (which is significantly higher, at 99%, than the 43% mean) of second-semester ALI sessions. Of the remaining forty-eight students who were academically dismissed at year’s end, average second-semester AL attendance was 37%; this difference from the 43% mean, however, is not statistically significant.96

Next, we compared the differences in second-semester AL attendance rate for students in academic difficulty after the second semester. Figure 9 shows the differences.

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96 A one-sample t-test of means of second-semester AL attendance of students on academic probation after first semester was performed between students who ultimately were and were not academically dismissed at year’s end.
Surprisingly, students who were dismissed at the end of the first semester attended more second-semester ALI sessions (37%) than average (31%), but the difference was not statistically significant. Less surprisingly, students who were placed on academic probation at the end of the second semester attended fewer second-semester ALI sessions (26%) than average (31%), but this difference also was not statistically significant.

We considered next how numerous factors -- a student’s UGPA, LSAT, age, gender, ethnicity, and first-semester and second-semester AL attendance -- might bear on whether the student would be academically dismissed or put on probation after the second semester. The results here were, perhaps, counterintuitive. First-semestel AL attendance, as it increased, lowered the predicted odds that a student would be academically dismissed or put on probation after the second semester. The increases in LSAT, but not UGPA, also significantly lowered the odds of

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97 A one-sample t-test of means of second-semester AL attendance of 651 students was performed between students who ultimately were (48 students) and were not (603 students) academically dismissed at year’s end. The overall mean attendance was 31.4%; the mean attendance for the group that was academically dismissed was 36.9%; and the mean attendance for the group that was not academically dismissed was 31.0%. Neither difference from the overall mean was statistically significant.

98 A one-sample t-test of means of second-semester AL attendance of 603 students was performed between students who ultimately were (41 students) and were not (562 students) placed on academic probation at year’s end. The overall mean attendance was 31.4%; the mean attendance for the group that was put on academic probation was 26.4%; and the mean attendance for the group that was not put on academic probation was 31.2%. Neither difference from the overall mean was statistically significant.
academic dismissal at year’s end. But second-semester AL attendance, as it increased, dramatically increased the predicted odds that a student would be academically dismissed at the end of the second semester.99

First-semester AL attendance also lowered the predicted odds that a student would be placed on academic probation after the second semester, when holding all other factors (UGPA, LSAT, age, gender, and ethnicity) constant. Second-semester AL attendance, as it increased, increased (but not significantly) the predicted odds that a student would be placed on probation at the end of the second semester. Neither UGPA nor LSAT were significant factors, as they increased, in lowering the predicted odds of second-semester probation. But again, as a student’s age increases, the odds of second-semester academic probation also significantly increases, holding all other factors constant.100

Overall, it appears that first-semester but not second-semester AL attendance is significantly related to retention of academically-troubled students. Perhaps the skills learned in the first semester sessions are so essential that if a student fails to master them then, he has fallen too far behind to catch up. Perhaps we should run separate second-semester sessions for students in academic difficulty after the first semester. The matter is worthy of further study.

E. Effect of AL attendance on Grades in Individual First-Year Courses

Since the relationship of AL attendance to overall LGPA is positive, it comes as no surprise that AL attendance for individual doctrinal courses (Civil Procedure, Contracts, Property, and Torts) is also positively related to students’ grades in those course. Figure 10 shows graphically the differences in mean grades depending on students’ level of attendance in ALI sessions for particular courses in the first semester.

99 See Appendix B, Table 3.
100 See Appendix B, Table 4.
For all four doctrinal courses in the first semester – all subject to a mandatory grading curve – the students in the top attendance group (those who attended more than 66% of the ALI sessions for that particular course) earned a mean grade in the course well above the average grade for the course. Conversely, the students in the bottom attendance group (those who attended less than 33% of the ALI sessions for that particular course) earned a mean grade in the course well below the average grade for the course.

For example, the mean grade in Civil Procedure I for all students in the database was 2.42 (roughly a C+). The mean Civ Pro I grade for students in the bottom two attendance groups was below average: 2.25 (for the group attending less than 33% of the Civ Pro I sessions) and 2.29 (for the group attending between 33% and 66% of the Civ Pro I sessions). On the other hand, the mean Civ Pro I grade for students in the top attendance group (those attending more than 66% of the Civ Pro I sessions) was 2.55. Each of these differences from the overall mean by group is statistically significant at 98% or more.101

In Contracts I, the mean grade for all students in the database was 2.37. The mean Contracts I grade for students the bottom two attendance groups was 2.20 (for the group attending less than 33% of the Contracts I sessions) and 2.29 (for the group attending between 33% and 66% of the Contracts I sessions). The difference for the bottom attendance group is

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101 Results for the t-tests performed in the four first-semester courses are in Appendix Tables 5A, 5B, 5C, and 5D.
significant at 99%; the difference for the middle attendance group is not significant. The mean Contracts I grade for students in the top attendance group (those attending more than 66% of the Contracts I sessions) was 2.49. This upward difference from the overall mean group is statistically significant at 99%.

Similarly in Property and Torts, the students in the bottom two attendance groups earned mean grades below the overall mean, and the students in the top attendance groups earned a mean grade above the overall mean. The difference between the means by attendance group and the overall mean was significant for all three groups in Property. For Torts, the difference was significant for the top group and the bottom group.

Figure 11 shows graphically the differences in mean grades depending on students’ level of attendance in ALI sessions for particular courses in the second semester.

<table>
<thead>
<tr>
<th>AL Attendance Group</th>
<th>Civ Pro II Mean Grade</th>
<th>Contracts II Mean Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;66%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>33-66%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;33%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Difference from overall course mean is significant at 96% of more. (Horizontal lines represent mean grade in course.)

In the second semester, the top two AL attendance groups in each course earned mean grades above the overall average, but only the increase in mean shown by the top attendance group was statistically significant. Again in the second semester, the bottom attendance group earned mean grades below the overall average, and the decrease in mean was statistically significant.102

102 Results for the t-tests performed in the second-semester courses are in Appendix Tables 6A, 6B, 6C, and 6D.
We also performed simple linear regressions in which the grade in each doctrinal course was the outcome variable and the percentage of ALI sessions for that particular course during that semester was the only independent variable. In all eight cases – each of the four doctrinal courses for each semester – increased AL attendance was associated with an increase in the grade for that course, at a significance of 98% or higher.\(^{103}\)

F. Does the Positive Relationship of AL attendance to LGPA Continue Over Time?

The theory of AL postulates that as the students reflect on their own learning process, they acquire learning skills that help them become independent learners. In addition, they gradually develop a framework within which to place new information. In theory, then, the skills developed through AL should persist over time.

For our Fall 2007 entering class, we have three years of cumulative LGPAs for those students who remained at St. Thomas. We performed a simple linear regression of these students’ first-year AL attendance on their third-year cumulative LGPA.\(^{104}\) Figure 12 graphs a fitted regression line over a scatterplot of the data.

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\(^{103}\) The results of these regressions are shown in Appendix Table 7.

\(^{104}\) N = 138. The R-squared of this model is 0.1254. P > F is less than 0.0001.
As can be seen from the upward-sloping regression line, the expected third-year cumulative LGPA for this class is still expected to increase as first-year AL attendance increases. Moving from 0% to 100% AL attendance in the first year, third-year cumulative LGPA is expected to increase by 0.58 grade points. At a 95% confidence level, this increase could be as low as 0.32 or as high as 0.84.

We also performed a multiple regression on the cumulative third-year LGPA, using as independent variables the percentage of first-year ALI sessions attended, UGPA, LSAT, age, gender, ethnicity, college type, and college tier. Moving from 0% to 100% AL attendance in the first year, third-year cumulative LGPA is still expected to increase by 0.59 grade points, holding all other variables constant at their mean. At a 95% confidence level, this increase could be as low as 0.32 or as high as 0.86.

LSAT and UGPA continue to be significant predictors of third-year cumulative LGPA. No other variable used in the regression had a statistically significant relationship to third-year LGPA.

V. CONCLUSION

Inferences from our findings should be made, if at all, with caution. This is a study of one law school over three years. It was not possible to create a randomized control group of students who did not participate in the AL program to compare to the students who did participate. Nor did we have a randomized control group of students who received academic assistance in some form other than active learning; in other words, attendance at any type of academic support sessions, not just AL sessions, may be positively correlated with LGPA. Moreover, there are undoubtedly numerous factors contributing to a student’s grades that we could not quantify here.

We did, however, include every quantifiable factor for which we had records – LSAT, UGPA, gender, ethnicity, age, undergraduate major, undergraduate degree, college type, college tier, and summer alternate admittee status, among others. By each statistical method used, we found that a student’s attendance at AL sessions was positively and significantly related to first-year grades. Moreover, it appears that this positive relationship continued into the second and third years.

What is the AL program doing right? In accord with recent studies of legal education and ASPs, the AL program offers several advantages. First, the ALIs are students one year senior to the incoming class. They are carefully selected for both their teaching aptitude and for their successful academic performance in their first year, usually with the very professor they now join as an ALI. This strengthens their credibility with the incoming students. Second, the frequency of the sessions solidifies the students’ gains. Third, the less formal atmosphere and usually smaller class size allows for “AL” exercises – such as worksheets, short essay questions, and practice exams – that the students complete individually or in groups and on which they receive immediate or prompt feedback. Fourth, a primary goal of the sessions is to teach the

105 Coefficient for percentage-ALI-attendance = 0.5783; standard error = 0.131; t = 4.42; P>|t| is less than 0.001.
106 N = 125. The R-squared of this model is 0.3072. P > F = 0.0001.
107 Coefficient for percentage-ALI-attendance = 0.5892; standard error = 0.136; t = 4.33; P>|t| is less than 0.001.
108 Coefficient for UGPA = 0.2403; standard error = 0.086; t = 2.79; P>|t| = 0.006. Coefficient for LSAT = 0.0239; standard error = 0.009; t = 2.57; P>|t| = 0.012.
students independent studying and learning skills – but tied to a particular doctrinal subject. For example, students learn to read statutes in general by learning how to read the Federal Rules of Civil Procedure. Fifth, the ALIs are under continuous supervision by the professor, the academic support department, and the ALI “team leader.” If anything goes awry, it is quickly noticed and corrected.

Law schools in tiers higher than St. Thomas might consider most of St. Thomas’ student body “at risk” academically. The ALI program appears to be significantly helping our students to improve their academic performance throughout their law school careers.
Appendix A
Examples of AL Exercise Prepared By St. Thomas ALI

Lesson Plan
Property I - Fall 2010
ALI Session #1

- Materials needed:
  - Computer for powerpoint presentation
  - 60 copies of the marked up version of *Hannah v. Peel*
  - 60 copies of Finders Flowchart
  - 60 copies of finders powerpoint printout
  - 60 copies of handout 1
  - 60 copies of handout 1 answers

- 11:45 – Introduction – About myself, how I felt as a 1L in the third week, what I found helped me do well in law school, and about the ALI program. Explain the goals of the session (to get a feel for critical/active reading and outlining skills). Explain that the remainder of the sessions will be much more interactive but considering the amount of material we have to work with, the session will be more informative.

- 11:50 – Distribute the *Hannah v. Peel* case, and begin powerpoint presentation on Active Reading. I will spend less time on the active reading part of the powerpoint, as the students cannot really actively participate and I don’t want to lecture too much.

- 12:05 – Continue on with Lecture on Outlining. This will be the focus of the session.

- 12:15 – Distribute the finders flowchart, finders powerpoint printout, and handout #1.

- 12:35 – Discuss handout #1 and discuss what else (besides the answer choices) should have been included in the outline.

- 12:45 – Finish ALI Session #1. Distribute the answers for handout #1.
Property I - Fall 2010
ALI Session #1

- The mystery to success in law school
- Developing a strategy
- Developing a schema (have a plan) for:
  - Reading – We will elaborate on this today
  - Thinking – Ask questions, hypothesize, predict
  - Talking – Finding study buddies and bouncing ideas off others
  - Writing – Taking notes, reflection, outlining, going beyond the computer
  - Applying – Developing and answering hypos, practice essay writing and creating strategies for Multiple Choice questions

Property I - Fall 2010
ALI Session #1

- Law school - reading and thinking like an attorney
- Paying attention to cues
  - Start with table of contents
- Additional CUES to aid in active reading
  - Cues in the cases – ex. date, length, focus issues
  - Cues from your Professor
    - What does Dean Singer emphasize in class?
  - Cues from your Peers
    - Your colleagues may catch things that you missed
GOAL – become an expert reader

Novice v. Expert Readers

- Novice readers
  - Use default strategies (highlighting)
  - Do not ask questions as they read
  - Do not place the case in a social/historical context
  - Do not follow the cues well
  - Do not read with a purpose

- Expert readers
  - Know why they are reading
  - Visualize and make predictions
  - Ask questions and summarize in their minds as they read
  - Check to make sure their reading makes sense and use first strategies when confused
  - Reflect and ponder

Intro to OUTLINING!!
What is outlining?

Performance Skills / Points of Emphasis

Flowcharts/graphic organizers

- One way to learn to compartmentalize the materials (develop a schema) is by creating flowcharts or graphics.
- Flowcharts are useful because they aid in learning how to group the material into categories, sub-categories, issues, sub-issues, etc.
Instructor’s Evaluation:

Overall, the first session went very well. It started with an introduction of myself, telling them about my experience at law school, and re-emphasizing some pointers on the first year of law school. After the introduction, I started into a brief discussion on the importance of critical reading. I did not just read the slides (as I had in the past somewhat). Instead, I tried to explain the theories in the slides (schema and how we approach reading) in laymen’s terms. I handed out a case we had done the previous week in class with my notes and mark ups all over the place. The students did not ask very many questions here – it was mostly lecture. I do not think the students connected with the critical reading aspect of the session as much as the outlining portion, possibly because many students are satisfied with their reading skills at this point (or are not reading critically enough/don’t know they aren’t reading critically enough). In hindsight, I should have lengthened the session and provided some sort of short critical reading interactive exercise.

Following the short 10-minute spiel on critical reading, I advanced into an introduction to outlining. I discussed the purpose of outlining: organizing the data in order to see the purpose of each case, the patterns of law, and in order to retain the information in a useful way when approaching exam time. I gave them some tips on the professor’s class using examples from what had happened in the previous class. This gave me an opportunity to interact with the students and have them engage in the session, by providing feedback from what they remember the professor discussed in class. The flowchart also seemed to provide a helpful tool for the students to organize the information into a way that they could memorize it (that seemed to be the feedback). I think the outlining handout worked well as a tool for discussion, although I wish it would have been longer and more challenging (as all of the answers were pretty much available in the flowchart). The students were pretty shy but the handout at least opened up the floor for questions and discussion.

Captain’s Evaluation:

This session culminated round 1 of Section One’s ALI Fall semester program. In my opinion, the instructor did a great job of engaging the class, while simultaneously establishing control. By the end of the session, it seemed the students had gained a better understanding of critical reading and outlining.

Specifically, the instructor did an excellent job of using class examples to reiterate the importance of how critical reading and class participation contribute to making thorough outlines. The instructor was able to effectively use class examples because she has been attending each classroom session with the section. This is a tremendous benefit because the ALI knows exactly what had happened in class and where the students succeeded and struggled. Additionally, the students seem to have faith in the ALI because they are used to seeing her two times a week, and she has been doing a great job of engaging them outside of class. Consequently, her session went very smoothly, and I believe she met her goals.
Appendix B
Detailed Statistical Results

Appendix Table 1
Effects of UGPA, LSAT, ALI Attendance, Age, Gender, and Ethnicity on Academic Dismissal After First Semester

|                | Odds Ratio | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|----------------|------------|-----------|-------|-------|----------------------|
| Dismissal      |            |           |       |       |                      |
| UGPA           | .2794453   | .1187782  | -3.00 | 0.003*| .1214769  .6428358    |
| LSAT           | .891122    | .050605   | -2.03 | 0.042**| .7972586  .9960363    |
| ALIpercent1    | .6085853   | .3428609  | -0.88 | 0.378  | .201733  1.835971    |
| age            | 1.041404   | .0286806  | 1.47  | 0.141  | .9866813 1.099162    |
| gender         | 1.247911   | .4316583  | 0.64  | 0.522  | .6335031 2.458205    |
| Hispanic       | .5981439   | .2390144  | -1.29 | 0.198  | .2733198 1.309002    |
| black          | .9433932   | .5097437  | 0.11  | 0.914  | .3271621 2.720336    |
| other race     | 1.002978   | .7750247  | 0.00  | 0.997  | .2205707 4.560735    |

* Significant at 99%.
** Significant at 95%.

Appendix Table 2
Effects of UGPA, LSAT, ALI Attendance, Age, Gender, and Ethnicity on Academic Probation After First Semester

|                | Odds Ratio | Std. Err. | z     | P>|z|   | [95% Conf. Interval] |
|----------------|------------|-----------|-------|-------|----------------------|
| Probation      |            |           |       |       |                      |
| UGPA           | .4460409   | .1492328  | -2.41 | 0.016*| .2315189  .8593357    |
| LSAT           | .8198987   | .0355086  | -4.59 | 0.000**| .753175  .8925334    |
| ALIpercent1    | .159991    | .0696654  | -4.21 | 0.000**| .0681481  .37561     |
| age            | 1.06863    | .0248391  | 2.86  | 0.004**| 1.021039 1.11844     |
| gender         | .9420554   | .2550359  | -0.22 | 0.825  | .554162  1.60146     |
| Hispanic       | 1.411851   | .403902   | 1.21  | 0.228  | .805893  2.473434    |
| black          | 1.737692   | .7193101  | 1.33  | 0.182  | .7720075 3.911326    |
| other race     | 1.324673   | .8668202  | 0.43  | 0.667  | .3673771 4.776453    |

* Significant at 98%.
** Significant at > 99%.
## Appendix Table 3
Effects of UGPA, LSAT, ALI Attendance, Age, Gender, and Ethnicity on Academic Dismissal After Second Semester

|              | Odds Ratio | Std. Err. | z    | P>|z| | [95% Conf. Interval] |
|--------------|------------|-----------|------|-----|-----------------------|
| Dismissal    |            |           |      |     |                       |
| UGPA         | .548799    | .2437906  | -1.35| 0.177| .2297671 - 1.310807   |
| LSAT         | .835569    | .0461147  | -3.25| 0.001*| .7499032 - .9310223  |
| ALIpercent1  | .0380478   | .025931   | -4.80| 0.000*| .0100047 - .1446956  |
| ALIpercent2  | 12.2538    | 7.865567  | 3.90 | 0.000*| 3.482532 - 43.11738  |
| age          | 1.007179   | .0394143  | 0.18 | 0.855 | .932817 - 1.08747    |
| gender       | .7984182   | .2758386  | -0.65| 0.515 | .4056544 - 1.571465  |
| Hispanic     | 1.183864   | .4478295  | 0.45 | 0.655 | .5640417 - 2.484806  |
| black        | 2.405869   | 1.262966  | 1.67 | 0.094 | .859868 - 6.731505   |
| other race   | 2.003476   | 1.366525  | 1.02 | 0.308 | .5262586 - 7.627271  |

* Significant at 99.9%.

## Appendix Table 4
Effects of UGPA, LSAT, ALI Attendance, Age, Gender, and Ethnicity on Academic Probation After Second Semester

|              | Odds Ratio | Std. Err. | z    | P>|z| | [95% Conf. Interval] |
|--------------|------------|-----------|------|-----|-----------------------|
| Probation    |            |           |      |     |                       |
| UGPA         | .6628733   | .3086781  | -0.88| 0.377| .2661057 - 1.651227   |
| LSAT         | .9050839   | .0517575  | -1.74| 0.081| .8091194 - 1.01243   |
| ALIpercent1  | .1944866   | .1393345  | -2.29| 0.022*| .0477607 - .7919707  |
| ALIpercent2  | 1.110289   | .8327982  | 0.14 | 0.889 | .2552537 - 4.829473  |
| age          | 1.093742   | .0325541  | 3.01 | 0.003*| 1.031762 - 1.159444  |
| gender       | 1.126396   | .4164448  | 0.32 | 0.748 | .5457448 - 2.324837  |
| Hispanic     | .7928058   | .322349   | -0.37| 0.711 | .3571722 - 1.758882  |
| black        | 1.673078   | .9455817  | 0.91 | 0.362 | .5526352 - 5.065169  |
| other race   | 1.463899   | 1.155954  | 0.48 | 0.629 | .3114352 - 6.881045  |

*Significant at 98% or higher.
### Appendix Table 5A
Comparison of Overall Mean Grade for Civil Procedure I (2.42) and Mean Civ Pro I Grade of Groups Based on ALI Attendance (first semester)

<table>
<thead>
<tr>
<th>Group based on attendance at ALI sessions for Civil Procedure</th>
<th>Number of students</th>
<th>t-value</th>
<th>Mean grade in Civil Procedure I</th>
<th>95% confidence interval of Civ Pro I mean grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Attended less than 33% of sessions</td>
<td>188</td>
<td>-3.3753</td>
<td>2.25*</td>
<td>2.15 - 2.35</td>
</tr>
<tr>
<td>Group 2: Attended between 33% and 66% of sessions</td>
<td>186</td>
<td>-2.2619</td>
<td>2.29**</td>
<td>2.18 - 2.41</td>
</tr>
<tr>
<td>Group 3: Attended more than 66% of sessions</td>
<td>430</td>
<td>3.5760</td>
<td>2.55*</td>
<td>2.48 - 2.63</td>
</tr>
</tbody>
</table>

N = 804
*Significant at 99.9%.
**Significant at 98%.

### Appendix Table 5B
Comparison of Overall Mean Grade for Contracts I (2.37) and Mean Contracts I Grade of Groups Based on ALI Attendance (first semester)

<table>
<thead>
<tr>
<th>Group based on attendance at ALI sessions for Contracts</th>
<th>Number of students</th>
<th>t-value</th>
<th>Mean grade in Contracts I</th>
<th>95% confidence interval of Contracts I mean grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Attended less than 33% of sessions</td>
<td>185</td>
<td>-3.22</td>
<td>2.20*</td>
<td>2.09 - 2.30</td>
</tr>
<tr>
<td>Group 2: Attended between 33% and 66% of sessions</td>
<td>244</td>
<td>-0.99</td>
<td>2.32</td>
<td>2.23 - 2.41</td>
</tr>
<tr>
<td>Group 3: Attended more than 66% of sessions</td>
<td>374</td>
<td>2.67</td>
<td>2.49*</td>
<td>2.40 - 2.57</td>
</tr>
</tbody>
</table>

N = 803
* Significant at 99%.

### Appendix Table 5C
Comparison of Overall Mean Grade for Property I (2.33) and Mean Property I Grade of Groups Based on ALI Attendance (first semester)

<table>
<thead>
<tr>
<th>Group based on attendance at ALI sessions for Property</th>
<th>Number of students</th>
<th>t-value</th>
<th>Mean grade in Property I</th>
<th>95% confidence interval of Property I mean grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Attended less than 33% of sessions</td>
<td>160</td>
<td>-3.11</td>
<td>2.13*</td>
<td>2.01 - 2.26</td>
</tr>
<tr>
<td>Group 2: Attended between 33% and 66% of sessions</td>
<td>227</td>
<td>-1.87</td>
<td>2.23**</td>
<td>2.13 - 2.33</td>
</tr>
<tr>
<td>Group 3: Attended more than 66% of sessions</td>
<td>417</td>
<td>3.06</td>
<td>2.45*</td>
<td>2.37 - 2.53</td>
</tr>
</tbody>
</table>

N = 804
* Significant at 99%.
* Significant at 97%.
Appendix Table 5D
Comparison of Overall Mean Grade for Torts I (2.32) and Mean Torts I Grade of Groups Based on ALI Attendance (first semester)

<table>
<thead>
<tr>
<th>Group based on attendance at ALI sessions for Torts I</th>
<th>Number of students</th>
<th>t-value</th>
<th>Mean grade in Torts I</th>
<th>95% confidence interval of Torts I mean grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Attended less than 33% of sessions</td>
<td>227</td>
<td>-2.60</td>
<td>2.19*</td>
<td>2.08 - 2.29</td>
</tr>
<tr>
<td>Group 2: Attended between 33% and 66% of sessions</td>
<td>227</td>
<td>-0.88</td>
<td>2.28</td>
<td>2.18 - 2.38</td>
</tr>
<tr>
<td>Group 3: Attended more than 66% of sessions</td>
<td>349</td>
<td>2.70</td>
<td>2.44*</td>
<td>2.35 - 2.52</td>
</tr>
</tbody>
</table>

N = 803
* Significant at 99%.

Appendix Table 6A
Comparison of Overall Mean Grade for Civil Procedure II (2.39) and Mean Civ Pro II Grade of Groups Based on ALI Attendance (second semester)

<table>
<thead>
<tr>
<th>Group based on attendance at ALI sessions for Civil Procedure II</th>
<th>Number of students</th>
<th>t-value</th>
<th>Mean grade in Civil Procedure II</th>
<th>95% confidence interval of Civ Pro II mean grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Attended less than 33% of sessions</td>
<td>346</td>
<td>-3.9</td>
<td>2.25*</td>
<td>2.17 - 2.32</td>
</tr>
<tr>
<td>Group 2: Attended between 33% and 66% of sessions</td>
<td>135</td>
<td>1.33</td>
<td>2.48</td>
<td>2.35 - 2.61</td>
</tr>
<tr>
<td>Group 3: Attended more than 66% of sessions</td>
<td>159</td>
<td>3.59</td>
<td>2.64*</td>
<td>2.50 - 2.77</td>
</tr>
</tbody>
</table>

N = 640
* Significant at 99%.

Appendix Table 6B
Comparison of Overall Mean Grade for Contracts II (2.42) and Mean Contracts II Grade of Groups Based on ALI Attendance (second semester)

<table>
<thead>
<tr>
<th>Group based on attendance at ALI sessions for Contracts II</th>
<th>Number of students</th>
<th>t-value</th>
<th>Mean grade in Contracts II</th>
<th>95% confidence interval of Contracts II mean grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Attended less than 33% of sessions</td>
<td>382</td>
<td>-2.31</td>
<td>2.33*</td>
<td>2.26 - 2.41</td>
</tr>
<tr>
<td>Group 2: Attended between 33% and 66% of sessions</td>
<td>127</td>
<td>0.97</td>
<td>2.48</td>
<td>2.35 - 2.62</td>
</tr>
<tr>
<td>Group 3: Attended more than 66% of sessions</td>
<td>134</td>
<td>2.63</td>
<td>2.60*</td>
<td>2.46 - 2.74</td>
</tr>
</tbody>
</table>

N = 643
* Significant at 99%.
### Appendix Table 6C
**Comparison of Overall Mean Grade for Property II (2.29)**
and Mean Property II Grade of Groups Based on ALI Attendance (second semester)

<table>
<thead>
<tr>
<th>Group based on attendance at ALI sessions for Property II</th>
<th>Number of students</th>
<th>t-value</th>
<th>Mean grade in Property II</th>
<th>95% confidence interval of Property II mean grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1:</strong> Attended less than 33% of sessions</td>
<td>360</td>
<td>-2.37</td>
<td>2.19*</td>
<td>2.12 to 2.27</td>
</tr>
<tr>
<td><strong>Group 2:</strong> Attended between 33% and 66% of sessions</td>
<td>132</td>
<td>1.70</td>
<td>2.42</td>
<td>2.27 to 2.57</td>
</tr>
<tr>
<td><strong>Group 3:</strong> Attended more than 66% of sessions</td>
<td>93</td>
<td>2.11</td>
<td>2.47**</td>
<td>2.30 to 2.64</td>
</tr>
</tbody>
</table>

N = 585. One section of one year not included because professor conducted a practicum that replaced ALI.

* Significant at 99%.

** Significant at 98%.

### Appendix Table 6D
**Comparison of Overall Mean Grade for Torts II (2.36)**
and Mean Torts II Grade of Groups Based on ALI Attendance (second semester)

<table>
<thead>
<tr>
<th>Group based on attendance at ALI sessions for Torts II</th>
<th>Number of students (N = 643)</th>
<th>t-value</th>
<th>Mean grade in Torts II</th>
<th>95% confidence interval of Torts II mean grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1:</strong> Attended less than 33% of sessions</td>
<td>400</td>
<td>-1.78</td>
<td>2.30*</td>
<td>2.23 to 2.37</td>
</tr>
<tr>
<td><strong>Group 2:</strong> Attended between 33% and 66% of sessions</td>
<td>109</td>
<td>0.47</td>
<td>2.39</td>
<td>2.26 to 2.53</td>
</tr>
<tr>
<td><strong>Group 3:</strong> Attended more than 66% of sessions</td>
<td>134</td>
<td>2.22</td>
<td>2.52**</td>
<td>2.38 to 2.66</td>
</tr>
</tbody>
</table>

* Significant at 96%.

** Significant at 99%.

### Appendix Table 9
**Simple Linear Regressions of ALI Attendance for Doctrinal Courses**
on Grades in Each Course

| Course       | No. of students | Coeff. | Std.Err. | t     | P>|t| | 95% conf. int. for coeff. | Model fit                          |
|--------------|-----------------|--------|----------|-------|------|---------------------------|-----------------------------------|
| Civ Pro I    | 804             | 0.39   | 0.08     | 5.20  | <0.001 | 0.25 to 0.54 | Prob>F=0.0001 R²=0.0311          |
| Contracts I  | 803             | 0.36   | 0.08     | 4.48  | <0.001 | 0.20 to 0.52 | Prob>F=0.0001 R²=0.0239          |
| Property I   | 804             | 0.39   | 0.09     | 4.54  | <0.001 | 0.22 to 0.56 | Prob>F=0.0001 R²=0.0253          |
| Torts I      | 803             | 0.36   | 0.08     | 4.43  | <0.001 | 0.20 to 0.53 | Prob>F=0.0001 R²=0.0245          |
| Civ Pro II   | 640             | 0.43   | 0.09     | 4.97  | <0.001 | 0.26 to 0.59 | Prob>F=0.0001 R²=0.0419          |
| Contracts II | 643             | 0.32   | 0.09     | 3.64  | <0.001 | 0.15 to 0.49 | Prob>F=0.0003 R²=0.0212          |
| Property II  | 585*            | 0.31   | 0.10     | 3.02  | 0.003  | 0.11 to 0.50 | Prob>F=0.0027 R²=0.0154          |
| Torts II     | 643             | 0.28   | 0.09     | 3.14  | 0.002  | 0.10 to 0.45 | Prob>F=0.0018                   |
|       |       |       |       |       |       | $R^2=0.0171$ \\

*One section for one semester omitted, as no reliable ALI attendance records were kept.*